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Descriptions of Australian MICRO-LEPIDOPTERA.

By E. MEYRICK, Esq., B.A.

I CRAMBITES.

It is somewhat surprising that no progress should yet have been made towards the knowledge of *Micro-Lepidoptera* in a country which so abounds with the groups included under that term as Australia does. In general, the small size and delicate nature of the specimens preclude them from being commonly sent home to England by travelling collectors; but they offer a wide field for the study of resident entomologists. According to the very imperfect data at present possessed, I estimate the total number of species occurring on the Australian continent to be fully 10,000, as they much exceed the larger *Lepidoptera* here in number and variety. It is to be hoped, therefore, that, when once a start has been made, entomologists will begin to take some interest in the subject; and it may not be out of place to state that I shall always be ready to determine to the best of my ability any species that may be entrusted to my care, and that it would be of great interest to receive collections even of the commoner kinds from various parts of the country.

A certain number of descriptions of Australian *Micros* were included by Walker in his British Museum Catalogues; these names I have of course adopted when recognisable, but the descriptions are commonly very incomplete, the determination of

genera utterly unreliable and frequently erroneous, and the original specimens often so scanty and mutilated as to be quite unfit for description; whilst others, even the most conspicuous species, are described under several different names. Besides these, there are only a very few scattered descriptions by Zeller, Newman, &c.

Of the species hereafter described, some of the *Crambidae* have been named both by Zeller and Walker, since Zeller regarded Walker's descriptions as generally unidentifiable; the *Crambi* are, however, generally recognisable, and his names should, therefore, be adopted. Walker has also described certain Australian insects as belonging to various genera in the *Phycidæ*; but I can certify from inspection of the types that hardly any, or perhaps none, are true *Phycidæ*, but *Pyrales*, *Deltoides*, and even small *Noctuae*.

With reference to the localities and dates here appended to the species, it should be observed that, although correct so far as they go, they must not be considered as necessarily at all completely expressing the facts, on account of the very limited data accessible at present.

CHILONIDÆ.

SCHOENOBIVS *Dup.*

Ocelli distinct. Tongue short. Antennæ setaceous, in ♂ longer, ciliated, in ♀ very short. Labial palpi very long, straight, attenuated. Maxillary palpi triangular, appressed to labial palpi. Wings elongate, apex of hind wings reaching beyond anal angle of fore wings; in ♀ fore wings narrower and more acute than in ♂. Anal tuft of ♀ dense, woolly.

Schoen. imparellus n. sp.

♂ $9\frac{1}{2}''$ — $12\frac{1}{2}''$. Head brownish-ochreous. Labial palpi more than twice as long as head, from brownish-ochreous to dark-fuscous. Antennæ brownish-ochreous or dark-fuscous, strongly ciliated. Thorax brownish-ochreous to blackish-brown. Abdomen pale greyish-ochreous, sometimes suffused with fuscous, whitish at base. Anterior legs dark fuscous; middle and posterior legs

whitish or whitish-ochreous. Fore wings tolerably broad, moderately dilated, hind margin strongly rounded beneath; varying from brownish-ochreous to dark fuscous, darkest along costa; markings very variable or obsolete; generally a small dark fuscous or blackish discal spot at two-thirds; sometimes another obliquely above it near costa, and a third obliquely below it on fold; in the most distinctly-marked specimens there are two transverse cloudy blackish-fuscous lines, the first from two-fifths of costa to two-fifths of inner margin, strongly angulated outwards above middle; the second rising from costa before apex, curving round and running to the median discal spot, thence continued to the inner margin parallel to the first; these lines are generally obsolete or absent; a row of blackish spots on hind margin; cilia greyish-ochreous. Hind wings pure white, towards apex more or less suffused with smoky fuscous; cilia white, smoky towards apex of wing.

♀ 14"—17". Head, palpi, antennæ, thorax, abdomen, and legs white; palpi little longer than head; anal tuft whitish-ochreous; posterior tarsi externally fuscous-grey. Fore wings elongate, tolerably broad, hind margin nearly straight, obliquely rounded beneath; satiny-white, sometimes more or less strongly suffused throughout with whitish-ochreous; cilia white. Hind wings and cilia pure satiny-white.

Extremely variable; the ♂ somewhat resembling *gigantellus* ♂, but darker, the ♀ very distinct.

Very common at Parramatta in February and March on the river, the ♀ resting motionless on rushes, the ♂ more active; both come freely to light. The larva feeds in the cylindrical stem-like leaves of *Juncus prismatocarpus*, growing in the water.

CHILO Zk.

Ocelli present. Tongue short. Antennæ setaceous, pubescent, in ♀ hardly shorter than in ♂. Labial palpi very long, straight, porrected, attenuated. Maxillary palpi triangular, appressed. Wings elongate, apex of hind wings reaching beyond anal angle of fore wings. Hind wings with a basal pecten. Abdomen in ♂ somewhat tufted, in ♀ compressed-conical, with apical scales obliquely truncate.

Chil. parramattellus n. sp.

♂ 9"—14". Head white. Palpi whitish-ochreous, mixed with greyish-fuscos. Antennæ ochreous-whitish. Thorax ochreous-whitish, sometimes thinly sprinkled with fuscous. Abdomen white, sometimes tinged with ochreous-grey, anal tuft pale ochreous-grey. Legs whitish, posterior tarsi sometimes with dark grey rings. Fore wings moderately broad, costa nearly straight, apex tolerably acute, hind margin nearly straight, slightly oblique; whitish-ochreous, more or less densely irrorated with fuscous-grey in variable intensity; extreme costal edge whitish, only distinct in dark specimens; a dark fuscous discal dot slightly beyond middle of wing, very much nearer to costa than to inner margin; sometimes on the whitish costal margin are indications of the commencement of transverse lines at one-third and two-thirds, but they are imperceptible on the disc; cilia whitish-ochreous to ochreous-grey. Hind wings white, with a dark grey marginal line, sometimes suffused with greyish posteriorly; cilia whitish-grey, white at base.

togrammellus n. sp. ♀ 10"—12". Head whitish. Palpi whitish-ochreous, mixed with greyish and dark fuscous scales. Antennæ whitish. Thorax whitish-ochreous, sometimes ochreous-brown on sides. Abdomen white, sometimes partially tinged with ochreous; ovipositor short, triangular. Anterior legs whitish; middle and posterior legs pale greyish-ochreous. Fore wings much narrower than in ♂, apex more sharply acute, hind margin straighter and more oblique; whitish-ochreous, the veins neatly outlined on each side with darker-ochreous; a small black discal dot beyond middle of wing, nearer to costa than to inner margin; a hind-marginal row of clear black dots; cilia whitish, with two grey parting-lines. Hind wings clear white; cilia white.

Apparently allied to the South American species *C. neuricellus* Z. and *obliteratellus* Z.

Common at Parramatta along the river in February and March, especially at light.

CRAMBIDÆ.

PRIONOPHORA *n.g.**ad Geometras pertinet.**f. vol. IV, 209.*

Forehead with overhanging projection of scales. Ocelli distinct, behind antennæ. Tongue moderate. Antennæ moderate, in ♂ ciliated. Labial palpi moderately long, rather shorter than thorax, porrected, attenuated. Maxillary palpi absent. Forewings oblong, apex projecting, acute, hindmargin strongly concave beneath apex, dentate throughout. Hindwings with basal pecten, apex not reaching anal angle of forewings, hindmargin subdentate, with a deeper indentation a little below apex; clothed with long hair-scales towards base. Legs short. Abdomen moderate. Forewings with 12 veins; 8 and 9 stalked, rising out of 7. Hindwings with 8 veins; cell open posteriorly.

Readily distinguished amongst allied genera by the absence of maxillary palpi, the peculiarly produced apex of forewings, and the hair-scales towards base of hindwings.

. *Prion. ruptella* Wkr. Cat. 173 (*Crambus*).

11"—14". Head light ochreous, posteriorly whitish, with a few blackish scales, sometimes forming a central blackish line. Palpi whitish-ochreous, sprinkled with blackish scales, beneath white at base. Antennæ pale ochreous. Thorax pale ochreous, sprinkled with blackish scales, and with five longitudinal rather irregular black lines, with a short crest in front and another behind. Abdomen and legs pale ochreous. Forewings moderately broad, slightly dilated; pale ochreous faintly tinged with pale pinkish-brown; a slender blackish subcostal streak suffused with pinkish-brown, from base of costa to beyond middle, leaving a pale costal streak; a straight rather broader fuscous streak, mixed with blackish, from base to costa immediately before apex, strongly but irregularly margined beneath with black; from posterior half of its upper edge this sends three slender dark fuscous lines to costa, separated by whitish spaces; from $\frac{1}{3}$ and $\frac{2}{3}$ of its lower margin it sends two slender dark fuscous streaks to hindmargin; except at junction of these, it is margined beneath with an irregular, rather indistinct, silvery-white streak; the median vein and its branches marked out with strong dark fuscous lines;

from the fourth branch near its base rises an irregular black streak running a little below the main median vein, meeting its extremity on hindmargin, margined beneath by a broad silvery-white streak, interrupted where it crosses the second and third branches; the basal part of the median vein and half the fifth branch is margined beneath by a narrower silvery-white streak ending in some black scales; between the second and fourth branches are several irregular spots of black scales; a blackish line from near base to anal angle; a blackish spot almost on inner margin near base, sending a cloudy blackish streak towards hindmargin; a blackish line along posterior half of inner margin; a row of irregular blackish spots before hindmargin between the veins; cilia whitish, partially tinged with pale pinkish-brown; with a dark fuscous spot at apex, and intersected at the junction of each vein by a blackish line. Hindwings fuscous-grey, darker towards apex and hindmargin; cilia white.

This singular insect (erroneously referred by Walker to *Crambus*) is rather common near Sydney and at Campbelltown, and occurs also in the neighbourhood of Brisbane, in April, September, and December; always beaten from Casuarina, on which the larva doubtless feeds.

CRAMBUS F.

Ocelli distinct. Tongue longer than thorax. Antennæ setaceous, in ♂ generally slightly ciliated or sometimes pectinated, in ♀ simple. Labial palpi long, attenuated, compressed. Maxillary palpi triangular, incumbent. Forewings oblong, acute; hindwings with basal pecten, not reaching beyond anal angle of forewings.

The species of this cosmopolitan grass-feeding genus are tolerably numerous in Australia; those here described, all that I have yet seen, may be thus tabulated:

- A. Apex of forewings strongly produced 1. *milvellus*.
- B. „ „ not strongly produced
- a. Forewings with two discal longitudinal silvery-white streaks.
- I. Upper streak starting from middle of wing 5. *aurantiacus*.

- II. Upper streak starting from very near base.
1. Lower streak quite straight 6. *trivittatus*.
 2. „ „ deflected upwards at apical extremity 7. *bivittellus*.
- b. With one discal longitudinal silvery-white streak.
- I. Streak simple.
1. With a broad silvery-white streak along inner margin ... 2. *concinellus*.
 2. Without inner-marginal streak.
 - * Discal streak produced through cilia 4. *torrentellus*.
 - ** „ ending on hindmargin 3. *lativittalis*.
- II. Furcate.
1. Streak shortly bifurcate, not reaching beyond $\frac{3}{4}$ 9. *hoplitellus*.
 2. „ 3 or 4 branched, nearly reaching hindmargin 12. *relatalis*.
- c. With many irregular broad silvery-white markings 8. *pleniferellus*.
- d. With more or less distinct white streaks on all the veins.
- I. Subcostal streak starting from $\frac{1}{3}$ 13. *opulentellus*.
- II. „ „ almost from base.
- I. Head white, with an ochreous stripe on crown, hindwings whitish-grey 15. *enneagrammos*.
2. Head pale ochreous; hindwings white 14. *invalidellus*.
- e. With an indistinct whitish streak or none.
- I. Head white 10. *cuneiferellus*.
- II. „ ochreous-grey... .. 11. *dimidiellus*.

Cr. milvellus n. sp.

5 $\frac{1}{2}$ ". Head white, with a broad ochreous-brown longitudinal stripe on crown. Labial palpi twice as long as head, dark fuscous, beneath white at base; maxillary palpi whitish above. Antennæ whitish. Thorax fuscous, indistinctly whitish in front and on lateral margins. Abdomen greyish-fuscous, anal-tuft greyish-ochreous. Legs whitish-ochreous-grey. Forewings short, triangularly dilated, apex strongly produced, hindmargin obliquely concave below apex, rounded beneath; rather dark fuscous, especially towards apex; a rather broad white streak, very irregularly waved on margins, proceeding from base to middle of

disc, there deflexed upwards and running to costa just beyond $\frac{2}{3}$; a white streak, internally very irregularly margined, from $\frac{3}{4}$ of fold to apex of wing, confluent above middle with a white band along hindmargin; inner margin almost entirely suffused with white, and between first and second white streaks ground-colour mixed with white scales; a rather indistinct, outwardly curved, wavy blue-whitish subterminal line, bordered with ground-colour where it cuts the white subapical band; hindmarginal line strong, black, marked on lower half with about five black spots; cilia white, with fuscous-grey parting-line, towards anal angle almost entirely grey-fuscous. Hindwings rather pale fuscous-grey; cilia hardly paler.

1 ♂, near Sydney, in March; very distinct from all known species.

Or. concinnellus, *Wkr. Cat.* 165.

8"—9". Head white, labial palpi twice as long as head, white, on sides fuscous. Antennæ whitish. Thorax white, lateral margins dark fuscous. Abdomen whitish. Legs ochreous-whitish internally, greyish-fuscous externally, tarsi with whitish rings at apex of joints. Forewings elongate, slightly dilated; apex produced, acute, appearing from the cilia slightly falcate, hindmargin beneath apical indentation hardly oblique, rounded beneath; dark fuscous or blackish, blackest along costa; a straight broad silvery-white streak from base to apex, upper margin of basal half almost touching costa, apical half gradually more attenuated; a rather narrower silvery-white streak along inner margin from base to anal angle; a slender bluish-white subterminal line, cutting the longitudinal streaks, proceeding from beyond $\frac{3}{4}$ of costa obliquely outwards, sharply angulated on first streak, thence tolerably parallel to hind margin, angulated again on second streak, ending before anal angle; on costa before subterminal line are two more oblique slender white streaks, and between it and apex another less distinct, not oblique; behind subterminal line the space between the two longitudinal streaks is cinereous-grey, sprinkled with white scales, and cut by three longitudinal black lines; the disc immediately before subterminal line is also more or less sprinkled with cinereous-grey

and whitish scales ; hindmarginal line blackish : cilia pale grey, whitish at extremities of longitudinal streaks, and with a small whitish spot about middle, and a grey fuscous indistinct parting line ; above apex and below anal angle fuscous. Hindwings whitish, subtransparent, suffused with pale fuscous grey at apex and on upper margin ; cilia white.

Belongs to the section of which the European *pascuellus* L. is typical, but differs from all other species by the broad silvery-white inner-marginal streak. Occurs near Sydney, also about Brisbane and Rockhampton. It would appear to have an extraordinary range for an insect of this class, being stated by Walker to occur also in Ceylon and South Africa.

Cr. lativittalis, *Wkr. Cat.* 171 ; *halterellus* Z. *Cr.* 33.

11"—14". Head ochreous-brown, with a very slender (sometimes obsolete) short white line above each eye. Labial palpi short, hardly longer than head, ochreous-brown or dark brown, whitish beneath ; maxillary palpi ochreous-brown. Antennæ dark fuscous. Thorax ochreous-brown or dark brown, anterior margin narrowly and a lateral marginal stripe silvery white. Abdomen whitish, slightly tinged with ochreous. Anterior and middle legs dark fuscous, posterior legs whitish. Forewings moderately broad, dilated, hindmargin nearly straight, lightly rounded beneath ; varying from brownish-ochreous to deep brown ; a narrow silvery-white costal streak from base to a little before apex, posteriorly slightly dilated ; a very broad straight silvery-white, strongly black-margined central streak from base to hindmargin, its upper apical angle produced upwards into a tooth along hindmargin to apex, the lower part of its hindmarginal edge also black-margined : cilia ochreous-brown, darker greyish-fuscous at anal angle, with indistinct darker parting-line. Hindwings pale greyish-fuscous, whitish towards base, in ♂ with a slender pencil of brown hairs in a depression at base ; cilia whitish, tinged towards base with ochreous-grey.

Easily known by the up-turned apex of the single median streak, and remarkably short palpi. A common species, occurring round Sydney, and up to the summits of the Blue Mountains ; also at Melbourne and King George's Sound ; from October to March. Walker's name has one year's priority.

Cr. torrentellus n. sp.

15"—15½". Head ochreous, with a small whitish spot on crown, and a pale line above each eye; collar whitish. Labial palpi more than twice as long as head, ochreous, at apex fuscous, beneath white towards base; maxillary palpi ochreous. Antennæ fuscous, basal joint ochreous. Thorax ochreous-brown, with a broad silvery-white stripe on each shoulder. Abdomen pale ochreous. Anterior and middle legs fuscous, posterior legs ochreous. Forewings elongate, moderately broad, hardly dilated, hindmargin very oblique, rounded; very pale ochreous, towards apex and at base suffused with brownish-ochreous, and very slightly on disc; a very narrow silvery-white costal streak from middle of costa to apex, sometimes produced further towards base, much attenuated at extremities; very broad straight silvery-white median streak from base to hindmargin, continued also quite through cilia, strongly but irregularly margined on both sides with blackish scales, least distinctly on disc, very broadly and strongly towards apex, especially on upper margin; sometimes the upper margin of this streak tends slightly to be produced upwards on hindmargin: cilia, except on the white streak, fuscous-grey, with a rather darker parting line. Hindwings white, in ♀ slightly suffused with greyish towards apex; cilia white.

Differs from preceding by the longer palpi, paler colour, and median streak produced through cilia, as well as the absence of any distinct apical tooth; from allied European species by its large size, and the very great breadth of the median streak. Hitherto only from neighbourhood of Duaringa, Queensland; two specimens in Sydney Museum, sent by Mr. Geo. Barnard.

Cr. aurantiacus n. sp.

10"—10½". Head bright ochreous, with a whitish line above each eye. Labial palpi twice as long as head, deep ochreous tinged with fuscous, beneath white towards base; maxillary palpi whitish above. Antennæ silvery-grey, basal joint whitish. Thorax bright deep ochreous, with two parallel longitudinal silvery-white streaks on back. Abdomen silky-white. Legs white beneath fuscous. Forewings rather short, broad, hindmargin,

tolerably straight, rounded beneath; bright orange-ochreous; a silvery-white, internally fuscous-margined, rather narrow costal streak from near base to $\frac{3}{4}$, much attenuated towards both extremities; a broad silvery-white fuscous-margined streak from middle of wing below costa, posteriorly abruptly angulated upwards and ending in apex, rather suddenly attenuated at both extremities; a broad straight silvery-white fuscous-margined streak from base through middle of wing, posteriorly attenuated, barely or not quite reaching hindmargin; a narrow silvery-white partially fuscous-margined streak along inner margin from base to anal angle; a clear dark fuscous line along inner and hind-margins: cilia silvery-white, with two sharp dark fuscous parting lines. Hindwings pale fuscous, more whitish towards base; cilia pure white.

Differs markedly from the two succeeding species by the basally abbreviated upper streak, shorter wings, &c. Several specimens near Newcastle in January.

Cr. trivittatus Z. *Cr.* 34; *trivittellus* Wkr. *Cat.* 171 (*nec Don.*)

11"—15 $\frac{1}{2}$ ". Head ochreous, with a clear white line above each eye, and sometimes whitish behind. Labial palpi two and a half times as long as head, ochreous-brown or dark brown, beneath clear white; maxillary palpi whitish above. Antennæ dark fuscous. Thorax ochreous, darkest on shoulders, with two broad silvery-white longitudinal stripes on back. Abdomen pale greyish-ochreous, basal segment silvery-white. Anterior legs greyish-fuscous, middle and posterior legs whitish. Forewings rather broad, hind margin very slightly sub-concave beneath apex, almost straight; light brownish-ochreous, generally paler towards inner margin; extreme costal edge white from a little before middle to a little before apex; a silvery-white blackish-margined streak starting from very near base immediately below costa, at first narrow and parallel to costa, before one-third deflected from costa and continuing parallel to median streak, becoming much broader, its extremity abruptly deflected upwards shortly before hind margin, becoming attenuated, and ending in apex; a nearly straight broad silvery-white blackish-margined median streak from base to hind margin, somewhat attenuated towards its ex-

tremity; a silvery-white streak along inner margin from base to anal angle, internally rather indistinct, externally margined by a greyish-fuscos streak along inner margin; hind-marginal line dark fuscous: cilia silvery-white, fuscous at tips, and with a broad cloudy dark fuscous parting-line. Hindwings greyish fuscous, in ♀ more whitish, hind-marginal line fuscous; cilia in ♂ greyish or whitish, with darker grey parting line, in ♀ white.

Differs from *aurantiacus* by the upper discal streak nearly reaching base, from *bivittellus* by the straight extremity of the lower discal streak, from both by the duller ground colour. A common and very generally distributed species, occurring from Sydney to the summits of the Blue Mountains, also about Melbourne, Adelaide, Rockhampton, and in Tasmania, in December and January.

Zeller described this as new, quoting Erichson as authority that *bivittellus* Don. is not this, but the following species; Walker, considering this to be Donovan's insect, re-named the other *recurvellus*.

Cr. bivittellus, Don.; Z. Cr. 34; *recurvellus*, Wkr. Cat. 171.

15". Head deep orange, posteriorly ochreous, with a silvery-white line above each eye. Labial palpi more than twice as long as head, slender, acute, exteriorly crimson-orange, towards apex fuscous, interiorly pale ochreous, beneath white at base; maxillary palpi ochreous, above deep orange. Antennæ in ♂ deeply dentate, ciliated with little tufts of hairs, dark fuscous, basal joint silvery-white. Thorax saffron-orange, with a rather broad longitudinal silvery-white stripe on each side of back. Abdomen whitish-ochreous, anal tuft darker ochreous. Anterior and middle legs dark greyish-fuscous; posterior legs whitish, tarsi suffused with greyish-fuscous. Forewings broad, dilated, hind margin nearly straight, lightly rounded beneath; deep saffron-orange, towards apex and hind margin tinged with crimson; a slender silvery-white costal streak from beyond middle to beyond three-quarters, other parts of costa slenderly dark fuscous; a silvery-white strongly black-margined longitudinal streak proceeding from costa a little above base, at first rather narrow, dilating gradually, at one-third deflected from costa and continued

parallel to median streak, becoming broadest at two-thirds, abruptly curved upwards immediately before hind margin, becoming more attenuated, and ending in apex; a straight silvery-white strongly black-margined median streak from base, its apex sharply curved upwards shortly before hind margin, and ending in a short point directed towards apex of wing, not reaching hind margin; a moderate fuscous streak along inner margin, bordered internally by a narrow silvery-white black-margined streak from base to anal angle; hind-marginal line blackish: cilia silvery-white, fuscous-grey towards tips, and entirely at anal angle. Hindwings greyish-fuscous, slightly paler towards base; cilia greyish-fuscous.

Common at King George's Sound, but apparently exclusively western. Easily known by its brilliant colouring, and the recurved extremities of *both* discal streaks.

Cr. pleniferellus Wkr. Cat. 173.

9"—11". Head white, face, a longitudinal median line, and a spot behind each eye ochreous. Labial palpi twice as long as head, ochreous mixed with fuscous, beneath white towards base; maxillary palpi ochreous, whitish above. Antennæ whitish, tinged with ochreous. Thorax ochreous, darkest anteriorly, whitish posteriorly; anterior margin and five longitudinal lines (central, sub-dorsal, and lateral) slenderly white, often indistinct. Abdomen ochreous-whitish, basal segment white. Legs white. Forewings broad, strongly dilated, hind margin slightly wavy, very slightly sub-concave beneath apex; bright ochreous, darkest towards costa; a rather narrow silvery-white sub-costal streak, very close to costa, from base to beyond middle; a broad silvery-white, very elongate-triangular, median streak from base, its apex reaching to a little beyond middle, its upper edge parallel to costa, lower edge parallel to inner margin, outer edge much more oblique than hind margin and black-margined; from middle of its lower edge proceeds a slender silvery-white tooth along fold, not reaching middle; an indistinct white streak along inner margin near base; a straight rather broad oblique silvery-white streak from three-fourths of costa to before middle of inner margin (parallel to posterior edge of median streak), generally quite

or partially interrupted below middle and on fold, posteriorly emitting two black-margined wedge-shaped teeth, one between the two interruptions and one immediately above them; an outwardly curved pale metallic-grey subterminal line a little before hind margin, starting from a white spot on costa; between subterminal line and the transverse streak is a transverse curved row of six or seven silvery-white, sub-ovate, more or less (sometimes very strongly) elongate spots, the narrow interspaces strongly lined with blackish scales; between subterminal line and hind margin, touching both, are four silvery-white spots, first sub-triangular, subapical; second quadrate, in middle; third and fourth quadrate, adjacent, above anal angle; hind-marginal line dark fuscous, with sub-triangular blackish spots on extremities of veins: cilia silvery-white, tips and a parting-line fuscous-grey. Hindwings whitish-grey, in ♀ slightly darker, hind-marginal line dark fuscous; cilia white, with a faint grey parting-line.

Common in the Sydney district, and around Melbourne, in February and March.

Cr. hoplitellus n. sp.

10"—11". Head ochreous-brown, with a whitish line over each eye. Labial palpi twice as long as head, ochreous-brown, mixed with darker-fuscous, beneath whitish. Antennæ dark fuscous, in ♂ strongly pectinated. Thorax deep ochreous-brown. Abdomen whitish, towards base tinged with greyish-fuscous. Legs dark fuscous, posterior pair more whitish above. Forewings moderately broad, hind margin very slightly sub-concave, almost straight; deep brownish-ochreous, partially suffused with darker brown; a straight narrow silvery-white sub-costal streak, proceeding from costa near base, and ending on costa again shortly before apex, enclosing a narrow fuscous costal streak; a silvery-white, strongly blackish-margined, central streak from base, gradually dilating to beyond middle, where it becomes abruptly bifurcate, both branches short, reaching to three-fourths of disc; upper branch slender, abruptly swollen towards apex beneath; lower branch short-pointed, with a tooth above; about the apex of each branch is an irregularly oval cloud of mixed black and bluish-white scales; from between these two clouds proceeds a silvery-white,

above strongly black-margined, broad streak obliquely upwards to apex, sharp-pointed above, sending from its lower edge a more or less distinct silvery-white line towards anal angle; apex of wing suffused with dark fuscous; three or four triangular black dots on hind margin towards anal angle; an indistinct line of dark fuscous scales along inner margin; cilia silvery-metallic grey, white at base towards apical half of hind margin. Hindwings whitish-grey, indistinctly darker grey-fuscous at apex and along hind margin; cilia whitish.

A very distinct species; abundant in a very restricted locality near Sydney, in March.

Cr. cuneiferellus Wkr. Cat. 175.

$7\frac{1}{2}$ "— $9\frac{1}{2}$ ". Head clear white. Labial palpi twice as long as head, white, towards apex and on sides mixed with greyish-ochreous; maxillary palpi white, beneath mixed with fuscous-grey. Antennæ whitish. Thorax white, towards sides and behind tinged with pale greyish-ochreous. Abdomen pale greyish-ochreous, towards base whitish. Legs white. Forewings short, posteriorly dilated, in ♀ more elongate, hindmargin rounded; pale greyish-ochreous, sometimes more or less sprinkled posteriorly with whitish and fuscous scales; the veins more or less perceptibly indicated by lines of fuscous scales; a snow-white median streak from base to hindmargin, often very indistinct or obsolete, especially towards base, most conspicuous at $\frac{2}{3}$, margins obscure; indications of three transverse slender (sometimes obscurely double) dark ochreous-brown lines; first very faint or absent, beyond $\frac{1}{3}$, only perceptible near inner margin, where it is angulated; second sometimes distinct, rising from middle of costa, proceeding obliquely outwards to $\frac{1}{3}$ of breadth, then sharply angulated and proceeding obliquely inwards to median streak, where it becomes obsolete, but is sometimes again sharply angulated outwards; third generally distinct, a little before hindmargin, strongly waved, outwardly curved, at $\frac{2}{3}$ of breadth from costa sending a very sharp angulation inwards; between third line and hindmargin the ground-colour is replaced by black and white scales arranged in alternate transverse lines, giving a bluish-grey appearance, the veins indicated by whitish lines;

hindmarginal line blackish, unspotted; cilia shining grey, pale towards tips, intersected by a rather broad white longitudinal mark at median streak, another less broad below it, and two others much narrower and more indistinct above it, with faint traces of a parting-line. Hindwings fuscous-grey, paler in ♀; cilia white, with a fuscous-grey parting-line near base.

Var. a. Entirely suffused with greyish-ochreous, leaving no trace of white colour either on head or forewings, or of the transverse lines on forewings; only markings the bluish-grey wedge-shaped markings on hindmargin; cilia of hindwings also suffused with greyish-ochreous.

Always distinguishable by the wedge-shaped hindmarginal markings. The *var. a* is singular in appearance, and at first sight appears distinct, but is probably only a dull-coloured spring form; two specimens (without the ordinary form) were taken by Mr. G. H. Raynor, near Parramatta, in August. The ordinary form is the commonest of the genus in New South Wales, occurring in great abundance everywhere from Sydney to the Blue Mountains, at Newcastle, and probably generally; also near Melbourne, and in the Rockhampton district, from November to April.

Cr. dimidiellus n. sp.

5½"–8". Head ochreous-grey. Labial palpi more than twice as long as head, dark fuscous sprinkled with grey, beneath white at base; maxillary palpi whitish above, dark fuscous beneath. Antennæ ochreous-grey. Thorax brownish-grey. Abdomen greyish-ochreous, anal-tuft paler. Legs greyish-white above, fuscous beneath. Forewings elongate, not much dilated, hindmargin rounded; light ochreous, tinged with grey, the lower half more or less slightly (especially posteriorly), the upper half entirely suffused with ochreous-brown or dark-brown; lower half more or less partially sprinkled with dark fuscous scales; a white median streak from base to hindmargin, broadest at $\frac{1}{3}$, posteriorly attenuated or partially obsolete, above generally margined with blackish scales, especially posteriorly, where they are sometimes very numerous, and form a cloudy blackish band along the streak; generally there are faint indications of two transverse lines, which

are sometimes entirely obsolete, rarely distinct; first line very faint, double, only appearing as two ochreous-brown spots, mixed with blackish scales, on inner margin before middle, and two obliquely above them on lower margin of median streak beyond middle; second line sometimes tolerably distinct, waved, sharply angulated above median streak and sometimes also with a second indistinct angulation towards inner margin, whitish, edged internally with darker ochreous-brown; hindmarginal line dark fuscous, containing three or four distinct black dots towards middle; cilia fuscous-grey, rather metallic. Hindwings fuscous-grey; cilia whitish-grey or whitish, with a fuscous-grey parting-line near base.

Allied to *cuneiferellus*; differs by the narrower wings, smaller size, darker colouring, hindmarginal dots, &c. Also very common, round Sydney and Parramatta, and in the district of the Lower Hunter River; also received from Rockhampton; from January to March.

Cr. relatalis Wkr. Cat. 172.

12"—13½". Head pale ochreous, mixed with whitish, with a very narrow white line above each eye. Labial palpi more than twice as long as head, pale ochreous, much mixed with fuscous towards apex, beneath clear white at base; maxillary palpi white above, fuscous at base. Antennæ whitish. Thorax ochreous, posteriorly white, and with a broad quadrate ochreous-white spot behind collar. Abdomen silky-white, anal-tuft whitish-ochreous. Anterior and middle legs grey-fuscous, thinly whitish-scaled above; posterior legs whitish. Forewings elongate, moderately broad, hindmargin subconcave below apex, thence strongly rounded; greyish-ochreous or greyish-brown tinged with ochreous, especially towards base, towards inner margin rather abruptly and broadly whitish-ochreous, and sometimes also more narrowly along costa; a straight silvery-white, internally blackish-margined subcostal streak from base to costa shortly before apex, with a tendency to emit two or three faint branches towards costa posteriorly; a straight moderately broad silvery-white black-margined central streak from base, parallel to subcostal streak, beyond middle deflected downwards and continuing parallel to inner

margin, ending abruptly just before hindmargin; from the point of deflection proceeds a second branch similar and nearly parallel to the first, but more slender and sometimes in great part obsolete; from half-way between origin of this branch and base rises a third very slender branch, proceeding nearly to anal angle, but generally obsolete at extremity; the interspaces between these branches are somewhat suffused anteriorly with blackish; immediately above the point of deflection of the median streak, but not touching it, rises a moderately broad, basally attenuated, silvery-white blackish-margined streak proceeding directly towards hindmargin, but ending abruptly before reaching it; above this is sometimes also a faint whitish short linear mark; a white submarginal streak from apex to anal angle, inwardly convex, not touching hindmargin, receiving the apices of all the discal streaks, broadest above, sometimes obsolete or absent on its lower half. internally edged with fuscous shading; immediately before and parallel to this submarginal streak is sometimes a wavy pale bluish line; hindmarginal line dark fuscous, with three or four elongate black dots towards anal angle; cilia white, tips and a strong parting-line (sometimes confluent) dark metallic-grey. Hindwings whitish-grey, apex and hindmargin rather abruptly darker grey, hindmarginal line fuscous; cilia white, with a faint grey parting-line near base.

Allied to the three succeeding species, differing especially by the median streak having only two branches beneath, instead of three or four. Not very common, but very widely distributed, occurring at Sydney, and on the Clarence River; near Melbourne and Adelaide, and in Tasmania; in March.

Cr. opulentellus Z. Cr. 46.

11½"-12½". Head greyish-ochreous, with a rather broad whitish line above each eye. Labial palpi more than twice as long as head, fuscous, beneath whitish at base; maxillary palpi whitish, towards base fuscous. Antennæ dark fuscous. Thorax ochreous, darker above, with a slender white longitudinal line on each side of back, forming two conspicuous approximated white spots behind the collar. Abdomen whitish-ochreous, more suffused with

grey towards base. Anterior legs fuscous; middle and posterior legs pale ochreous. Forewings moderately broad, hindmargin oblique, rounded, subconcave beneath apex; ochreous; a very narrow silvery-white costal streak from base to beyond middle; a broader silvery-white subcostal streak from one-third to costa immediately before apex, attenuated at extremities; a strong silvery-white central streak on sub median vein from base to hindmargin, roughly margined with blackish scales on apical half above and on basal half beneath; sending from its lower edge four very slender silvery-whitish branches to hindmargin, the lowest branch more or less blackish-margined, and the tolerably broad ochreous interspaces sometimes mixed with blackish or grey scales; an elongate-triangular silvery-white subapical spot, resting on hindmargin below apex and on posterior quarter or median streak, partially or entirely cut longitudinally by two blackish-ochreous lines; below median streak a straight silvery-white streak from near base to anal angle, and a silvery-white streak from base to inner margin at one-third; a fuscous line along inner and hind margins, hindmarginal line marked with seven or eight often obsolete blackish dots; cilia white, becoming metallic-grey at tips, and entirely about anal angle. Hindwings pale greyish-fuscous, hindmarginal line dark fuscous; cilia white.

This and the two following species are very nearly allied, and it is probable that several other closely related species remain to be found. *Opulentellus* differs from both the others by the subcostal streak not reaching nearer to base than one-third, the dark fuscous anterior legs, and general distinctness of marking. Taken commonly at Parramatta in April; Zeller's specimen was taken in Tasmania.

Cr. invalidellus n. sp.

11". Head pale ochreous, with a very slender whitish line above each eye. Labial palpi more than twice as long as head, acute, pale ochreous; beneath whitish at base; maxillary palpi ochreous. Antennæ ochreous-fuscous, in ♂ deeply dentate. Thorax ochreous. Abdomen whitish-ochreous, anal tuft whitish. Anterior legs ochreous, middle and posterior legs whitish. Forewings rather elongate, apex acute, hindmargin slightly sub-con-

cave beneath apex, rounded beneath; pale ochreous, thinly sprinkled between the veins with coarse dark fuscous scales; a straight rather broad white subcostal streak from base of costa to costa again a little before apex, shading into pale whitish-ochreous on costal margin, from two-thirds of its lower margin sending a faint whitish branch to hindmargin below apex; between the subcostal streak and median vein the ground colour is suffused with fuscous, darkest above, forming a broad streak from base to two-thirds of disc, where it becomes obsolete, appearing again as a dark fuscous spot at apex; a dark fuscous spot on upper margin of median vein at two-thirds; median vein indistinctly whitish, very obsolete towards base, sending four indistinct whitish branches to hindmargin, which are interrupted just before reaching hindmarginal streak; fourth branch very faint; beneath these are very faint indications of whitish lines on the other veins; a clear white streak along hindmargin from apex to anal angle, broadest above; hindmarginal line strong, clear, dark fuscous, towards its lower half with five black elongate spots on extremities of veins: cilia white, tips and a parting-line pale metallic-grey. Hindwings white, hindmarginal line indistinctly fuscous; cilia white.

Distinguished from *opulentellus* by the more suffused markings, and sub costal streak reaching base; from *enneagrammos* by the ochreous head and narrower forewings, from both by the white hindmarginal streak, and clear white hindwings. One ♂ in collection of Mr. Masters, from Tasmania.

Cr. enneagrammos n. sp.

9"—12". Head white, with a longitudinal ochreous stripe on crown. Labial palpi more than twice as long as head, ochreous-fuscous above, white internally and beneath; maxillary palpi white, fuscous at base. Antennæ slender, whitish above, dark fuscous beneath. Thorax brownish-ochreous, whitish on back, with a clear white double spot on collar. Abdomen ochreous-whitish. Legs ochreous-whitish. Forewings broadly dilated in ♂, narrower and more pointed in ♀, hindmargin rounded, sub-concave below apex; varying from ochreous-grey to clear

ochreous, lighter towards inner margin; extreme costal edge narrowly white; a straight rather narrow white sub-costal streak from base to apex, sometimes emitting posteriorly two or three slender white streaks to costa, or partially confluent with the white costal line; a rather strong white, above black-margined posteriorly, central streak on sub-median vein from base to hindmargin, sending from its lower edge four rather broad parallel branches to hindmargin, separated by very narrow ochreous lines (sometimes sprinkled with blackish), lowest branch often strongly blackish-margined; an elongate-triangular white subapical spot, resting on hindmargin below apex and on posterior third of median streak, more or less distinctly cut by two rather obsolete ochreous (sometimes mixed with blackish) longitudinal lines; below median streak a white line from near base to anal angle, and a white line from base to before middle of inner margin; inner margin whitish towards base; hindmarginal line fuscous, marked with seven or eight black dots; cilia white, extreme tips and a parting line greyish-ochreous. Hindwings whitish-grey, marginal line dark fuscous; cilia white.

Differs from its allies by its broader wings, white head, and greater breadth of the white streaks on the branches of the submedian vein. Common round Sydney and Parramatta, especially in rather damp places; also near Melbourne and Mt. Macedon; in December and March.

It is possible that *C. argyroneurus* Z. (described from a single South Australian specimen) may denote a variety of this insect, as it possesses many of its characteristics; but Zeller describes the head as yellowish, the first and second branches of the median vein as not reaching hindmargin, the second and third as becoming confluent beyond the middle, and makes no mention of any white sub-apical spot. Considering the close affinity of the species of this group, it would be premature to adopt the name for this insect.

EROMENE Hb.

Ocelli distinct. Tongue moderate, spiral. Antennæ setaceous, crenulate. Labial palpi hardly as long as, or markedly shorter than thorax, straight, porrected, acuminate. Maxillary palpi

shortly triangular. Forewings subtriangular, in ♂ with a transparent spot at base of median cell, hindmargin with black spots united by metallic-gold; hindwings with basal pecten.

Of the four species hereafter described, the first two hardly fall well into the genus, owing to their longer palpi, yet they possess the general characters; the others agree with *Eromene* in all respects. They may be tabulated thus:—

A.—Forewings with broad silvery-white markings...	2. <i>bifractella</i> .
B.— „ without distinct silvery-white markings	
1.—Forewings with a central oblique fascia.	1. <i>longipalpella</i> .
2.— „ with two slender transverse lines.	
a.—Labial palpi hardly longer than head ...	3. <i>praematurella</i> .
b.— „ „ nearly twice as long as head ...	4. <i>dilatella</i> .

Crambus *Ex. longipalpella*^{us} n. sp.

IV, 2/2.

10"—11". Head whitish. Labial palpi twice as long as head, whitish, mixed with dark fuscous scales, dark fuscous on sides; maxillary palpi white. Antennæ whitish-ochreous. Thorax and abdomen ochreous. Legs ochreous-grey, tarsi with ochreous-white rings at apex of joints. Forewings elongate, rather dilated, costa straight, hindmargin subdentate, slightly rounded; ochreous, suffused with white, especially on disc, which is almost entirely white and rather thickly irregularly sprinkled with fine black scales, especially towards posterior part of disc, sometimes coalescing in parts to form irregular blackish spots; towards base the white colour forms a distinct median streak from base, which shortly becomes dilated and suffused into the ground colour; a transverse central fascia of the ochreous ground colour, sprinkled with whitish and blackish scales, gently angulated above and below middle, bisected throughout by a violet-silvery metallic line, indistinct on margins; at two-thirds of disc, nearest to costa, is a crescentic violet-silvery metallic mark, strongly margined with black internally and less strongly externally; behind this are four irregular elongate spots of black scales; a silvery-metallic outwardly-curved subterminal line, indistinctly margined internally with blackish; costa before apex blackish; a small white spot on hindmargin in middle, a faint one below apex, and a clear double one above anal angle; hindmargin with seven black

spots on extremities of veins, lower ones largest and sharpest: cilia silvery-metallic-grey, with a whitish line at base and in middle, and intersected by slender white marks at the veins. Hindwings pale fuscous-grey; cilia white, with a fuscous-grey parting line near base.

Near Melbourne; not scarce.

Crambus ~~*Ex*~~ ^{us} *bifractella* Wkr. Cat. 174 (*Crambus*).

cf. vol. IV, 2

8"—9½". Head ochreous-brown. Labial palpi long, ochreous-brown or dark brown, brassy-metallic on sides. Antennae in ♂ stout, subdentate, above white with dark fuscous rings, beneath dark fuscous; in ♀ slender, white with dark fuscous rings. Thorax ochreous-brown, at base silvery-ochreous-grey. Abdomen pale greyish-ochreous, somewhat silvery at base. Legs pale greyish-ochreous, anterior pair and posterior tarsi partially suffused with greyish-fuscous. Forewings subtriangular, rather broad, dilated; deep clear ochreous, darkest along costa; a silvery-white black-margined costal streak from base, at first very narrow, much broader posteriorly, deflected from costa about middle, and ending at three-fifths a little below costa; a broad straight silvery-white black-margined streak from base to three-fifths of disc, its apex abruptly blunt-pointed, perpendicularly beneath apex of costal streak; an indistinct silvery-white partially black-margined streak of variable width along inner margin from base, its apex in a straight line with those of costal and median streaks: a subtriangular silvery-white black-margined subcostal spot between costal streak and hind-margin, its base obliquely concave, with the upper angle sometimes reaching costa, its apex almost reaching the subterminal line; an oblong silvery-white black-margined streak between apex of median streak and hind margin, reaching hind margin, bisected longitudinally by a blackish line, and interrupted by the sub-terminal line; the space between this streak and anal angle is whitish-ochreous or whitish (in ♀ silvery-white), irrorated with blackish scales; the space between it and subcostal spot is whitish-ochreous, irrorated with blackish scales and bisected longitudinally by a blackish line; a sinuate bluish-silvery metallic line proceeding from inner margin

immediately beyond the streak from base perpendicularly upwards to disc, suddenly bent round apex of median streak, and continued between median and costal streaks to base; a sinuate (sometimes broken) transverse bluish-silvery metallic mark on disc between the bend of this line and the subcostal spot; a bluish-silvery metallic subterminal line proceeding from a small whitish spot on costa at two-thirds very obliquely outwards, curving round a little below apex, and continued very near hind-margin to anal angle; a small white apical spot; three deep black dots on hind margin, on the junction of the white streak from disc: cilia silvery-grey, metallic, white at base towards apical half, often with a basal row of silvery-grey metallic spots. Hindwings pale grey; cilia in ♂ whitish-grey, with darker parting shade, in ♀ clear white.

Not very common; occurs round Parramatta, near Duaringa, and in South Australia, in February and March. This species might, perhaps, be better placed in *Crambus*.

Diptychophora ~~Ex.~~ *praematurella* n. sp.

v, 216,

4½"—5". Head ochreous-brown. Labial palpi hardly longer than head, dark fuscous, with a conspicuous oval yellow spot on side towards base. Antennæ ochreous. Thorax ochreous-brown. Abdomen pale ochreous-brown. Legs whitish-ochreous. Forewings short, strongly dilated, hindmargin oblique, slightly retuse below apex; in ♂ yellow-ochreous, almost entirely suffused with white except along costa, partially on disc and beneath apex; in ♀ ochreous-brown, darkest towards apex, densely irrorated along inner margin and on posterior part of disc with whitish and black scales; two transverse slender lines; first blackish, from ⅓ of costa to ⅓ of inner margin, acutely angulated outwards above middle; second whitish, margined on each side with blackish, proceeding from ⅔ of costa at first very obliquely outwards, curved round very strongly above middle, and continued nearly parallel to hindmargin to anal angle; between second line and apex is a short white outwardly oblique streak from costa; on lower ⅔ of hindmargin a row of about eight quadrate black spots, almost touching each other, largest towards anal angle;

cilia white, with a deep metallic blackish-grey line almost along base, and cut by three very broad metallic violet-grey bands, one immediately subapical, one just above and one just below middle. Hindwings in ♂ whitish, in ♀ dark fuscous-grey; cilia white, with fuscous-grey parting-line near base.

Two specimens (♂, ♀) near Sydney, in December.

Er. dilatella n. sp.

var. *mae*
cf. *vir.*

6"—7". Head dark ochreous-fuscous mixed with whitish. Labial palpi nearly twice as long as head, long-haired beneath, blackish-fuscous, with a suffused oval deep yellow spot on side towards base. Antennæ slender, dark fuscous. Thorax blackish-fuscous, densely irrorated with whitish. Abdomen blackish-fuscous, posterior margins of segments and anal-tuft clear white. Anterior and middle legs ochreous-fuscous, posterior legs ochreous-whitish. Forewings short, broad, subtriangular, very strongly dilated posteriorly, hindmargin oblique, tolerably straight; blackish-fuscous, very densely irrorated with white scales, towards inner margin often coalescing in ♂ into irregular white patches; first line slender, sometimes partially double, irregular, blackish, suffusedly bordered with whitish, from two-fifths of costa to two-fifths of inner margin, angulated outwards below costa; second line slender, blackish, partially double, rising from a white spot on costa at three-fourths, proceeding very obliquely outwards, strongly curved round close to hind margin, and continued very near and parallel to hind margin to anal angle; a short rather oblique white streak from costa before apex; on lower two-thirds of hind margin a row of 8 quadrate black spots, very near together, separated by ochreous-yellow elongate marks; cilia white, with a broad bright golden-metallic line along base, and a broad dark metallic grey line along tips. Hind wings in ♂ whitish, with irregular indistinct grey-fuscous shades along hind margin, in ♀ blackish-grey; cilia white, tips and a parting-line near base strongly dark-grey.

Very closely allied to *praematurella*, differing principally by the larger size, longer palpi, and the ochreous-yellow marks between the hind marginal spots. Near Parramatta, locally common, in September.

PHYCIDÆ.

NEPHOPTERYX Z.

Antennæ filiform, in ♂ sinuate above basal joint, with a tuft of scales in the sinuation. Labial palpi compressed, ascending or porrected; terminal joint moderately long. Maxillary palpi short, filiform, appressed, alike in both sexes. Forewings long and rather narrow, costa slightly curved; hindwings moderately broad, slightly indented. Forewings with 11 veins; 4 and 5 separate. Hindwings with 8 veins; 2 rising close before posterior angle of cell; 3, 4, 5 on a stalk from posterior angle of cell.

A rather large genus, of almost universal distribution.

A.	Hind wings yellow	..	..	..	..	2. <i>opimella</i> .
B.	„ whitish-grey	..	...	..	..	1. <i>stenopterella</i> .

Neph. stenopterella, n. sp.

7½"—8½". Head, palpi, and thorax blackish, very minutely and densely irrorated with whitish; labial palpi straight, porrected, in ♂ rather longer than head, in ♀ nearly twice as long as head. Antennæ fuscous, in ♂ very finely ciliated, with a large elongate tuft of black scales in sinuation. Abdomen grey, segmental margins and anal tuft whitish-ochreous, second and third segments from base entirely bright ochreous. Legs blackish, very densely irrorated with whitish, tarsi with slender whitish rings at apex of joints, posterior tibiae with a slender oblique black band towards apex. Forewings elongate, very narrow, hardly dilated, costa hardly arched, hindmargin very oblique, rounded; blackish, very densely strewn with whitish scales, so as sometimes almost to conceal the ground colour, more blackish in ♀; first line rather indistinct, double, black, both sections very slender, very irregularly waved, emitting several acute teeth posteriorly; on inner margin, at junction of first line, is a short transverse ochreous-reddish spot, strongly margined internally with black; about middle of inner margin is a second less distinct reddish spot, united to a double black discal spot beyond middle by an oblique slender blackish cloud; second line blackish, double, very oblique, from a little before apex to a little before anal angle, shortly but acutely angulated inwards above middle, and again before inner

margin : cilia dark grey, with many bluish-whitish points. Hindwings sub-hyaline, whitish-grey, narrowly darker at apex, and very narrowly along hindmargin : cilia whitish-grey, with dark grey parting-line near base.

Tolerably common near Sydney, at Bowenfels, and Newcastle, from October to January ; comes freely to light.

Neph. opimella, n. sp.

8". Head, palpi, and thorax blackish-fuscous, finely and thinly irrorated with whitish ; palpi obliquely ascending, reaching considerably above head. Antennæ dark fuscous, in ♂ very finely and shortly ciliated, with an angular tuft of black scales in sinuation. Abdomen dark fuscous, with clear ochreous-yellow rings on segmental margins. Legs blackish, irrorated with whitish, tarsi with very slender whitish rings at apex of joints, posterior legs ochreous-whitish above. Forewings rather short, dilated, costa slightly arched, hindmargin somewhat oblique, rounded ; blackish, densely strewn with whitish scales, the absence of which produces clear black markings ; first line indistinct, double, slender, oblique, at one-third of wing, bordered posteriorly by a broad oblique transverse band, clearly defined towards base, posteriorly more suffused ; second line stronger, "distinct, double, from a little before apex to a little before anal angle, shortly angulated outwards below costa, and again inwards above inner margin, between the two angulations convex posteriorly ; half way between first and second lines an oval black dot above middle of disc : cilia blackish-grey, extreme tips and a slender parting-line bluish-white. Hindwings deep yellow, costa and hindmargin rather broadly bordered with smoky-fuscous, towards anal angle becoming suffused into ground colour ; cilia smoky-grey, with a blackish parting-line near base.

Several specimens near Parramatta, from June to August.

PEMPELIA Hb.

Antennæ filiform, in ♂ sinuate above basal joint, with a tuft of scales in the sinuation. Forehead with a cone of scales. Labial palpi ascending or recurved, second joint rather long, terminal joint very short. Maxillary palpi of ♂ ending in a long

tuft, concealed between labial palpi, of ♀ short, filiform. Forewings moderately long, posteriorly dilated; hind wings moderately broad, slightly indented below apex. Forewings with 11 veins; 4 and 5 separate. Hindwings with 7 or 8 veins; 2 close before posterior angle of cell; 3, 4, or 3, 4, 5, on a stalk.

Also a considerable genus, occurring throughout the world. Besides the two species described, there are certainly several others; but as all are very similar dull-coloured insects, and variable withal, I forbear describing the rest at present.

A. Forewings with a broad oblique blackish apical

streak 1. *strigiferella*.

B — without apical streak 2. *rufitinctella*.

Pemp. strigiferella n. sp.

14, 22.

10"-12." Head greyish-ochreous, with a few whitish and black scales. Labial palpi obliquely ascending, reaching somewhat above head, greyish-ochreous, mixed with blackish at apex. Antennæ greyish-ochreous, in ♂ thickened, dentate, minutely ciliated, with a large triangular tuft of black scales in situation. Thorax greyish-ochreous, with two or three black scales. Abdomen whitish-ochreous, sometimes infuscated, anal tuft of ♂ ochreous, ovipositor of ♀ rather long. Legs greyish-ochreous. Forewings elongate, strongly dilated, hind margin moderately oblique, rounded; greyish-ochreous, generally faintly irregularly streaked with whitish below costa, often somewhat suffused with greyish fuscous, and thinly sprinkled with blackish scales, especially between veins; indications of commencement of a grey-fuscous double very oblique first line on costa at one-third; a little above inner margin at one-third an oblong-elongate short black mark, sometimes very conspicuous; beyond this, above middle of inner margin, a small dark fuscous cloud, sometimes obsolete, often confluent with a cloudy dark fuscous streak along posterior part of inner margin; a double black spot before two-thirds of disc above middle; second line indistinct, double, grey-fuscous, angulated inwards a little below costa, and again very faintly above inner margin; a conspicuous broad blackish oblique apical streak, reaching from apex nearly to discal spot; a hind-marginal row of black dots; cilia whitish-ochreous-grey, with

two grey parting-lines. Hind wings whitish-fuscos-grey, towards apex and hindmargin suffused with darker fuscous; cilia ochreous-grey-whitish, with dark-grey parting-line near base.

Common on dry grassy banks, and at light; round Sydney and Newcastle in January.

Pemp. rufitinctella n. sp.

13" Head brownish-ochreous. Labial palpi oblique, somewhat ascending, not reaching above head, ochreous-whitish mixed with dark fuscous. Antennæ ochreous-fuscous, in ♀ simple, in ♂ — (?). Thorax brownish-ochreous. Abdomen brownish-ochreous above, paler on sides and posteriorly, slightly mixed with fuscous-grey; ovipositor of ♀ short, retracted. Fore wings elongate, rather broad, dilated, hind margin moderately oblique, rounded; dark greyish-ochreous, suffused on disc and at apex with brownish-ochreous, sprinkled with blackish and dark carmine scales; first line only indicated by a few blackish scales beneath costa, very obliquely arranged; a short longitudinal blackish streak a little above inner margin at one-third, beyond which there is a faint cloudy fuscous streak along or near inner margin to anal angle; a double black spot on disc a little before two-thirds above middle; second line very indistinct, fuscous, double, on costa surrounded by a small blackish cloud, angulated inwards a little below costa; a hind-marginal row of transversely elongate black dots; cilia ochreous-whitish, towards tips pale dull carmine, with two or three slender dark-grey parting-lines, and irregular rows of ochreous-whitish points. Hind wings fuscous-whitish, slightly suffused with darker towards apex; hind-marginal line clear, sharp, dark fuscous; cilia whitish, with a dark grey parting-line near base.

Easily distinguished from *strigiferella* by its larger size, more rufous tint, and absence of apical streak. 2 ♀s at light near Parramatta in March.

ETIELLA Z.

Antennæ filiform, in ♂ sinuate above basal joint, with a tuft of scales in the sinuation. Labial palpi very long, as long as

thorax, horizontally porrected; second joint dilated above with compressed scales, broadest before middle; terminal joint very long, slender, filiform. Maxillary palpi of ♂ ending in a long tuft, concealed between labial palpi; of ♀ short, filiform. Fore wings almost parallel-sided, costa straight, curved just before apex, hind margin moderately oblique; hind wings moderately broad, indented before apex. Fore wings with 11 veins; 4 and 5 separate. Hind wings with 8 veins; 2 rising before posterior angle of cell; 3 and 4 unstalked from posterior angle of cell.

Besides the three Australian species here described, only one other species of this genus is known; which, however, possesses a wide range, extending over great part of Europe and America. All the species have a considerable general resemblance.

- A.—Costal edge wholly white 1. *sincerella*.
 B.— „ „ above white streak fuscous
 a.—Fore wings dark slate-grey; metallic
 border of first line continuous 2. *Behrii*.
 b.— „ pale greyish ochreous-brown;
 border forming three separate circular
 spots 3. *chrysoporella*.

Et. sincerella n. sp.

14" Head yellow-ochreous, forehead brassy-metallic. Labial palpi more than twice as long as head, brassy-ochreous, mixed on sides and at apex with dark fuscous scales; tuft of maxillary palpi of ♂ nearly as long as second joint of labial palpi, yellowish-ochreous. Antennæ of ♂ thickened, minutely ciliated, brownish-ochreous, above barred with white, with a large tuft of hair-scales, blackish above, whitish towards base, in situation. Thorax white, becoming ochreous-grey on sides and in front. Abdomen silvery-white, posterior margin of segments whitish-ochreous. Legs silvery white, tarsi infuscated beneath. Fore wings elongate, tolerably broad, slightly dilated, hind margin oblique, slightly rounded; pale greyish-ochreous, becoming darker clearer ochreous towards costal streak, thinly sprinkled on veins with greyish-fuscous; a tolerably broad pure white costal streak from base to apex, margined at base and apex beneath by short dark fuscous cloudy streaks; an indistinct cloudy greyish-

fuscous streak along inner margin from near base to anal angle; very faint indications of a transverse oblique yellowish band before one-third, margined internally with a few silvery-metallic scales; hind-marginal line cloudy dark fuscous; cilia white, with two cloudy fuscous grey parting-lines. Hind wings whitish, towards apex and on hind margin narrowly suffused with fuscous-grey; hind-marginal line dark fuscous; cilia white, with an indistinct grey parting-line near base.

A distinct and conspicuous insect, larger and broader-winged than its congeners, easily known by the wholly white costa and obsolete fascia. One ♂, taken by Mr. Burkitt at light at Gladesville, Sydney, in September.

Et. Behrii Z. Is. 1848, 883.

8"—10". Head in ♂ bright ochreous-orange, face brassy-metallic; in ♀ shining dark ochreous-grey. Labial palpi much more than twice as long as head, dark brassy-fuscous; maxillary palpi in ♂ long, bright ochreous-orange; in ♀ very short, fuscous. Antennæ dark fuscous with ochreous-whitish rings, in ♂ thickened, with a large tuft of black scales and white silky hairs in sinuation. Thorax dark ochreous-grey, in ♂ with a bright orange suffused spot on anterior margin. Abdomen whitish-ochreous, base of segments dark-grey. Legs ochreous above, dark-fuscous beneath. Fore wings elongate, narrow, slightly dilated, costa nearly straight, hind margin oblique, slightly rounded; dark slaty-grey, densely irrorated with whitish, and sometimes in ♂ with scattered carmine scales; a straight moderately broad clear white costal streak from base to a little before apex, enclosing a very narrow strip of ground colour along costal edge, and margined beneath by a moderately broad ferruginous streak running from base to apex of wing and changing to black towards base and apex; a transverse very oblique ferruginous band from one-fourth of costal streak to one-third of inner margin, internally edged by a pale golden metallic line of raised scales, and within that by a broader blackish line; an indistinct small blackish spot on lower margin of subcostal streak before two-thirds; a hind-marginal row of rather

irregular blackish spots, often indistinct; cilia grey-whitish, with three distinct darker-grey parting-lines. Hind wings in ♂ pale fuscous-grey, in ♀ rather darker, apex dark fuscous-grey; hind-marginal line suffused with dark fuscous; cilia whitish, with dark-grey parting-line near base.

Very closely allied to the European *zinckenella* Tr., from which it differs by the narrower wings, costal white streak not reaching apex, and rust-coloured, not yellow, transverse band; from *chrysoporella* by the rather smaller size, slaty-grey ground colour, and unbroken transverse golden-metallic line. Very common and generally distributed, occurring from Sydney to the summits of the Blue Mountains, round Newcastle, at Melbourne and Adelaide, from September to January.

Et. chrysoporella n. sp.

10"—10½". Head in ♂ bright yellow-ochreous, with a whitish spot above the eyes. Labial palpi nearly thrice as long as head, dark brassy-fuscous; maxillary palpi — (?). Antennæ fuscous with whitish rings, beneath whitish, in ♂ with a large tuft of white silky hairs, clothed on one side with fuscous scales, in sinuation. Thorax brownish-ochreous, in front blackish, with a clear ochreous-yellow spot on anterior margin. Abdomen whitish-ochreous, base of segments suffused with grey-fuscous. Legs ochreous-whitish above, dark fuscous beneath. Forewings elongate, very narrow, scarcely dilated, costa straight until just before apex, hindmargin oblique, slightly rounded; pale greyish-ochreous-brown, irrorated with dark fuscous scales; a straight white costal streak, starting from a small tuft of ochreous-brown hairs almost at base, to costa a little before apex, enclosing a very narrow dark fuscous streak on costal edge, and margined beneath by a line of dark fuscous scales, becoming a wedge-shaped mark at apex, and beneath this again by a pale ochreous-yellow streak from near base quite to apex; a rather curved oblique transverse pale ochreous-yellow band from one-fourth of costal streak to one-third of inner margin, margined internally by three separate circular raised golden-metallic spots, before each of which is a blackish spot; an irregular suffused white spot towards inner margin be-

fore transverse band; a pale ochreous-yellow streak along fold from transverse band to anal angle, shortly dilated above beyond middle, beneath anteriorly margined with a silvery-white streak; branches of submedian vein posteriorly defined with dark fuscous, separated by indistinct whitish streaks; hindmarginal line dark fuscous; cilia grey-whitish, with three irregular darker parting-lines. Hindwings whitish-grey, hindmarginal line dark fuscous; cilia whitish, with dark grey parting-line near base.

Very similar to *Behrii*, distinguished by the more ochreous ground colour, the golden-metallic edging of transverse band forming three separate spots, and the ochreous-yellow and whitish streaks towards inner margin. Several ♂s from Melbourne and Adelaide.

EUCARPHIA *Hb.*

Antennæ filiform, simple, in ♂ somewhat pubescent. Labial palpi rather or very long, compressed, porrected, terminal joint broad, not pointed. Maxillary palpi minute or absent. Ocelli distinct. Fore wings more or less dilated, elongate; hind wings broad, somewhat indented below apex. Fore wings with 11 veins; 4 and 5 separate. Hind wings with 8 veins; 2 rising before posterior angle of cell, 3 and 4 stalked.

A rather small genus, hitherto only recorded from Europe and S. Asia.

Euc. vulgatella n. sp.

$9\frac{1}{2}$ "— $11\frac{1}{2}$ ". Head pale greyish-ochreous, mixed with whitish. Palpi twice as long as head, pale greyish-ochreous, densely irrorated with dark-fuscous on sides and at apex. Antennæ pale greyish-ochreous, in ♂ thickened. Thorax and abdomen pale greyish-ochreous, anal tuft of ♂ pale ochreous, ovipositor of ♀ rather long, conical, bristly. Legs pale ochreous, tarsi of anterior and middle legs slightly infuscated. Fore wings elongate, narrow, costa nearly straight, hind margin oblique, slightly rounded; whitish-ochreous or pale greyish-ochreous, sometimes suffused with pale brownish-ochreous, entirely more or less densely irrorated with blackish, especially on veins, and broadly dusted with whitish along costa; a faint tendency to show a darker subcostal streak, only appearing distinctly as a short

blackish very oblique streak from apex ; at one-third a black dot above middle, and a second, much smaller and often obsolete, almost perpendicularly beneath it or slightly nearer base, on fold ; immediately before two-thirds a third larger sub-elongate black dot in middle of disc ; an indistinct, often obsolete, transverse row of five or six black dots from extremity of apical streak to anal angle ; a row of large irregular (often indistinct) black dots on hind-margin ; cilia grey, with whitish points, a whitish basal line and two dark-grey parting-lines. Hind wings pale grey, hind marginal line dark-grey ; cilia pale-grey or whitish, with dark-grey parting-line near base.

Rather variable in intensity of colouring. Very common, from Sydney to Bowenfels, and at Melbourne ; from September to January, in dry grassy places.

Euc. ensiferella, n. sp.

12". Head brownish-ochreous, face dark fuscous. Palpi twice as long as head, densely scaled, externally dark-fuscous, internally ochreous-whitish. Antennæ fuscous. Thorax ochreous, on shoulders brownish. Abdomen greyish-ochreous. Legs dark-fuscous. Fore wings elongate, narrow, costa nearly straight, lightly arched before apex, hind margin oblique, hardly rounded ; light pinkish brown-ochreous ; a rather broad ochreous-white costal streak from base to a little before apex, remainder of costa blackish, the blackish scales also extending basally half-way along both margins of costal streak ; a straight slender ochreous-white median streak from base to hind margin a little below apex, near base confluent with costal streak, beneath margined with blackish scales, much most strongly between middle and two-thirds ; between costal and median streaks an indistinct blackish transverse mark at two-thirds, and behind it a longitudinal streak of blackish scales, ending in a cloudy spot just below apex ; three branches of median vein faintly, and sub-dorsal vein more strongly defined with blackish scales ; a cloudy hind-marginal blackish line ; cilia grey, mixed with blackish-fuscous. Hind wings dark fuscous-grey, darker towards hind margin ; cilia grey mixed with fuscous, with a paler basal line.

Conspicuously different from *vulgatella* by the two longitudinal ochreous-white streaks, and absence of discal dots. 1 ♂ from Melbourne.

LASIOCERA n. g.

Forehead with a short hardly projecting cone of scales. Ocelli present. Tongue short, scaled at base. Antennæ simple, in ♂ thickened, densely clothed on basal half with thick scales. Labial palpi moderate, obliquely ascending, terminal joint short. Maxillary palpi short, filiform. Forewings rather short, dilated; hindwings moderate, slightly indented beneath apex. Legs rather short. Abdomen stout.

Characterised by the peculiar thickly-scaled antennæ of ♂. I have not yet been able to examine the venation.

Las. canilinea n. sp.

7"—8". Head, palpi, and thorax black; labial palpi white beneath towards base. Antennæ in ♂ black on basal half and at apex, whitish between, in ♀ entirely blackish. Abdomen black, with ochreous-yellow rings on posterior margin of segments; anal tuft ochreous-yellow. Legs blackish, tarsi with slender whitish rings at apex of joints, posterior tibiæ ochreous-whitish except at apex. Forewings short, moderately broad, dilated, hindmargin somewhat oblique, slightly rounded; blackish, very thinly sprinkled with whitish on disc; first line white, nearly straight, oblique, at about one-third; second line white, from a small triangular white spot on costa at three-quarters to a little before anal angle, middle third broadly curved or obtusely angulated outwards; cilia blackish. Hindwings bright deep yellow, hindmargin broadly and costa narrowly blackish-fuscon; cilia smoky-blackish, with indistinct darker black parting-line near base.

This species has considerable superficial resemblance to *Nephopteryx opimella*; apart from the structural distinctions, it may be generally known by its clear blackish colour, and rather sharp white lines. Several specimens from Goulburn and Parramatta.

CEROPREPES Z.

Forehead obtuse. Ocelli present. Antennæ setaceous, in ♂ with a small tubercle above basal joint, strongly pectinated on

one side, apex simple. Maxillary palpi short, filiform. Labial palpi moderate, ascending, cylindrical. Tongue long, scaled at base. Forewings dilated; hindwings moderately broad.

Only one other species of this genus is known, from India; it does not closely resemble the Australian one.

Cer. almella n. sp.

11"—12". Head, palpi, and thorax slaty-whitish, densely irrorated with slaty-fuscous. Antennæ dark fuscous. Abdomen slaty-whitish, densely mixed with fuscous, in ♂ more blackish, with segmental margins pale ochreous; in both sexes on posterior margin of basal segment are two ochreous valve-like projections, ending in ♂ in a long, in ♀ in a short tuft of scales, one on each side of back, beneath which is in ♂ a large, in ♀ a small excavation or orifice in side of abdomen. Anterior legs pale slaty-grey, irrorated with dark fuscous, in ♂ internally black, with pale rings at apex of joints of tarsi; middle and posterior legs slaty-whitish, irrorated with slaty-fuscous, with a strong oblique black band at one-third before apex of tibiæ, and joints of tarsi black at base. Forewings rather strongly dilated, hindmargin scarcely oblique, rounded; slaty-whitish, very densely irrorated with slaty-fuscous; a strong black nearly straight oblique transverse line near base from costa to inner margin; first line double, strong, black, from hardly beyond one-third of costa to before middle of inner margin, slightly angulated outwards a little below costa, lower half of its inner margin marked by a strong ridge of raised scales; second line double, black, faintly waved, from just before apex to just before anal angle, making a rather strong curved projection inwards below costa, and a rather indistinct sharply-acute angulation inwards above inner margin; halfway between first and second lines above middle of disc a transverse elongate-linear raised black mark, behind and beneath which is an indistinct blackish cloud, sometimes produced beneath to lower extremity of first line; hindmarginal line strong, black, broken by very small slaty-whitish spots about veins: cilia grey, intersected by a strong line of slaty-whitish scales before middle, and with tips and two lines of points before tips

slaty-whitish, immediately before each of which they are suffused with blackish. Hindwings pale clear ochreous-yellow, on upper margin towards apex suffused with dark fuscous; hindmarginal line dark fuscous; cilia pale ochreous-yellow, with a dark fuscous parting-line near base, and towards apex becoming suffused with smoky fuscous.

A very conspicuous insect. The singular orifices and valve-like arrangements at base of abdomen I conjecture to be auditory organs, from the analogy of other insects. Several specimens bred from larvæ feeding rather gregariously in silken nests on *Exocarpus cupressiformis*, near Parramatta in April; imagos emerged from June to September.

MYELOIS Z.

Forehead smooth. Antennæ filiform, simple, in ♂ finely ciliated. Ocelli distinct. Labial palpi pointed, erectly ascending, terminal joint short. Maxillary palpi short or obsolete. Forewings of variable breadth, costa straight or slightly curved; hindwings rather broad. Forewings with 11 veins; 4 and 5 stalked or separate. Hindwings with 8 veins; 3 and 4 rising stalked from posterior angle of cell.

A large and rather heterogeneous group, occurring throughout the world.

A. Forewings with a broad curved white subcostal band... 1. *subarcuella*.

B. „ „ no white subcostal band ... 2. *cosmiella*.

Euzophera ~~Myel.~~ *subarcuella* n. sp.

6½"—7". Head dark grey mixed with blackish. Palpi short, arched, blackish mixed with whitish-grey scales. Antennæ whitish, with dark fuscous rings. Thorax dark purple grey. Abdomen fuscous-grey, segmental margins and sides pale ochreous; anal tuft ochreous. Anterior legs purple-fuscous, irrorated with whitish, tarsi and apex of tibiæ blackish, tarsal joints with whitish apical rings; middle and posterior legs above purple-fuscous, irrorated with whitish, beneath ochreous-white, tarsi black with slender whitish rings at apex of joints. Forewings short, somewhat dilated, costa nearly straight, hind margin rather oblique, rounded; dark purple-fuscous, somewhat irrorated

f. n. 14,

with purple-whitish scales, especially towards hind margin; a broad, somewhat curved, white subcostal streak, sprinkled with purple scales, rising from costa a little above base, and ending on costa again a little before apex, enclosing a short narrow black costal space; apical extremity of subcostal streak margined posteriorly by a short broad oblique blackish band from apex of wing; first line hardly visible, purple fuscous, about $\frac{1}{8}$, angulated in middle; second line very indistinct, straight, double, dark purple-fuscous enclosing a paler central space, from extremity of subcostal streak to anal angle; a row of cloudy blackish spots on hind margin, generally very indistinct; cilia fuscous-grey, with purple-whitish points. Hindwings subhyaline, pale grey, darker at apex; hind marginal line dark fuscous-grey; cilia whitish-grey, darker at apex, with a dark-grey parting-line near base.

Two ♂'s from Blackheath on the Blue Mountains, in March.

Euzophera *Myel. cosmiella* n. sp.

9". Head and palpi blackish irrorated with whitish, palpi whitish at base and internally. Antennæ dark fuscous with indistinct whitish rings. Thorax blackish-fuscous. Abdomen dull ochreous, suffused with fuscous at base of segments. Legs blackish, densely irrorated with whitish, tibiæ with a black band before middle, tarsal joints with whitish apical rings. Forewings elongate, rather narrow, slightly dilated, hind margin rounded; blackish, very densely irrorated with whitish, except on each side of first line, where the black colour predominates for some breadth; first line represented by a rather broad white slightly curved transverse band, sprinkled with blackish scales, and with an indistinct central blackish streak in lower half; second line indistinct, double, black, rising from costa before apex, immediately making a strong angulation inwards, thence returning and continued to inner margin before anal angle; between first and second lines an indistinct double black spot above middle of disc: cilia grey, with many bluish-whitish points. Hindwings thinly scaled, whitish-grey, very narrowly darker grey at apex and along hind margin: cilia whitish, with a dark grey parting-line near base.

One ♂ from Melbourne.

ANERASTIA Hb.

Forehead with blunt cone of scales. Tongue short or absent. No ocelli. Antennæ filiform, in ♂ more or less distinctly sinuate above basal joint, pubescent or ciliated, in ♀ simple. Labial palpi long horizontally porrected or obliquely ascending, second joint dilated above, terminal joint long filiform. Maxillary palpi short or obsolete. Forewings elongate, narrow, hindmargin very oblique; hindwings uniformly rounded, faintly indented. Forewings with 10 veins; 4 and 5 coincident. Hindwings with 7 veins; 3 and 4 long-stalked.

A not large, but universally distributed genus, the species of which frequent dry sandy places. Besides the one described, which is very conspicuous, I have seen two other Australian species, much more nearly resembling European forms, but not in fit condition for description.

Aner. mirabilella n. sp.

7"—7½". Head dark fuscous, ochreous at back, with a slender whitish line above each eye. Palpi twice as long as head, densely scaled, horizontally porrected, dark reddish-fuscous, beneath white at base. Antennæ fuscous, thinly whitish-scaled. Thorax ochreous-grey-brown, on sides brownish-crimson. Abdomen whitish-ochreous. Anterior and middle legs externally whitish, internally dark fuscous-grey; posterior legs white. Fore-wings rather elongate, not dilated, apex rounded, hindmargin oblique, rounded beneath; pale carmine, with a rather large oval white spot on middle of inner margin, blackmargined except on lower edge; cilia whitish, with a pale carmine basal line, and blackish at apex and towards anal angle. Hindwings pale fuscous-grey, suffused with pale ochreous towards base and at apex, with a rather large irregularly elongate sharp black patch on middle of inner margin, forming a continuation of the dorsal spot on forewings, when the wings are expanded; cilia pale ochreous.

The continuation of the markings of forewings over hindwings is a very unusual and curious circumstance in this group, and in conjunction with the exceptional character of these markings, causes a singularly exotic facies. Two ♂ s, near Sydney, in January.

cf. n. 11,

HOMOFOSOMA Curt.

Forehead with a blunt ridge of scales. Tongue strong. Ocelli distinct. Antennæ filiform, in ♂ with a short notch above basal joint. Labial palpi moderate, obliquely ascending, slender, somewhat compressed; terminal joint rather more than half as long as second, filiform, rather pointed. Maxillary palpi filiform, appressed. Forewings long, moderately dilated, costa faintly curved, more strongly before apex, hindmargin very oblique, almost straight. Hindwings narrow, pointed, flatly rounded, hardly indented. Forewings with 10 veins; 8 absent, 4 and 5 stalked. Hindwings with 7 veins; 3 and 4 unstalked from posterior angle of cell.

A small genus, occurring through Europe and Asia; the larvae feed in the flower-heads of *Compositæ*. The two species described are readily distinguished from each other by their size and different markings.

Hom. vagella Z., Is., 1848, 863.

$7\frac{1}{2}$ "—8". Head whitish, densely mixed with slaty-fuscos, especially on forehead. Palpi arched, dark slaty-fuscos irrorated with whitish. Antennæ dark fuscous. Thorax dark slaty-fuscos, irrorated with whitish. Abdomen ochreous-whitish, partially suffused with grey. Legs thinly ochreous-whitish-scaled above, dark fuscous beneath. Forewings extremely narrow, hardly at all dilated, hindmargin very oblique, slightly rounded; dark fuscous, towards costa blackish, densely irrorated throughout with slaty-whitish scales, coalescing to form a more or less distinct white irregular subcostal streak from near base to about two-thirds of disc, sometimes faintly streaked with brownish; a blackish circular spot near base in middle; first line tolerably strong, cloudy, blackish, from one-third of costa to a little beyond one-third of inner margin, strongly angulated outwards above middle, indistinctly margined basally with whitish; second line indistinct, blackish, not far from and nearly parallel to hindmargin, broken and shortly acutely angulated inwards below costa; at two-thirds of disc are two blackish obliquely placed dots above middle, lower nearer to base; cilia grey-whitish, with

two indistinct irregular slaty-grey parting-lines. Hindwings whitish-grey, apex darker, hindmarginal line suffused, dark fuscous; cilia whitish, with faint darker-grey parting-line near base.

The narrowest-winged species of the genus. Tolerably common in the Sydney district; also at Melbourne and Adelaide, from September to January.

Hom. distichella n. sp.

4"—6". Head, antennæ, and thorax pale greyish-ochreous; palpi slightly arched, externally dark fuscous, internally and beneath whitish. Abdomen ochreous-whitish. Anterior legs dark fuscous; middle and posterior legs ochreous-whitish. Fore wings rather short, tolerably broad, moderately dilated, hind margin very oblique, rounded; pale whitish-ochreous, strewn with coarse blackish scales; a broad brownish-ochreous streak along fold from base to anal angle, and a shorter, sometimes broader, one above it on disc; a rather large cloudy blackish dot on disc at two-fifths, and a second obliquely below it, much nearer base, on lower edge of fold; a straight row of about five or six similar dots crossing wing in a line from four-fifths of costa to anal angle, second from costa generally largest, elongate, next three close together, confused, sixth almost on anal angle; cilia ochreous-whitish. Hind wings pale grey, hind-marginal line broad, dark fuscous; cilia ochreous-whitish.

Differs from the *nimbella* group by the merging of the second line with the discal spots; allied rather to *sinuella* F., but superficially very different in appearance. Common and generally distributed in New South Wales, from Parramatta to Bowenfels, and on the Lower Hunter R., from January to March.

EPHESTIA, Gn.

Eph. elutella Hb.

This and the three following species are naturalised importations from Europe, and are too well known to need description.

Sydney, Parramatta; common in houses. The larva feeds on biscuits, chocolate, &c.

Eph. interpunctella Hb.

Sydney, Parramatta, common. The larva feeds in corn-bins, apparently especially on maize, in company with *Sitotroga cerealella*, doing considerable damage.

GALLERIDÆ.

GALLERIA F.

Gall. mellonella L.

Specimens of this insect are sent from Queensland, where it is considered destructive; the larva feeds in bee-hives on the wax.

ACHROEA Hb.

Achr. grisella F.

Sydney, Parramatta, Melbourne; common in February and March. The larva feeds in bee-hives on the wax, causing very great destruction if not checked; but I have also seen it very abundant in a fruit-shop in Sydney, which may indicate some versatility of habit.

DESCRIPTIONS OF AUSTRALIAN MICRO-LEPIDOPTERA.

BY E. MEYRICK, B.A.

II. CRAMBITES (Continued).

In the following paper, which may be regarded as supplementary to the one published in Vol. III., pp. 175 —216, I have described all the remaining species of the group yet known to me as occurring in this region, and have also been enabled to make a few corrections and additions, relative to the species previously described. Although these insects have been mostly collected within a limited area, and represent only a fractional part of the whole number of species of this group occurring in Australia, they are yet sufficiently numerous to warrant a few general remarks on the geographical distribution of that section of the Lepidoptera of which they are representatives.

The most remarkable point to be noticed is the almost universal generic identity of the Australian species of *Crambites* with European types; but except in the case of imported species, no specific identity, and very rarely any close specific resemblance exists. The species yet described fall under 22 genera; of these two are represented by imported species only, three are also Asiatic or American, one endemic, and the remaining 16 genera are all European, and generally more or less cosmopolitan. This peculiarity becomes more remarkable if we contrast the *Crambites* with some of the principal families of *Tineina*, standing lower in the scale of development; in these (as will be shown in subsequent papers) only the larger and more dominant genera of Europe are represented, the great majority of species belonging to endemic genera. Thus taking for comparison the *Gelechiidæ*, a family which, like the *Crambites*, is distributed with remarkable evenness over the whole world, an analysis of the materials at present

obtained shows that out of 68 genera, containing over 200 species, only 14 genera, represented by 48 species, are common to Europe and Australia; whilst in the *Ecophoridae*, a family which here attains its maximum of development, we find that out of about 35 genera, with 220 species, only three genera are shared with Europe. The persistence of generic types in the case of the *Crambites* is therefore an exceptional circumstance, and in conjunction with their universal distribution must be taken to indicate an origin very remote in time, and a character little liable to be influenced by external circumstances.

The only case of close specific resemblance to a European species is that of *Etiella Behrii*, Z., which is closely allied to *E. zinckenella*, Tr., a species which possesses the (for a Phycite) extraordinarily wide range of Europe, Africa, and America. The *Micro-Lepidoptera* have as yet been so little studied outside the European region, that no profitable comparison with other faunas could be made. We have, however, on Walker's authority, at least one instance—*Crambus concinnellus*, Wkr.—of a Micro, native in this country, occurring also in India and Africa.

The additional species described hereafter are 26, of which 23 are new; and I have also quoted from Zeller the diagnoses of three species which he has described, but which I have not yet met with, in order that the list may be serviceable as a general summary of our knowledge; the few unidentified descriptions of Walker, are not worthy of a place until otherwise confirmed. With these additions the entire number of described species will be 71.

CHILONIDÆ.

CHILO, Zk.

Chil. parramattellus, P.L.S., N.S.Wales, Vol. III., p. 178.

The capture of further specimens has proved that the insects described as male and female of this, are in reality distinct species,

I had indeed suspected this at one time, but having a number of males of one form, and a number of females of the other, without the corresponding sexes, taken under the same circumstances, they were assumed to belong to the same species, the differences being such as usually indicate the sexes in this genus. Since then the other sex of each species has turned up, so that no further doubt exists. The name *parramattellus* must be retained for the male described. The female of this species is similar in all respects, but generally more suffused with fuscous.

Chil. leptogrammellus, n. sp.

Described in Vol. III., p. 178, as *Chil. parramattellus*, female; the description need not therefore be repeated here. The male is rather larger than the female, (12"-12½"), with broader and less acute fore-wings; in other points similar.

Taken at Sydney and Parramatta, in December, and again in February and March.

Chil. (?) schistellus, n. sp.

♀. 15." Head whitish. Labial palpi $2\frac{1}{2}$ times as long as head, densely scaled, dark fuscous-grey, above mixed with whitish, beneath white at base. Maxillary palpi rather short, whitish, at base fuscous-grey. Antennæ dark fuscous. Thorax dark fuscous-grey, mixed with whitish on back, becoming white posteriorly. Abdomen stout, white; anus compressed, truncate, ovipositor elongate-conical. Legs dark fuscous-grey; tarsi tinged with ochreous. Fore-wings elongate-oblong, broad; costa gently arched; apex obtuse; hind-margin strongly rounded, oblique; dark fuscous-grey, becoming much paler towards inner margin; costa slenderly white from base to apex, the white colour tending to be shortly produced along the costal vein-branches; a broad central white streak from base to hind-margin along median vein, attenuated basally, near hind-margin becoming double, the branches separated by a short, slender,

dark fuscous streak; from its lower edge beyond middle are indications only of commencement of two other branches; between median streak and costa are two elongate, white streaks, starting in confluence from a point just beyond middle, becoming wider, and running near-together to hind-margin; a hind-marginal row of seven black dots, alternating with the white streaks; cilia fuscous-grey, base and tips suffused with whitish. Hind-wings white, apex infuscated, hind-marginal line dark fuscous, interrupted; cilia white, with fuscous parting-line, only distinct round apex.

One female on the Parramatta River, in December. This hardly appears to be a true *Chilo*, but the female shows no generic point of difference, except in the more rounded wings, and abnormal crambideous markings; possibly the male may possess more definite characters.

CRAMBIDÆ.

ANCYLOLOMIA, *Hb.*

Ocelli distinct. Labial palpi moderate or long, straight, porrected; maxillary palpi triangular, appressed. No tongue. Antennæ in male, dentate or pectinated; in female simple. Fore-wings with hind-margin broadly sinuate beneath apex; marked with metallic lines between the veins, and with usually three undulated strigae before hind-margin. Hind-wings with basal pecten.

Distinguished from allied genera by the shape and markings of fore-wings.

Anc. Westwoodi, *Z. Cr. II.*

“Antennis ♂ breviter pectinatis, palpis brevibus; alis anticis latis, argenteo-venosis, pallide flavidis, in disco saturatoribus; intervallo strigarum duarum antemarginalium lato albo, striga interiore infra medium acute dentata.

Differs from other species of the genus by the absence of a white streak, and generally by the shorter palpi, broad white space before hind-margin, and acute tooth of the second striga. From Tasmania." *Z. loc. cit.*

(*Prionophora ruptella*, P.L.S., N.S. Wales, Vol. III., p. 179.

The discovery of the larva of this species has revealed the totally unexpected fact that this insect belongs to the *Geometrina*, the larva being a twelve-legged looper, feeding on *casuarina*. The pupa is abnormally shaped, elongate-cylindrical. The imago is quite abnormal amongst *Geometræ*, and I cannot conceive to what species it is allied; its long palpi and elongate fore-wings give it a very singular appearance in the group. It is fortunate that I have been able to correct the very natural error of Walker and myself.)

CRAMBUS, *F.*

Cr. apicistrigellus, *n. sp.*

7"-8". Head brownish-ochreous. Labial palpi in male $2\frac{1}{4}$, in female $2\frac{1}{2}$ times as long as head, dark fuscous, whitish beneath towards base. Maxillary palpi dark fuscous, mixed with lighter. Antennæ whitish-grey, in male thickened, dentate, finely ciliated, in female simple. Thorax ochreous-brown. Abdomen whitish-ochreous-grey, in male with elongate attenuated anal tuft, in female with short conical ovipositor. Legs white, anterior pair sometimes suffused with pale grey above. Fore-wings elongate, in male moderately broad, costa nearly straight, hind-margin oblique, slightly rounded, indented a little below apex; in female narrower, with costa straighter; dark ochreous-brown, more or less strongly irrorated with dark fuscous; three short outwardly oblique white streaks from costa, first two between $\frac{1}{3}$ and $\frac{2}{3}$, extremely oblique, almost coincident with costa, acute, separated by a narrow dark fuscous line, third less oblique from four-fifths of costa nearly to hind-margin a little below apex, attenuated

posteriorly; a small irregular oval white apical spot; a white central streak from base to $\frac{3}{4}$ of disc, at first narrow, rapidly dilated, upper edge straight, lower edge twice toothed obliquely inwards, apex more oblique than hind-margin, indented in middle; sometimes this streak reappears on hind-margin as a laterally-suffused blotch; second line visible from extremity of third costal streak to anal angle, slender, blackish, five times very acutely angulated inwards; in female the whole of the markings are lost except the white costal streaks, the rest of the wing being unicolorous: cilia white, tips and sometimes almost the whole, suffused with dark fuscous, and the dark fuscous parting-line near base, very strongly marked round apex of wing. Hind-wings pale fuscous-grey; cilia whitish, with faint-grey parting-line.

Intermediate in general character between the groups of *Cr. candiellus*, *Hs.* and *pratellus*, *L.*, but narrower-winged than any allied European species, and otherwise distinct. Amongst Australian species nearest to *concinellus*, *Walker*, but at once separated by the absence of the dorsal white streak.

Occurs at South Creek, and in abundance at Parramatta, but local; comes in plenty to light; double-brooded, the first brood in October and November, the second in February and March.

Cr. bifractellus, *Walker*.

I have come to the conclusion that this species (described in Vol. III., p. 197, as an *Eromene*) was correctly placed by Walker in *Crambus*. Its nearest allies are the group of *trivittatus*, *Z.*, and especially *aurantiacus*, which it resembles in form, differing however from all by the broken longitudinal streaks, and metallic fascia.

Cr. impletellus, *Walker*, *Cat.* 175.

♂ 11"-13". Head ochreous-brown, with a whitish spot over each eye, and indistinctly whitish behind antennæ. Labial

palpi $2\frac{1}{2}$ times as long as head, attenuated, fuscous, above and beneath narrowly white. Maxillary palpi, white, at base fuscous. Antennæ dark fuscous, subdentate, finely ciliated. Thorax ochreous-brown, with a small white spot behind, and two slender white posteriorly confluent longitudinal streaks on each side. Abdomen dull whitish-yellow. Anterior and middle legs fuscous, tibiae with central suffused whitish bands, tarsi with broad whitish rings at apex of joints; posterior legs yellow-whitish, tarsi suffused with fuscous towards base of joints. Fore-wings broad, subtriangular, costa hardly arched, hind-margin obliquely truncate, waved above and below middle, suddenly rounded beneath; dark fuscous, tinged with ochreous, but with all the scales white at base, causing an appearance of alternate lines, with numerous irregular white markings; a white central streak from base to just beyond middle of disc, at first narrow, expanded to $\frac{1}{3}$ of disc, thence acute-pointed, including a central similar streak of ground-colour; from middle of its lower edge it sends a white streak along fold to just beyond middle, whence, becoming broader, it is extremely acutely angulated back to inner margin at $\frac{1}{3}$, along which it is continued to base; a short outwardly oblique white streak from costa at two-fifths, before which is a short white partial streak along costa; an elongate oblique-transverse curved white discal spot, margined with black, at $\frac{2}{3}$ of disc, its lower angle pointing to anal angle of wing; above this is a subquadrate oblique white costal spot, only separated from discal spot by its black margin; subterminal line white, commencing as a strong inwardly oblique streak from costa a little before apex, bent outwards a little below costa, thence slenderer and often broken, gently curving down to anal angle; immediately before this is a transverse row of eight lanceolate white spots, costal one broadest, ovate, eighth elongate, above inner margin; a cloudy white streak on inner margin from $\frac{1}{3}$ to $\frac{2}{3}$; a short crooked oblique white subapical streak, and three semi-ovate, clear white, hind-marginal spots, one in centre of hind-margin, and two adjacent just above anal

angle, all margined above and below with black; hind-marginal line blackish; cilia pale grey-fuscous, with a dark central line, and chequered with three double, whitish, squares, alternating with the white hind-marginal spots. Hind-wings pale ochreous-yellow, apex slightly infuscated; hind-marginal line cloudy fuscous; cilia pale ochreous-yellow.

♀ 10". Smaller and paler than male, white markings broader and more suffused, labial palpi proportionately shorter, antennæ simple; abdomen and hind-wings dull white, apex of hind-wings infuscated.

Nearly allied to *pleniferellus*, Walker, from which it differs by the hind-wings being ochreous-yellow in male, white in female, whilst in *pleniferellus* they are grey in both sexes; and also by the differently arranged markings of fore-wings. In shape of wing and other respects this insect is evidently allied to the group of *craterellus*, Sc. and *chrysonuchellus* Sc.

Mr. G. H. Raynor took this species in some abundance near Hobart Town, Tasmania, whence also Walker's specimens were sent; it occurred early in January.

Cr. pleniferellus, Walker.

To the references for this species should have been added, as a synonym, *aurosus*, Felder and Rogenh., Novara-Reise, tab. 137, fig. 31, under which name Zeller has also since described it in the Horae Societatis Rossicae, 1877, p. 45; Walker's name has the priority and must be retained, as it is identifiable with certainty.

Cr. longipalpellus.

It seems that this species also (described Vol. III., p. 196) is, like *bifractellus*, better transferred to this genus; it is not however, closely allied to any species known to me.

Cr. relatalis, Walker.

Mr. Raynor found this species very common in Tasmania early in January, round Hobart Town and Launceston; probably it occurs throughout the island.

Cr. grammellus, Z., Cr. 46.

"Palpis longis, alis anticis subelongatis, acutis, margine postico oblique rotundato; pallidissime ochraceis, vena mediana incrassata nivea nitidula ramum longissimum inferius exserente, vitta lutea eam superius marginante in alae apicem perducta, strigula venæ transversæ lineolisque marginis postici fuscis, ciliis niveis. ♂"

Allied to the group of *relatalis*, Walker, and *opulentellus*, Z., in which it is readily distinguished by the single branch of the median streak, and pure white cilia. Habitat given doubtfully as Australia, but probably correctly.

Cr. perlatalis, Walker, Cat. 174.

12"-13". Head greyish-ochreous; a frontal line, a line over each eye, and a spot behind antennæ whitish. Labial palpi fully thrice as long as head, greyish-ochreous mixed with darker, internally whitish, beneath white at base. Maxillary palpi greyish-ochreous, with a few whitish scales. Antennæ dark fuscous, in male rather thickened, very finely ciliated. Thorax brownish-ochreous, on back suffused with fuscous grey, with a rather broad white longitudinal line on each side of back, confluent behind. Abdomen ochreous-whitish, towards base suffused with smoky-grey. Legs dark greyish-ochreous, tarsi wholly suffused with dark fuscous. Fore-wings moderately elongate, rather strongly dilated, costa nearly straight, apex subacute, hind-margin distinctly sinuate below apex, very strongly rounded off beneath; whitish-ochreous, tinged with grey; a slender white costal streak from very near base to about $\frac{2}{3}$, leaving extreme costal edge of groundcolour; a discal white streak, beginning very acutely at one-fifth from base, widening gradually until three-fifths, where it is abruptly furcate, the upper

branch moderately broad, hardly attenuated, running to costa just before apex, the lower branch constricted at base, becoming broader and more suffused, running straight to middle of hind-margin; above this lower branch are three, and beneath it two wedge-shaped white marks on hind-margin between adjacent veins, variable in size, sometimes very small, sometimes large and almost confluent, those nearest the branch always largest, connected at base by a white streak along hind-margin; a rather narrow white streak from base along lowest branch of submedian vein to anal angle, slightly bent at three-fifths, posteriorly often indistinct; a small white spot on inner margin at base; cilia ochreous-whitish, basally rather darker, with faint central parting line. Hind-wings pale fuscous grey, more whitish towards base; cilia whitish, with faint grey parting-line.

Intermediate between *relatalis*, Wlk. and *opulentellus*, Z.; differs from all the allied species except *grammellus*, Z., by the pale washy tint of ground-colour, and single branch of median streak; from *grammellus*, Z., by the furcation of the median streak, and hind-marginal spots; from the Tasmanian *invalidellus*, which is also a pale species, by the furcate streak and grey hind-wings.

Taken in plenty by Mr. G. H. Raynor, near Launceston, Tasmania, early in January.

Cr. enneagrammos.

Also common near Launceston, Tasmania, early in January. Although in Victoria and Tasmania this insect appears in January, near Sydney, although still single brooded, it is not on the wing until March.

Cr. argyroneurus, Z., *Cr.* 47.

“Alis anticis oblongis, acutis, margine postico infra apicem retuso, griseo-ochraceis, vitta tenui subcostali, venaque mediana incrassata cum ramis argenteis, ramo secundo tertioque partim connatis, ciliis albidis nitidulis. ♂.”

This species, of which Zeller's first specimen came from Adelaide, appears to be certainly distinct from any species which I have seen. Subsequently (Hor. Soc. Ross. 1877, p. 58) he mentions having seen a second specimen in all respects similar to the first. He describes it as closely allied to *opulentellus*, Z., but distinguished especially by the costal white streak reaching base, the thickened branches of median streak, and the partial confluence of the second and third branches. In the two former points it agrees well with *enneagrammos*, but differs by the yellowish maxillary palpi, and union of second and third branches of median vein, with partial obsolescence of second, nor has Zeller mentioned any white triangle above the median streak. None of the very numerous specimens of *enneagrammos* which I have seen from Victoria, New South Wales and Tasmania, possess either of these characteristics.

In addition to the *Crambi* described here and previously, Walker gives in his catalogue five other descriptions, which I have not thought deserving of inclusion in the list, but of which a brief notice may be useful. The description of *Cr. ramostriellus*, Cat. 172, is hardly intelligible, and almost certainly unidentifiable, unless it is synonymous with the succeeding *relatalis*. *Demissalis*, *vetustellus*, and *delatalis*, Cat. 176, are no doubt *Crambi* of the *perlellus* group, but may possibly be all synonymous; the first two are from Western Australia, the third from Queensland. *Ochraceellus*, Cat. 177, from Sydney, is of dubious character; it seems improbable that so conspicuous a *Crambus* could occur here at all commonly (Walker's specimens were sent by three different collectors) without being found in any one of the local collections I have seen.

ARGYRIA, *Hb.*, (CATHARYLLA, Z.)

Characters of *Crambus*, except that the labial palpi are relatively shorter, generally not longer than head and half thorax; from *Eromene*, which it resembles in the shorter palpi, it differs

by the absence of the transparent spot at base of hind-wings in male. From both it is removed by the white, sometimes fasciated, fore-wings. The genus is distributed through nearly all warm countries, excepting Europe.

Arg. argyraspis, n. sp.

6"-8". ♂ ♀. Head snow-white, with an orange spot behind each eye. Labial palpi rather more than twice as long as head, gradually attenuated, snow-white above, orange-ochreous beneath. Maxillary palpi white, at base ochreous. Antennæ orange-ochreous, annulated with white, in male rather thickened, subdentate. Thorax shining snow-white, with a rather broad ochreous-orange longitudinal line on each side of back. Abdomen ochreous-whitish. Legs whitish, anterior and middle tibiae, and all tarsi bright ochreous-orange above. Fore-wings triangular, very broad posteriorly, costa almost straight, hind-margin truncate, very slightly oblique, anal angle hardly obtuse; shining snow-white; costa narrowly dark ferruginous from base to apex, faintly dentate beneath at $\frac{1}{2}$ and five-sixth; inner margin narrowly dark ferruginous from near base to anal angle, emitting an acute projecting tooth inwards at $\frac{1}{2}$; hind-margin very narrowly dark ferruginous, marked with a row of subelongate black spots, and with a marginal black line on apical half; cilia ferruginous-orange, with a purple-fuscous parting-line near base. Hind-wings in male whitish, in female very pale fuscous-grey, hind-marginal line dark fuscous; cilia whitish.

The species is distinguished in the genus by its small size, the ferruginous costal and inner margins, and absence of fascia. Two specimens (1 ♂. 1 ♀) were taken by Mr. F. Burkitt, in my presence at Bulli and Wollongong at the beginning of October, flying before sunset in grass-fields. also at Torowomba, Queensland.

DIPTYCHOPHORA, Z.

Ocelli distinct. Labial palpi rather short, porrected or ascending; maxillary palpi triangular, appressed. Tongue spiral. Fore

wings with hind-margin twice slightly emarginate or indented below apex; hind-wings with basal pecten.

A small, recently defined, genus, distinguished especially by the two indentations below apex of fore-wings. The only other species known besides the Australian are from South America.

To this genus, and not to *Eromene* should be referred the species described in Vol. III., p. 198-199, as *praematurella* and *dilatella*, which I now, from the examination of further specimens, consider to be merely the spring and summer broods of the same rather variable insect, for which the name *praemat^urella* must be retained. It is common, but local, in marshy places near Sydney, from October to February. It is very similar to the South American species, but differs by the possession of usually eight hind-marginal spots, instead of three.

PHYCIDÆ.

NEPHOPTERYX, Z.,

Neph. euraphella, n. sp.

9". ♀. Head silvery-grey, mixed with dark fuscous. Palpi arched, ascending, attenuated, hardly reaching forehead, whitish-grey, densely mixed with blackish-fuscous. Antennae grey. Thorax silvery-grey, densely mixed with blackish-fuscous. Abdomen silvery-grey, suffused with dark fuscous, except on apical rings of segments. Legs dark slaty-fuscous, irrorated with whitish; tarsi dark fuscous with whitish rings at apex of joints; posterior tibiae with an oblique rather broad blackish ring a little before apex. Fore-wings elongate, narrowed at base, costa bent in middle, thence parallel to inner margin, apex rounded, hind-margin obliquely rounded; pale grey, irregularly irrorated with darker grey and dark fuscous scales, the darker scales predominating along costa and hind-margin, and more narrowly along inner-margin; along fold and beneath costa the ground-colour is mixed with whitish; first line from $\frac{1}{3}$ of costa

to two-fifths of inner margin, straight, moderately oblique, rather broad and strongly marked, black; second line from about five-sixths of costa nearly to anal angle, rather slender, black, bordered externally with whitish, angulated sharply inwards below costa, and again obtusely at $\frac{1}{3}$ above inner [margin; an irregularly crescentic black spot on disc at $\frac{2}{3}$, a little below costa, beneath which the dark scales of ground-colour form an obsolete dark shade, resting on inner margin: cilia pale fuscous-grey, indistinctly shaded with darker. Hind-wings almost wholly transparent, suffused with pale-grey posteriorly; hind-margin very narrowly clouded with darker fuscous-grey; cilia pale grey, darker round apex, with cloudy darker parting-line.

The male being unknown, the species may not perhaps be a true *Nephopteryx*. It is intermediate in breadth of wing between *stenopterella* and *opimella*, and cannot possibly be confused with either; *stenopterella* has straight porrected palpi, and *opimella* yellow hind-wings.

One female taken at light at Wollongong in the beginning of October.

Neph. infusella, n. sp.

8 $\frac{3}{4}$ ". ♀. Head pale grey. Palpi hardly longer than head, curved, ascending, terminal joint slender, whitish, mixed with fuscous-grey. Antennæ grey. Thorax pale slaty-grey, darker on back, with a few black scales. Abdomen whitish ochreous, base of segments pale grey. Legs ochreous-whitish, finely irrorated with fuscous, all tibiae with an indistinct oblique blackish band, in anterior pair above, in middle and posterior pair below the middle; tarsi black, with broad ochreous-whitish rings at apex of joints. Fore-wings elongate, narrow, gradually dilated, costa rounded before obtuse apex, hind-margin rounded, oblique; pale slaty-grey, irregularly thinly irrorated with blackish scales; a rather broad outwardly curved central transverse band of blackish scales, internally obscurely bordered on disc with

chestnut-brown, externally suffused; upper half of second line barely indicated with blackish scales, sharply angulated at $\frac{1}{3}$ from costa; a row of several ill-defined spots of black scales on hind-margin; cilia pale grey, with whitish points. Hind-wings whitish-grey, subhyaline, hind-marginal line dark fuscous, suffused; cilia whitish, with fuscous-grey parting-line.

Of this species also the male is not known; it is however certainly allied to *euraphella*, with which it also agrees in general habit, but may be readily known by its central dark band, and the absence of the strongly-marked first and second lines.

One female received from neighbourhood of Duaringa, Queensland taken by Mr. G. Barnard.

Neph. fornacella, n. sp.

7". ♀. Head, palpi, antennæ, and thorax, dark grey; palpi obliquely ascending, reaching not much above head. Abdomen dark iridescent ochreous-grey. Legs ochreous-whitish, irrorated with dark fuscous, tarsi dark fuscous with whitish-ochreous rings at apex of joints. Fore-wings elongate, narrow, costa gently arched, hind-margin obliquely rounded; dull grey, clouded with darker. along costa rather broadly sprinkled with whitish; first and second lines obscurely darker grey; first line angulated above middle; second line double, near hind-margin, sending a short acute angulation obliquely inwards a little below costa; discal spot rather large, single, cloudy, transverse; cilia dark grey. Hind-wings deep golden-fulvous; cilia greyish-fulvous, with indistinct darker parting-line.

Tolerably nearly allied to *stenopterella*, which it resembles in shape, size, and general markings, but differs by the ascending palpi and golden-fulvous hind-wings.

Two females taken at light, Parramatta, late in February.

Considerable dissimilarity exists between the five hitherto described Australian species of *Nephopteryx*, but the variation is

analogous to that which occurs amongst the European species. Thus *opimella* closely resembles in form the short-winged European *vacciniella*, Z.; *euraphella* and *infusella* have the general figure of *genistella*, Dup.; whilst the narrow-winged *stenopterella* and *fornacella* bear much similarity to *Metzneri*, Z., to which indeed *stenopterella* seems rather nearly allied.

PEMPELIA, Hb.

Pemp. melanostyla, n. sp.

10". ♀. Head grey-whitish, mixed with darker. Palpi hardly longer than head, obliquely ascending, terminal joint horizontal; whitish above, blackish beneath. Antennæ filiform, blackish. Thorax whitish-grey, coarsely irrorated with blackish. Abdomen dark iridescent grey; sides, apical rings of segments, and anal tuft pearly whitish. Legs whitish; anterior pair, and all tarsi blackish, with pale rings at apex of joints. Fore-wings elongate, moderately broad, gradually dilated, costa hardly arched, hind-margin rather oblique, slightly rounded; grey whitish, coarsely irrorated with black scales, partially confluent over disc; first line strong, black, somewhat clouded, from two-fifths of costa to two-fifths of inner margin, indistinctly waved, hardly curved beneath costa, ending on inner margin in a small sub-quadrate black spot, the lower angle of which is produced along inner margin nearly to base as a strong black streak: second line hardly perceptible, waved, blackish, obsolete; a row of large black dots on hind-margin; cilia dark fuscous-grey, tips and a parting-line grey-whitish. Hind-wings sub-hyaline, whitish; hind-marginal line slender, black: cilia whitish, with dark grey parting-line.

Not near to any other species; the well-characterised first line readily distinguishes it from the rest of the genus.

One female taken at light at Parramatta, by Mr. G. H. Raynor, in September.

Pemp. strigiferella, Vol. III., p. 202.

In my description hardly sufficient latitude is allowed for the extreme variation of this changeable species. The males vary greatly in intensity of marking; sometimes all markings, even the characteristic subapical streak, are almost obsolete, and the entire insect is nearly uniform pale greyish-ochreous. The female, when in fine condition, which is rarely the case, usually shows the first and second lines clearly marked, much more so than in male, and is sometimes much suffused with smoky fuscous.

The species appears to be especially (perhaps wholly) a coast insect, occurring abundantly along the sea-line from Newcastle to Kiama, throughout the summer months.

Pemp. caliginosella, n. sp.

9 $\frac{3}{4}$ ". ♂ ♀. Head light ochreous-brown. Labial palpi rather longer than head, obliquely ascending, light ochreous-brown, in male ochreous-whitish beneath. Antennæ greyish-ochreous, in male thickened, dentate, very finely ciliated, with a flattened tuft of black scales, whitish on sides, in sinuation; in female simple, filiform. Thorax brownish-ochreous, irregularly suffused with blackish scales. Abdomen pale ochreous, segments basally suffused with grey, in male with pale ochreous anal tuft, in female with pointed elongate-conical ovipositor. Legs pale ochreous brown, slightly irrorated with blackish. Fore-wings moderately elongate, sub-triangular, narrow at base, regularly dilated, hind-margin obliquely rounded; pale greyish-ochreous-brown, almost entirely suffused with blackish fuscous except on a narrow segmental patch on costa between two-fifths and four-fifths, and a broader area above anal angle, extending more or less along inner and hind-margins; all markings obscured, except faint traces of a dark fuscous cloudy second line; a hind-marginal row of black dots: cilia pale brownish-ochreous, with two suffused grey-fuscous parting-lines. Hind-wings pale fuscous-grey, darker posteriorly, hindmarginal line

dark fuscous; cilia whitish-grey, with dark fuscous-grey parting-line.

Very closely allied to *strigiferella*, but smaller, costa somewhat straighter, and distinguished by the peculiar suffusion and pale patches of the fore-wings; the sexes are precisely similar, whilst in *strigiferella* they differ markedly.

One pair, taken early in February near Sydney.

The group of five closely allied species, to which this belongs, conspicuous only by their dull colouring, do not come very close to any European species of the genus; they are perhaps nearest to *P. fusca*, *Hw.*

Pemp. oculiferella, n. sp.

♂. 11"-12½". Head, palpi, and thorax, pale dull ochreous, with a few scattered blackish scales, centre of thorax blackish; labial palpi longer than head, nearly straight, obliquely ascending; maxillary palpi ochreous-brown, tuft-like, nearly as long as labial palpi. Antennæ blackish, subdentate, finely ciliated, with a long flattened tuft of black hair scales in basal sinuation. Abdomen pale dull ochreous, thinly irrorated with blackish. Legs pale ochreous, very densely irrorated with blackish. Fore-wings elongate, moderately broad, gradually dilated, costa straight until a little before apex, hind-margin rather oblique, slightly rounded; pale ochreous, along disc tinged with reddish-brown, along costa and inner-margin rather broadly suffused with dark fuscous, and irrorated with blackish and a few whitish scales; the inner-marginal shade is blackish at $\frac{1}{3}$, where it includes a small round pale ochreous spot, open above, containing a central black-dot; a short broad oblique blackish-fuscous apical streak; two small black discal dots at $\frac{2}{3}$, one directly above the other; veins posteriorly faintly shaded with blackish; a hind-marginal row of strong black spots: cilia fuscous-grey, with rows of whitish points. Hind-wings fuscous-grey, paler towards base, hind-marginal line dark-fuscous; cilia whitish-grey, with dark grey parting-line.

♀. 9"-10½". Smaller and darker than male; fore-wings much or almost wholly suffused with dark grey-fuscous, through which the markings are only faintly visible, excepting a distinct circular ochreous spot at $\frac{1}{3}$ of inner margin, enclosing a white dot; sometimes the ochreous colour is extended along or near inner-margin. Hind-wings slightly darker than in male.

Allied to *strigiferella* and its associates; it is variable in intensity of colouring, but generally well characterised by the inner-marginal small ocellus, which is black-centered in male, white-centered in female; the male is also distinguished by the partial reddish-ochreous tinge of disc, and the female is the darkest in the group, and also exceptional in being smaller than male.

Not uncommon at light at Parramatta; it appears to be double-brooded, occurring from November to January, and again in March.

Pemp. digrammella, n. sp.

9". ♂ ♀. Head ochreous-brown. Labial palpi considerably longer than head, nearly perpendicularly erect, pale ochreous, on sides dark fuscous. Antennæ dark fuscous, in male thickened, finely ciliated, with a triangular tuft of blackish scales in sinuation, in female simple. Thorax brownish-ochreous, on back greyish. Abdomen in male ochreous, in female whitish-ochreous-grey, base of segments suffused with dark grey. Legs in male ochreous, in female ochreous-whitish, more or less densely irrorated with dark fuscous. Fore-wings elongate, rather narrow, costa gently arched, hind-margin obliquely rounded; pale whitish-ochreous, suffused (especially in male) with brighter brownish-ochreous, coarsely irrorated along costa and posteriorly on veins with blackish scales; first line whitish, oblique, slightly curved, from before $\frac{1}{3}$ of costa to two-fifths of inner margin, internally rather broadly edged with fuscous, externally with a black marginal dot above middle and another on fold; second line whitish or ochreous-whitish, strongest on

costa, proceeding from five-sixths of costa obliquely inwards, sharply angulated outwards above middle, then inwards and running straight to anal angle, obscurely edged on both margins with dark fuscous, its outer margin edged on costa with an oblique short blackish-fuscous wedge-shaped streak reaching apex; a large black dot in middle of wing before $\frac{2}{3}$, placed in a slender longitudinal whitish line; an obsolete row of blackish hind-marginal spots: cilia pale grey, with three clear darker parting-lines. Hind-wings rather pale fuscous-grey, darker posteriorly, hind-marginal line dark fuscous; cilia whitish-grey, with darker grey parting-line.

Closely allied to *strigiferella*, *rufitinctella*, and *oculiferella*, but differing from all (except the much larger female of *strigiferella*) by its clearly expressed first and second lines, as well as by its small size, and single (not double) discal black dot. The sexes are quite similar in size and appearance.

One pair taken at light at Parramatta by Mr. G. H. Raynor, in December.

Pemp. apotomella, n. sp.

8"-10 $\frac{1}{2}$ ". ♂ ♀. Head whitish-ochreous, almost entirely suffused with brownish-ochreous. Labial palpi rather longer than head, obliquely ascending, whitish-ochreous mixed with brownish. Antennæ whitish-ochreous, in male finely ciliated, with a flattened tuft of black scales in basal sinuation, in female slender, simple. Thorax brownish-ochreous posteriorly, shading into dark purple-fuscous anteriorly, sometimes tinged with dull crimson. Abdomen golden-ochreous, paler on sides. Legs rather pale ochreous, anterior pair partially suffused with fuscous. Fore-wings moderately elongate, gradually dilated, costa gently arched, hind-margin oblique, slightly rounded; pale dull greyish-crimson, suffused between veins with grey scales; a broad ochreous-whitish costal streak from base to apex, slightly attenuated at each extremity, margined beneath by a broader dark grey-fuscous

streak from base to apex, the lower margin of which is suffused into ground-colour; cilia pale dull greyish-crimson. Hind-wings pale fuscous-grey, subhyaline towards base, darker at apex, hind-marginal line fuscous; cilia whitish-grey.

Apparently allied to the European *P. semirubella*, Sc., but much smaller, with narrower and more pointed forewings, more suffused with dark grey, and with broader costal streak.

Three specimens (one male, two females) sent from Duaringa, Queensland, by Mr. G. Barnard.

SPERMATOPHITHORA, Ld.

Forehead with an obtuse cone of scales. Ocelli present. Antennæ slightly sinuate above base in both sexes. Labial palpi rather short, ascending, compressed, terminal joint horizontal. Maxillary palpi filiform, appressed, in male rather long, in female quite short. Fore-wings with 11 veins, 4 and 5 stalked. Hind-wings with 7 veins.

This genus contains only one European species; the species described below is doubtfully associated with it, though certainly akin; it has the facies and general character of a *Pempelia*, but is without the characteristic antennal tuft of male. The Australian species possesses instead three minute acute teeth on the inner side of antennæ a little above base; the basal joint is also thickened.

Sperm. mesactella, n. sp.

7½". ♂. Head pale ochreous, frontal cone blackish. Palpi slightly longer than head, straight, obliquely ascending, second joint pale ochreous, becoming blackish at apex, terminal joint entirely black. Antennæ pale ochreous, basal joint swollen, laterally compressed, sinuate above base, fourth to sixth joints each with a small black acute slender tooth. Thorax pale ochreous-grey, anterior margin tinged with dull carmine. Abdomen pale ochreous, bases of segments irrorated with pale grey. Legs ochreous-whitish, slightly irrorated with fuscous,

all tarsi and apex of posterior tibiæ entirely dark fuscous. Fore-wings moderately elongate, gradually dilated nearly to apex, hind-margin slightly oblique, rounded beneath; pale whitish-ochreous, suffused with darker ochreous, and thinly sprinkled with blackish-scales; a very broad whitish subcostal band, thinly sprinkled with black scales, from base to costa just before apex, completely covering costa except a very narrow strip from $\frac{1}{2}$ to $\frac{3}{4}$; this subcostal band is margined beneath from $\frac{1}{2}$ to apex by a rather broad cloudy fuscous-grey streak, mixed with blackish; second line barely indicated by an obsolete prolongation of this cloud towards anal angle; a row of dark fuscous scales along hind-margin: cilia fuscous-grey, paler towards tips, with indistinct rows of whitish points. Hind-wings unicolorous pale grey, hind-marginal line clear dark fuscous; cilia pale grey, towards anal angle whitish, with strong dark fuscous parting-line.

This species bears considerable superficial resemblance to the South European *Pemp. sororiella*, Z., but, besides the structural differences, is without the distinct first and second lines of that insect.

One male taken at light, Parramatta, in October.

EUCARPHIA, *Hb.*

Euc. neotomella, *n. sp.*

12". ♂. Head white. Labial palpi thrice as long as head, densely haired, terminal joint attenuated, white, mixed on sides with fuscous-grey. Antennæ whitish, thickened, dentate, rather strongly ciliated. Thorax whitish, almost wholly suffused with light grey. Abdomen white, basal segments ochreous. Legs white, beneath tinged with grey. Fore-wings rather short, moderately broad, costa slightly arched, apex rounded, hind-margin oblique; fuscous-grey, densely mixed with whitish scales, so as to appear much paler, darkest towards costa, especially on basal half; a tolerably broad straight clear white subcostal streak

from base nearly to costa just before apex, attenuated and obsolete at extremity; cilia white, with several rows of indistinct pale grey points. Hind-wings white, very faintly tinged with fuscous towards apex, hind-marginal line fuscous-grey; cilia white, with faint grey parting-line.

Not to be confused with any other *Eucarphia*; it somewhat resembles superficially *Etiella sincerella*, but, in addition to the generic differences, may be known by its white head and sub-costal (not costal) white streak.

One male at light, Parramatta, in October.

Euc. vulgatella, Vol. III., p. 207.

In addition to the localities given, this species occurs generally in the Illawarra and Shoalhaven districts, and was taken by Mr. Raynor commonly throughout Tasmania.

Euc. cnephælla, n. sp.

12"-12½". ♀. Head greyish-ochreous, collar irrorated with black scales. Labial palpi more than twice as long as head, porrected, slightly bent downwards, laterally compressed, greyish ochreous, on sides and apex suffused with fuscous. Antennæ fuscous-grey. Thorax greyish-ochreous, more or less densely irrorated with blackish scales. Abdomen whitish-ochreous irrorated with dark fuscous-grey. Legs pale ochreous, suffusedly irrorated with dark fuscous. Fore-wings rather short, moderately broad, posteriorly gradually dilated, hind-margin moderately oblique, slightly rounded; whitish-ochreous, discally suffused with clearer ochreous, rather closely and irregularly irrorated with blackish-grey scales, sometimes so densely as to overcloud the ground-colour; these dark scales generally disappear along the fold, leaving an obsolete paler line; an irregular strong blackish spot in middle of base; first line cloudy, blackish, rather broad, from $\frac{1}{3}$ of costa obliquely outwards to disc, there rectangularly bent in and proceeding obliquely inwards to two-

fifths of inner margin; second line cloudy, blackish, indistinct, strongly waved throughout, tending to separate into elongate points, broadly sinuate inwards beneath costa; a cloudy blackish oblique apical blotch or streak, obscuring origin of second line; a single large elongate black dot on disc at $\frac{2}{3}$, midway between costa and inner margin; in suffused specimens the markings are partially obscured; a hind-marginal row of about eight small cloudy black dots: cilia fuscous-grey, with several rows of whitish points. Hind-wings pale fuscous-grey, rather darker towards apex; hind-marginal line clear, dark fuscous; cilia greyish-whitish, with strong clear dark fuscous parting-line.

Closely allied to *Euc. vulgatella*, but easily recognised by the broader fore-wings, with more arched costa, and the strongly marked transverse lines, which in *vulgatella* are hardly indicated. Also very similar to *Pemp. strigiferella* female, from which it may be known, even when alive, by the very different long porrected palpi.

Three females taken at light, at Parramatta, in October and March; it is therefore probably double-brooded.

MYELOIS, Z.

Myel. oenobarella, n. sp.

7"-8 $\frac{1}{2}$ ". ♂ ♀. Head brownish-ochreous. Palpi slender, recurved, reaching forehead, pale ochreous, mixed with blackish scales on sides, apex entirely blackish. Antennæ ochreous-whitish, annulated with black, in male thickened, finely ciliated, in female filiform. Thorax brownish-ochreous, suffused with dull carmine, with spots of blackish scales in centre and on shoulders, and with a few blackish scales posteriorly. Abdomen pale ochreous, segments suffused with dark grey-fuscous except on apical rings; in male with bright ochreous anal tuft. Legs pale ochreous, irrorated with carmine and dark fuscous scales, tarsi dark fuscous with pale ochreous rings at apex of joints, middle and posterior tibiæ with oblique black central bands,

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Fore-wings elongate, narrow, slightly dilated, hind-margin slightly oblique, rounded beneath; brownish-ochreous, irregularly and densely mixed with blackish, and with a few whitish-ochreous or whitish scales, and suffused in irregular patches, except along costa, with ochreous-orange or dull carmine; a short black basal streak on inner-margin; first line broad, whitish, cloudy, from $\frac{1}{2}$ of costa obliquely outwards, angulated inwards on disc, then outwards on fold, thence to inner margin at two-fifths, bordered externally throughout by a broad cloudy blackish fascia; second line narrow, whitish, waved, from five-sixths of costa to anal angle, sending a strong blunt angulation inwards below costa, and a short acute one just above anal angle, margined throughout on both sides with blackish, most strongly internally; two round black dots on disc at $\frac{2}{3}$, above middle, the upper one nearer base; hind-marginal line black, interrupted on veins; cilia ochreous at base, becoming pale grey. Hindwings pale grey, slightly darker posteriorly; hind-marginal line clear, dark fuscous; cilia whitish-grey, tinged with ochreous, with indistinct darker grey parting-line.

This is at present the only Australian representative of the genus, the other species originally referred to *Myelois* being more correctly placed elsewhere; it is narrower-winged than the typical European forms.

One pair taken at Sydney and Parramatta in October, the male at light, the female at rest on a fence. *also common at Brisbane.*

EUZOPHERA, Z.

Forehead smooth. Ocelli present. Antennæ not sinuate, simple. Labial palpi rather short, ascending filiform, terminal joint shorter than second, rather pointed. Maxillary palpi very short. Fore-wings usually narrow, posteriorly dilated, costa more or less curved. Hind-wings rather narrow, flatly rounded. Fore-wings with 11 veins; 4 and 5 stalked or rarely separate.

Hind-wings with 7 veins; 2 before (rarely from) posterior angle of cell.

This genus, which contains about a dozen European species, is nearly allied to *Myelois*, from which it is distinguished by the hind-wings having only 7 veins.

Euz. leucarma, n. sp.

7". ♂. Head dark grey, mixed with whitish. Palpi nearly straight, obliquely ascending, reaching a little above head, blackish mixed with purplish-white, second joint with a terminal white ring. Antennæ somewhat compressed above basal joint, thickened, finely ciliated, whitish-ochreous. Thorax dark grey. Abdomen blackish-grey, sides, apex, and apical ring of each segment pale dull ochreous. Anterior and middle legs dark purple-fuscous, tarsi with whitish-ochreous rings at apex of joints, middle tibiæ whitish on apical half except an oblique blackish band at $\frac{3}{4}$; posterior legs whitish, beneath dark fuscous. Fore-wings rather short, broad, subtriangular, costa slightly arched, hind-margin hardly oblique, anal angle rounded; dark purple-grey, becoming broadly blackish towards costa, elsewhere with apex of each scales whitish-grey; first line represented by a rather broad oblique white fascia from before $\frac{1}{4}$ of costa to $\frac{1}{3}$ of inner-margin, broadly margined on each side with black, but partially suffused and indistinct externally towards inner margin; a large indistinct whitish blotch, irrorated with dark fuscous, on costa between $\frac{1}{2}$ and five-sixths, in the lower part of which is a crescentic black discal spot; second line hardly lighter than ground-colour, obsolete: cilia dusky-grey, with ochreous-whitish points. Hind-wings pale grey-fuscous, darker towards apex; cilia pale grey, with cloudy darker parting-line.

The broadest winged species of the genus; nearly allied to *subarcuella*, but readily known by the white transverse fascia.

One male at light, Parramatta, in March.

Euz. subarcuella, Vol. III., p. 211.

This species and the succeeding one are shown by the neurulation, which I had not previously been able to examine, to differ from *Myelois* in the possession of only 7 veins in the hind-wings, and must therefore be referred to this genus.

Euz. cosmiella, Vol. III., p. 212.

One male sent from Duaringa, Queensland, by Mr. G. Barnard.

Euz. microdoxa, n. sp.

7"-7½". ♂ ♀. Head, palpi, and thorax whitish-grey, mixed with darker grey-fuscous; palpi arched, ascending, shorter than head. Antennæ fuscous-grey. Abdomen ochreous-grey, anal tuft whitish-ochreous. Legs whitish, very finely and densely irrorated with blackish; anterior and middle tarsi blackish with white rings at apex of joints; posterior tibiæ and tarsi white above. Fore-wings short, moderately narrow at base, rather strongly dilated, hind-margin oblique, slightly rounded; in the male specimen white, irregularly irrorated with close blackish scales, so as to appear dark grey, except on a round suffused spot before first line above middle, and an irregular inwardly oblique costal spot before apex; in the female specimen dull light-grey, irrorated with fuscous, with a large dark fuscous blotch resting on costa between first line and discal spots; in both the lower half of wing somewhat suffused with pale grey-brown; first line slender, clear, black, nearly straight, irregularly dentate, from two-fifths of costa to middle of inner margin, internally margined with whitish; second line slender, black, swollen towards inner margin, from four-fifths of costa to just before anal angle, faintly dentate, slightly angulated inwards just above middle, margined externally with whitish, and beyond this by a broader dark fuscous-grey shade; two strong black discal dots at $\frac{2}{3}$, one directly above the other, almost confluent into a streak; a hind-marginal row of blackish irregular spots; cilia fuscous-grey, with rows of

whitish points. Hind-wings dark ochreous-fuscous-grey; cilia grey-whitish, tinged basally with ochreous, with faint darker parting-line.

A dull-looking species, having somewhat the facies of *Ephestia*, recognisable by the distance of the first line from base of wing.

One pair, certainly belonging to the same species, though the ground-colour is differently disposed; the male taken by Mr. G. H. Raynor at Launceston, Tasmania, early in January; the female sent from Duaringa, Queensland, by Mr. G. Barnard.

EPISCHNIA, *Hb.*

Forehead with a cone of scales. Ocelli present. Antennæ in male sinuate above basal joint, finely ciliated, in female simple. Labial palpi long, somewhat ascending, compressed; maxillary palpi short. Breast in male with a long tuft of hairs. Fore-wings narrow, hardly dilated; hind-wings narrow, very flatly rounded. Fore-wings with 11 veins; 4 and 5 not stalked. Hind-wings with 8 veins; 3 and 4 stalked.

To this genus the following species is doubtfully referable; further specimens will be required to complete the investigation. It has the general facies of an *Anerastia*, but differs in venation.

Episch. neurophorella, n. sp.

6½". ♀. Head pale ochreous. Palpi twice as long as head, porrected, whitish-ochreous, beneath mixed with blackish. Antennæ whitish-ochreous. Thorax whitish-ochreous, with a longitudinal slender blackish line on each side of back, and a longitudinal blackish streak on shoulder. Abdomen and legs whitish-ochreous. Fore-wings elongate, rather narrow, hardly at all dilated, costa arched before apex, hind-margin very obliquely rounded; pale whitish-ochreous, all the veins clearly marked with coarse blackish scales; before $\frac{2}{3}$ of disc is a rather broad transverse cloudy blotch of coarse dark fuscous scales, reaching nearly to costa and inner margin; two small black costal spots at one-sixth

and before middle; a faint transverse slender fuscous cloud a little before apex; hind-marginal line dark fuscous: cilia whitish-ochreous, tips and a cloudy parting-line fuscous. Hind-wings whitish, extreme apex infuscated; cilia whitish, smoky at apex.

One female taken at Sydney on a fence in December.

ANERASTIA, Hb.

Aner. mirabilella, Vol. III., p. 213.

Since publishing my description, I have obtained two females at light at Parramatta in October. This sex differs from the male in having the white dorsal blotch of the fore-wings much suffused with black, and the hind-wings blackish-grey, with ochreous cilia, without any continuation of the dorsal blotch of fore-wings over their surface; in all other respects the sexes are similar in colouring.

Aner. virginella, n. sp.

8"-11½". ♂ ♀. Head carmine-pink, thinly mixed with whitish-ochreous. Palpi more than two and a half times as long as head, horizontally porrected, carmine-pink, mixed with whitish above and internally. Antennæ ochreous-whitish, basal joint suffused with carmine anteriorly, in male rather strongly sinuate above base. Thorax carmine-pink, mixed with whitish posteriorly. Abdomen elongate, whitish-ochreous. Legs whitish-ochreous. Fore-wings elongate, moderately narrow, costa slightly arched, apex rounded, hind-margin very oblique; carmine-pink, towards costa and inner-margin tinged with ochreous; the veins more or less distinctly white, the median vein most conspicuous; cilia carmine-pink. Hind-wings whitish, hind-marginal line pale fuscous-grey; cilia whitish, with cloudy grey parting-line.

Appears to be nearly allied to the Indian *A. sceletella*, Z., which however has suberect palpi. Three specimens (one male, two females) sent from Duaringa, Queensland, by Mr. G. Barnard.

Aner. psamathella, n. sp.

9½". ♂. Head whitish-ochreous. Palpi thrice as long as head, roughly-scaled, horizontally porrected, whitish-ochreous, mixed on sides with dark fuscous. Antennæ whitish-ochreous, thickened, subdentate, finely ciliated, rather strongly sinuate above basal joint. Thorax whitish-ochreous, irrorated with darker. Abdomen whitish-ochreous. Legs greyish-ochreous, tarsi mixed with dark fuscous. Fore-wings elongate, moderately narrow, costa markedly arched, apex rounded, hind-margin very oblique; greyish-ochreous, becoming much paler along inner-margin; all veins broadly indicated with ochreous-whitish; a few large black scales tending to form a transverse row a little before hind-margin, and two or three other scattered black scales towards inner-margin and base; a row of nearly obsolete cloudy fuscous dots on hind-margin: cilia ochreous-whitish, tips mixed with dark fuscous. Hind-wings fuscous-grey, slightly paler near base; cilia whitish, with faint grey parting-line.

One male taken at Sydney in December. also at Brisbane.

EPHESTIA, Gn.

Eph. ficulella, Barrett.

This species, closely allied to *E. elutella*, and until recently confused with it, is larger and darker than *elutella*, with the fore-wings narrower at base and the costa posteriorly more rounded, and the hind-wings possess only one tuft of yellow scales on the upper surface in male, whilst *elutella* has two. I have taken it in great profusion in a chemist's shop in Sydney in September, but could not discover on what the larva had fed; it usually lives on figs and other dried fruits. The specimens are mostly larger and finer than my English ones, and show distinctly the reddish-ochreous longitudinal dashes towards the fold, but do not specifically differ.

Eph. sericaria, Scott., Proc. Zool. Soc., Lond., 1859, 207, pl. lxi.,
(*Hyphantidium*).

I have not seen specimens of this species, but the characters given by Mr. Scott indicate a true *Ephestia*; and the larval habit of spinning continuous silken sheets of web of great extent, although sufficient to prove that the species is distinct from those known in Europe, cannot be regarded as in itself of generic importance. The description of the imago is, unfortunately, valueless for specific distinctions, as it would apply equally well to every species of the genus; according to the figure, the insect approaches *ficulella* in shape, but differs in the somewhat angulated first line, and the presence of two other transverse dark lines between the first line and base; it would be unsafe to draw further distinctions from the figure alone.

The larvæ from which Mr. Scott's specimens were bred fed on maize, and covered the whole walls of the room with a closely-woven sheet of white web, covering in this particular instance about 250 square feet: the imagos appeared in October. The locality was in the district of Wollombi, New South Wales.

GALLERIDÆ.

APHOMIA, *Hb.*

Fore-head in male with a broad projecting cone of scales. Antennæ filiform, basal joint sometimes with a small tooth of scales. Labial palpi in male short, ascending, terminal joint pointed, excavated behind, notched; in female as long as thorax, slender, filiform, with appressed scales, porrected. Maxillary palpi very short. Fore-wings varying in breadth, sometimes very narrow, hind-margin obliquely rounded; hind-wings flatly rounded. Fore-wings with 12 veins; discoidal cell of male in some species very broad and long, in others normal, in female always moderate; 8 and 9 rising near together from 7; 4 and 5 stalked or separate. Hind-wings with 7 veins, 5 being absent.

I have followed Zeller in reuniting to *Aphomia* his genus *Melissoblaptēs*, originally separated from the typical *Aphomia* by the shorter discoidal cell of male, and not toothed basal joint of antennæ. The discovery of intermediate exotic species has rendered this distinction untenable, although the extreme forms are very diverse in appearance. *A. latro*, Z., described below, was referred by him to *Melissoblaptēs*; the other species are truly *Aphomia*.

The genus contains few species, but occurs also throughout Europe, North America, and in Japan.

Aph. tripartitella, n. sp.

10 $\frac{1}{2}$ "-12 $\frac{1}{2}$ ". ♀. Head grey-whitish mixed with grey. Labial palpi twice as long as head, horizontal, grey-whitish tinged with ochreous. Antennæ grey-whitish, slenderly annulated with black. Thorax grey-whitish, more or less entirely suffused with dark grey. Abdomen whitish-ochreous. Legs whitish, beneath scantily irrorated with blackish; anterior and middle tibiæ with a slender blackish band before apex, joints of tarsi blackish at base. Fore-wings broad, somewhat dilated, costa arched, hind-margin rounded, oblique; whitish-grey, tinged with greenish and suffused with mixed brown, grey, and dark-grey scales variable in intensity; first line whitish, externally edged with dark grey or blackish, from two-fifths of costa to two-fifths of inner-margin, dentate, angulated outwards beneath costa, and broadly arched outwards above fold; second line whitish, internally edged with blackish, from $\frac{2}{3}$ of costa to four-fifths of inner margin, dentate or lunate, between $\frac{1}{4}$ and $\frac{3}{4}$ of its length strongly arched outwards; costa between first and second lines irregularly blackish; on disc midway between first and second lines are two black dots, generally strong, longitudinally placed, and a third less distinct immediately above them between the two; cilia whitish-ochreous-grey, with cloudy grey parting-lines, and chequered with two rows of subquadrate blackish spots. Hind-

wings whitish-ochreous-grey, towards apex suffused with dark fuscous; cilia grey-whitish, with a broad cloudy fuscous parting-line.

Three females taken on fences near Sydney in December and January.

Aph. pachytera, n. sp.

11"-12". ♂. Head whitish-grey irrorated with blackish, with short dense overhanging frontal tuft. Labial palpi short, appressed, almost concealed in frontal scales, whitish-grey mixed with darker. Antennæ filiform, whitish-grey, slenderly annulated with black. Thorax whitish-grey, coarsely irrorated with darker, forming confused blackish spots on shoulders and posteriorly. Abdomen greyish-ochreous, segments basally suffused with darker. Legs whitish, very finely and densely irrorated with blackish, except on posterior pair above; middle and anterior tibiae with an oblique blackish band before apex, tarsi nearly black with slender white rings at apex of joints. Fore-wings elongate, moderately broad, discoidal cell not abnormally large, costa regularly arched, apex rounded, hind-margin flatly rounded off beneath; whitish-grey, densely but irregularly irrorated with dark grey and blackish scales; first line strong, cloudy, blackish, from $\frac{1}{3}$ of costa to two-fifths of inner-margin, uniformly convex outwardly, nearly preceded by an almost obsolete slender blackish parallel line; second line double, cloudy, blackish, enclosing a whitish central space, inner line broadest and darkest, from before four-fifths of costa to before anal angle, central half dentate and strongly bowed outwards; a cloudy dark grey costal blotch before apex; two black dots longitudinally placed on disc, one before, one beyond middle, nearer to costa than to inner-margin; hind-marginal line black, interrupted: cilia dark grey, tips and an obsolete line near base whitish. Hind-wings grey-fuscous, tinged with ochreous; hind-marginal line blackish: cilia fuscous-grey, with sharp blackish-fuscous parting-line.

Having only the male of this species, I cannot positively assert that it is not the other sex of the preceding, to which it bears considerable general resemblance. Many of the differences might be merely sexual, but the differently shaped, not angulated, first line is probably a reliable specific distinction.

Two males taken by Mr. G. H. Raynor near Hobart Town, Tasmania, in January.

Aph. latro, Z., z. b. V. 1873, 213.

16"-16½". ♂ ♀. Head, palpi, and thorax pale greyish-ochreous; palpi sprinkled on sides with fuscous, in male short, almost concealed in frontal cone, in female long, attenuated, porrected. Antennæ pale greyish-ochreous, slenderly annulated with dark fuscous, basal joint in male with a very short tooth of scales. Abdomen elongate, pale greyish-ochreous, in female with long projecting ovipositor. Legs pale greyish-ochreous, anterior and middle pair strongly irrorated with dark fuscous, all tarsi fuscous-black, with pale rings at apex of joints. Fore-wings very elongate, narrow, parallel-sided, posteriorly narrowed, costa gently arched, apex rounded, hind-margin very oblique; greyish-ochreous, greyer between veins, irregularly sprinkled with black scales; in male a pale whitish-ochreous straight slender central streak from base to apex, becoming obsolete at extremity, margined beneath by a cloudy blackish-fuscous streak, darkest from base to $\frac{2}{3}$, thence indistinct; in female the pale streak is imperceptible, but the dark streak is clearly marked; in male some of the veins are almost whitish-ochreous; a hind-marginal row of numerous small black dots: cilia pale greyish-ochreous, tinged with rufous, with indistinct parting-line near base. Hind-wings much broader than fore-wings, yet elongate, flatly rounded, broadly indented below apex; whitish, almost transparent, in male narrowly, in female more broadly suffused with smoky-grey towards apex; hind-marginal line dark grey: cilia white, with faint greyish parting-line.

The largest species of the group, and not to be confused with any other known; the very elongate fore-wings have a peculiarly glossy appearance.

Larva sixteen-legged, very stout, tapering at both ends, head much narrower than body, whole surface with a few scattered hairs; darker or lighter dull drab-brown, spots, small, black; head and second segment black; anal segment with a small black plate. Feeds in the tall spike-like flower-heads of *Xanthorrhœa hastilis* (the so-called 'grass-tree'), burrowing amongst the seeds and forming tough galleries with silk and refuse, in October. Pupa in a firm cocoon amongst refuse. These larvæ were very restless in captivity, and could hardly be restrained; they occurred gregariously in the heads, one spike containing apparently nearly 100 larvæ of different sizes, who eventually consumed the entire head. My specimens were bred in November; I have never taken the imago at large; it is probably very retired in habit. The larval habits of this species are abnormal in the genus and family; all previously known larvæ are parasitic in habit, feeding in the nest of bees on the wax; this species is therefore of peculiar interest.

My larvæ were found near Sydney; Zeller's original specimen was from Adelaide.

The venation of this species differs from that of the others investigated in having veins 8 and 9 of fore-wing rising on a short stalk, instead of separately, from 7.

For the benefit of students, I add a classified list of all the species of *Crambites* mentioned in this and my preceding paper.

CHILONIDÆ.

SCHOENOBIOUS, *Dup.*

imparellus, n. sp. p. 176.

CHILO, *Zk.*

parramattellus, n. sp. p. 178. p. 200 (220).

- leptogrammellus*, n. sp. p. 207, (224)
schistellus, n. sp. (?huj. gen.) 207, (221)

CRAMBIDÆ.

ANCYLOLOMIA, Hb.

Westwoodi, Z., Cr. II. p. 208. (222).

(*Prionophora ruptella*, Wkr. ad hanc fam. non pertinet.) p. 179.

CRAMBUS, F.

apicistrigellus, n. sp. 209. (223)

concinellus, Wkr., Cat. 165.

lativittalis, Wkr., Cat. 171; *halterellus*, Z., Cr. 33.

torrentellus, n. sp.

trivittatus, Z., Cr. 34; *bivittellus*, Wkr., Cat. 171. (nec Don.)

bivittellus, Don., Z., Cr. 34; *recurvellus*, Wk. Cat. 171.

aurantiacus, n. sp.

bifractellus, Wkr. Cat. 174. p. 210. 197.

impletellus, Wkr., Cat. 175. p. 210. (224).

pleniferellus, Wkr. Cat. 173; *aurosus*, Feld., Nov. T. 137, fig.

31; Z. Hor. Soc. Ross. 1877, 45. p. 212 (226)

longipalpellus, n. sp. p. 212, 196. (226)

cuneiferellus, Wkr. Cat. 175.

dimidiellus, n. sp.

hoplitellus, n. sp.

relatalis, Wkr., Cat. 172. p. 213 (227).

grammellus, Z., Cr. 46. p. 213 (227).

perlatalis, Wkr., Cat. 174. p. 213 (227).

opulentellus, Z., Cr. 46.

invalidellus, n. sp.

enneagrammos, n. sp. p. 214 (228)

argyroneurus, Z., Cr., 47. p. 214. (228)

milvellus, n. sp.

ARGYRIA, Hb.

argyraspis, n. sp. p. 215 (229).

DIPTYCHOPHORA, Z.

prematorella, n. sp. (*dilatella* h. syn). 198. p. 217 (231)
 199.

PHYCIDÆ.

NEPHOPTERYX, Z.

- stenopterella*, n. sp. p. 200
fornacella, n. sp. p. 219 (233.)
euraphella, n. sp. p. 217 (231.)
infusella, n. sp. p. 218 (232.)
opimella, n. sp. 201.

PEMPELIA, Hb.

- melanostyla*, n. sp. p. 220 (234.)
strigiferella, n. sp. p. 202. p. 221 (235)
caliginosella, n. sp. p. 221 (235)
oculiferella, n. sp. p. 222 (236)
digrammella, n. sp. p. 223 (237)
rufitinctella, n. sp. p. 203.
apotomella, n. sp. p. 221 (238)

ETIELLA, Z.

- sincerella*, n. sp. p. 204.
Behrii, Z., Is. 1848, 883. p. 205.
chrysoporella, n. sp. p. 206.

SPERMATOPHTHORA, Ld.

- mesactella*, n. sp. (? huj. gen.) p. 225 (239).

EUCARPHIA, Hb.

- neotomella*, n. sp. p. 226 (240).
ensiferella, n. sp. p. 208.
vulgatella, n. sp. p. 207. p. 227 (241)
cnephæella, n. sp. p. 227 (241)

LASIOCERA, n. g.

- canilinea*, n. sp. p. 209.

CEROPREPES, Z.

- almella*, n. sp. p. 210.

MYELOIS, Z.

- ænobarella*, n. sp. p. 228 (242.)

Euzophera, Z.

leucarma, n. sp. p. 230 (244).

subarcuella, n. sp. p. 211. p. 231 (245)

cosmiella, n. sp. p. 212. p. 231 (245)

microdora, n. sp. p. 231 (245)

Epischinia, Hb.

neurophorella, n. sp. p. ~~246~~ 232 (246)

Anerastia, Hb.

mirabilella, n. sp. p. 213. p. 233 (247.)

virginella, n. sp. p. 233 (247)

psamathella, n. sp. p. 234 (248)

Homoeosoma, Curt.

vagella, Z., Is. 1818, 863. p. 214.

distichella, n. sp. p. 215.

Epiestha, Gn.

elutella, Hb. p. 215.

ficulilla, Barr., p. 234 (248)

sericaria, Scott, Proc. Zool. Soc., Lond. 1859, 207, Pl. 61. (p. 23)

interpunctella, Hb. p. 216.

GALLERIDÆ.

Galleria, F.

mellonella, L. p. 216.

Aphomia, Hb.

tripartitella, n. sp. p. 236 (250)

pachytera, n. sp. p. 237 (251)

latro, Z., z. b. V. 1873, 213. p. 238 (251.)

Achiroea, Hb.

grisella, F. p. 216.

fluid stings the skin. There are many other species which have not been named or described, nor do I think they can be until they are studied in the living state, at least according to the present system of classification. They are found in large numbers crawling over the reefs at low tide. No doubt the extensive way in which the edible species are gathered will make them scarce. and some are beginning to get scarce at certain portions of the reef, But the enormous extent of coral reef, not only on the Barrier, but in the islands enclosed within the Barrier, renders it very easy for the fishermen to seek new grounds for their operations.

A very common species on the island reefs which I visited, is *Synapta Besellii*, Jaeger, or an allied form. This is said to be an inhabitant of Celebes, but no doubt has a wide range. One cannot mistake the genus for any other. Immediately on putting one's hand on it, the animal adheres to the skin. With a very ordinary lens the skin is seen to be covered with small spicules, shaped like an anchor. With these the animal adheres readily to any soft object. These anchors have the heads fixed in a round calcareous plate imbedded in the skin. This accounts for the numbers of small perforated, calcareous disks which strew the reefs, and look just like shirt buttons. Mr. Moseley, in his "Naturalist Voyage of the Challenger" mentions this animal, and states how the anchors in the skin were favorite objects for microscopic exhibition to visitors. It was thought by sight-seers to be one of the most important discoveries of the Expedition, and got in consequence the name of the "Admiralty Worm." Otto Semper mentions having seen one *Synapta (Bessellii ?)* at the Philippine Islands, 6 ft. long. When fully extended on the reefs near Port Douglas, a length of four feet was not unusual. They are often mistaken for water snakes. The anchors on the skin easily break, and the animal does not seem to have any control over them. They serve for the purposes of locomotion in connection with the voluntary contractions of the muscles.

Properly speaking the *Synaptidæ* are the only "lungless" family of the *Holothuriæ*. Semper mentions two others,* the *Eupyrgidæ* and the *Oncinolabidæ*, both containing only one genus but all the species according to Theelt† have lungs or the evidence of the absence of these organs is doubtful. The definition of *Synapta* according to the same author is as follows. Body more or less vermiform, cylindrical, without feet or ambulacral areas along the body, hermaphrodite, calcareous concretions in the skin either wanting or forming anchors and wheels.

I have been able to make some observations on the development of the young of this species, but these and some other remarks on this part of the reef fauna I must reserve for a future occasion.

On every portion of the coral islands on the Barrier *Ophiuridæ* were very abundant. Their long arms might be seen protruding from under almost every block of coral; the bodies were generally concealed. One species in particular with very long arms I took to be *Ophiocoma scolopendrina*, Lam., *Ophioglyha Kinbergi*, Ljungman and *O. multispina*, are both Port Jackson forms, but I fancy allied species are represented in the coral regions. *Ophiolepis annulosa* is common, as also *Ophiocoma erinaceus*, Mull. and Tros., and *O. lincolata*, Mull. and Tros., who give it as *O. pica*. I also saw species which I referred to *Ophiomastix annulosa*, Mull. and Tros. (p. 107) *Ophiothrix longipeda*, Lam., (Mull. and Tros. p. 113) *O. nereidina*, (Mull. and Tros. 115) Lamarck (p. 224, vol. 3, 2nd edit.) *Ophiocnemis marmorata*, Lam., p. 223, and Mull. and Tros., p. 87. Some of these identifications are doubtful and the whole of the species noticed by me need revision, a work which I hope to effect in detail hereafter.

It is very curious to watch the manner in which these starfishes ply their search for food. The long arms are extended from the smallest possible holes or cracks from whence the cirrhi can be

* Reisen in Archipel der Philipinea I. Holothuriea 1, p. 8.

† Holoth. des Mers N. Zemble. Upsal 1877.

seen moving in the water. Any foreign object is rapidly seized and conveyed to the mouth, though I could not ascertain what was their favorite food. They are very easily captured. By turning over any block of dead or living coral four or five of them will be seen slowly moving away. The fishermen seem to have a dread of them, so they are quite unmolested, except by the naturalist or whatever marine enemies they may have.

In the preceding observations only a few of the objects of interest on our coral reefs have been touched upon. To deal with all would require many volumes instead of essays. When we remember what the sea coast is to the naturalist, we may form an opinion of what a coral reef must be. The whole structure is the result of animal activity, and every portion on which the eye rests reveals some new phase of animal life. We may take it as certain that only a very small portion of our reefs have been explored by naturalists, and that therefore there is no more promising field of zoological discovery in the whole world, none where the interest is greater, or where distinction may be more easily won. For my own part the few weeks I spent in the coral region were the most intensely interesting of any I remember in a life-time of observation as a naturalist, and I trust that one result of my few scattered notes will be to attract others on to the same enchanting field.

RECTIFICATION OF THE NOMENCLATURE OF *Purpura anomala*, ANGAS.

BY PROFESSOR RALPH TATE, PRESIDENT PHIL. SOC., ADELAIDE, &C.

South Australian specimens of a species of marine gasteropod, forwarded to Mr. G. F. Angas, F.L.S., under the generic title of *Mangelia*, have lately been returned to me with the name of *Purpura (Cronia) anomala*, Angas. The description and figures of that species, Proc. Zool. Soc., 1877, pl. v., fig. 1., are truly applicable

to the shells above referred to. The form of the columella is a valid reason for the removal of the species from the family *Purpuridæ*; and as in well-preserved adult specimens, a very short sinus exists, the species should have a place in that of *Pleurotomidæ*. In the absence of the notch on the outer lip, the well-defined flexure of the striæ of growth is alone sufficient to justify its transference from the one family to the other. The position of the sinus and other external features permit its reception in the genus *Mangelia*, and it should, henceforth, be known as *M. anomala*. Indeed its affinity to *M. Vincentina*, Crosse, is sufficiently close to necessitate close comparison to separate extreme forms of each from one another.

South Australian examples are for the most part of an opaque white, with black blotches, between the costæ, at the anterior suture and on the middle line of the last whorl; but a few, with thinner tests, exhibit the more elaborate markings which belong to the type specimen.

M. anomala is a rare shell in South Australian waters, though I have gathered it, from among shell sand, at widely separated localities, thus:—Aldinga Bay and Salt Creek, east and west sides of St. Vincent's Gulf, respectively; Wauraltie, east side of Spencer's Gulf; and Fowler's Bay, Great Australian Bight.

DESCRIPTIONS OF AUSTRALIAN MICRO-LEPIDOPTERA.

By E. MEYRICK, B.A.

III. TINEINA.

In the following paper I have described forty-seven species of the least-developed families of the *Tineina*; five of these have been previously described, the remaining forty-two are new to science. One only out of the whole (*Bedellia somnulentella*, Z.) occurs elsewhere, being common to Europe and North America,

though it is now difficult to say whether it has or has not been introduced by man into this and other countries: the rest are all endemic.

The families here treated of form (with the addition of the genus *Nepticula*, of which I am acquainted with at least fifteen Australian species, though not yet prepared to describe them,) a natural group, sharply terminated at both ends, though admitting of a wide range of structural variation. The materials collected are sufficient to give a fairly accurate conception of the form in which the group appears in this region, and enable me to make a few remarks upon the classification and order of development of the genera. Excluding *Nepticula*, these are generally classed in three families,—*Gracilaridæ*, *Lithocolletidæ*, and *Lyonetidæ*. Wocke has wished to split up the *Lyonetidæ* into two or more families, on the ground of differences in neuration, but this seems very unnecessary. I am clear, however, that *Lithocolletis* and its allies cannot be kept apart from the *Gracilaridæ*, with which they agree in the structure of the head, and especially in respect of the fourteen-legged larva, found in no other *Tineina*, and of the larval habits. There are however a few very small genera (*Tischeria*, *Bedellia*, *Urodeta*, *Arctocoma* (described hereafter), and perhaps *Oenophila*, of which the larva is hardly known) which are sometimes referred to the *Lithocolletidæ*, and sometimes to the *Elachistidæ* but do not agree with either, being separated from the former by the sixteen-legged larvæ, and from the latter by the roughly tufted head. I would place these in a separate family, which I have below called *Bedellidæ*, a step which appears to me to be in accordance with nature, and to simplify the systematic discrimination of the families. The *Lyonetidæ* form a natural group, distinguished from both the preceding by the basal joint of the antennæ expanded into an eyecap. The *Nepticulidæ* also possess the eyecap, but have well-developed maxillary palpi, peculiar neuration, and larvæ with 18 imperfectly developed pro-legs, not found elsewhere in the *Tineina*.

For rightly understanding the process of development a careful comparison of the fauna of other regions is required, and the *Micro-Lepidoptera* have been as yet very partially studied. It is possible, however, to make a fair comparison with the region which Mr. Wallace has called Palaearctic, so far as it is represented by Europe, and with North and South America to a less extent; and to make use of a few fragments of positive evidence from other countries, with the following results. I should premise that these minute *Micro-Lepidoptera*, from their extreme delicacy, fragility, and defencelessness, from their lacking the rapid and powerful means of locomotion of butterflies and large moths, and from the usually very short term of their lives, afford excellent material for the study of geographical distribution.

The well-marked generic differences of structure, and the fixity of type in most cases, are very conspicuous in these lowest families and are evidences of a hoary antiquity. In no genus is this more evident than in *Nepticula*, which is represented apparently all over the world in equal proportion, by numerous species which have everywhere an extreme resemblance to one another. Of the other genera in these families *Bucculatrix*, *Opostega*, *Phyllocnistis*, *Coriscium*, and *Gracilaria*, appear to have also a practically world-wide range. Of some of the other genera, which have but few species, it is not yet safe to say where they may not be found. There is however one extensive genus which is interesting by its entire absence from the Australian region, namely *Lithocolletis*, of which I could not have failed to find traces if it had existed here. (I may observe here, that the insect described by Newman as *Lithocolletis lalagella*, (Trans. Ent. Soc., Lond., Vol. III., N. S., 300) is certainly a *Gracilaria* allied to *G. caenotheta* and *autadelpha*, but not accurately identifiable. This genus comprises a very large number of species in Europe, and North and South America, and is also known to occur in India; most forest trees have one or more species attached to them, and of many the individuals in extreme profusion, showing that throughout this range of

climate they are a dominant race. No reason can be assigned why the genus should not occur in Australia, except that it must have come into existence since the time when Australia was last in immediate communication by land with the continent, when it obtained its original supply of *Mammalia*, which is believed to carry us back to somewhere near the close of the Secondary period. Now *Gracilaria*, which is more highly organised, and would be generally regarded as a development of *Lithocolletis*, is found evenly distributed over the whole world, as stated above. It appears to me to follow from this that *Lithocolletis* came into existence much later than *Gracilaria*; and that if, as from their close alliance seems almost certain, one was developed from the other, it was *Lithocolletis* which is a degraded development of *Gracilaria*. It would appear also that the same is true of *Ornix*; whose cone-rolling larvæ should be noticed in connection with the cone-rolling larvæ of the higher *Graciliaria* in Europe and North America, as it is very probable that the habit is of late development. *Coriscium*, though possessing few species, is apparently contemporaneous with *Gracilaria*. The rest of the family consists at present of three small North American genera, of which I am only able to say that they are allied to *Lithocolletis*. The ancestral form of the family may therefore be regarded as a form corresponding very nearly to the smaller species of *Gracilaria*.

Turning now to the *Bedellidæ*, we find them to be a very small group, yet having distinct affinities with the *Gracilaridæ*, the *Lyonetidæ*, and though *Elachista* with the *Elachistidæ*. They may probably be the last surviving representatives of a once wider family. As in their case there is at present but little available material, I will not force conclusions; but it seems likely that we may have here the nearest existing approach to the original organisms from which the above-mentioned three families took their rise. The commonly swollen basal joint of the antennæ points to the source of the eyecap in the *Lyonetidæ*; and the

attitude of the imago in *Bedellia* (preserved also in *Tischeria*) is a rudiment of the peculiar position assumed by a *Gracilaria*.

The *Lyonetidae*, though a very natural family, have a very wide range of structure in respect of the head and the neurulation. *Stegommata* and *Lyonetia* are very nearly allied, and might well be considered sections of one genus. Regarding them so, then *Bucculatrix*, *Crobylophora*, and *Stegommata* would form a natural group in the family, distinguished by the roughly tufted head. *Opostega* and *Cemiostoma* are also naturally associated, and *Phyllocnistis* appears by its quite smooth head and apodal larva to be an extreme development of these. *Atalopsyche* may perhaps be intermediate between the two groups, but it could not yet be safely affirmed. Most of these genera, though small, are of universal range, and the others are known as yet merely as small local developments, so that nothing can yet be predicted from the facts of their geographical distribution. I am disposed to think, however, that *Bucculatrix*, which is the largest of them, and also the most persistent in type, is probably the oldest, and nearest to the original form. It is also the nearest to the *Nepticulidae*, which we are probably justified in regarding for the present as a very ancient but degenerate development of *Bucculatrix*, or rather of the progenitors of *Bucculatrix*.

In the preceding remarks I have been twice led to assert that a more lowly organised form has been derived from a higher, and I have reason to believe, as in subsequent communications I hope to show, that this has taken place more commonly than is often supposed. Such examples are not, however, as a superficial observer might suppose, a violation of the law of improvement under natural selection. According to the principle of evolution any change may occur if beneficial, and the degradation, and consequent simplification, of an organism must often be as great a benefit, as its complication at the cost of increased requirements. It will, I think, be in practice rarely found that the lowest

organised species or genus of a group is the nearest to the immediate ancestor of the whole group.

Subjoined is an analytical table of the genera hereafter referred to, which may be an assistance to their ready identification.

A.—basal joint of antennæ not forming an eyecap.

a.—head with appressed scales.

1. second joint of palpi smooth or rarely
loosely scaled beneath *Gracilaria*
2. second joint of palpi with a projecting
tuft *Coriscium*

b.—head shortly rough-haired ; antennæ longer
than forewings *Epicephala*

c.—head roughly tufted above.

1. antennæ as long as fore-wings ; hind-
wings linear *Bedellia*
2. antennæ shorter than fore-wings ; hind-
wings lanceolate *Arctocoma*

B.—basal joint of antennæ dilated into an eyecap.

a.—head roughly tufted above.

1. antennæ longer than fore-wings .. *Stegommata*
2. antennæ shorter than fore-wings.
* labial palpi developed *Crobylophora*
** no labial palpi *Bucculatrix*

b.—head roughly short-haired in front, smooth
behind *Opostega*

c.—head with appressed scales ; hind-wings
lanceolate *Atalopsycha*

d.—head smooth, glossy ; hind-wings nearly
setiform *Phyllocnistis*

GRACILARIDÆ.

GRACILARIA, Z.

Head smooth ; no ocelli ; tongue long. Antennæ as long or longer than fore-wings, slender, filiform. Maxillary palpi rather

long, filiform. Labial palpi moderately long, ascending, arched, slender, cylindrical; second joint smooth, sometimes loosely scaled beneath, terminal joint nearly as long as second. Fore-wings elongate, very narrow, parallel-sided, costa bent at apex or evenly pointed. Hind-wings very narrowly lanceolate, much narrower than fore-wings, cilia thrice or four times as broad. Abdomen elongate, slender. Legs long, slender; middle tibiæ often much thickened with scales. Fore-wings with 12 or 11 veins, 5 branches to costa, no secondary cell, 1 simple. Hind-wings with from 8 to 6 veins, 3 and 5 being sometimes obsolete; 5 and 6 stalked, cell open.

This genus is of world-wide occurrence, about seventy species being hitherto known. All the species are elegant and some of great beauty; when at rest they sit with the forepart much raised and the two anterior pairs of legs, which are often elegantly marked, conspicuously displayed. They are somewhat retired in habit, and may often be easiest found at rest on fences.

The larvæ are fourteen-legged, slender, always mining in leaves when young; afterwards many of the European and American species construct hollow cones for habitations, by rolling up pieces of the leaves they feed on; others remain miners all their life. All the Australian species, with the larvæ of which I am acquainted are miners throughout life, nor have I ever seen indications of the familiar cones of this genus in Australia. The mining larvæ usually leave the mine in order to form their cocoon.

The genus is well-marked and easy of recognition, but some slight variations of structure are found within its limits, principally in respect of the scaling of the middle pair of tibiæ, and the second joint of labial palpi: the gradations are however so insensible, that they do not admit of breaking up the genus by their means. The twenty-nine species here described may be tabulated as follows:

A.—middle tibiæ very much thickened throughout with scales.

- a.*—fore-wings dark purple-fuscous .. 1. *cœnopella*
b.—fore-wings reddish-ochreous
 1. with a double yellow costal triangle 2. *xanthopharella*
 2. with costa broadly yellow.. .. 3. *adelina*
c.—fore-wings pale ochreous, costa broadly
 white 4. *auchetidella*

B.—middle tibiæ slightly (often unevenly) or
 not thickened.

- a.*—fore-wings yellow with central crim-
 son streak 15. *ethela*
b.—fore-wings crimson with yellow or white
 markings.
 1. head pale yellow; 6 costal streaks 16. *formosa*
 2. head white; 7 costal streaks .. 17. *ida*
c.—fore-wings metallic coppery-green or
 bronze.
 1. with two white spots 14. *chalcoptera*
 2. with 4 costal and 4 dorsal streaks 22. *eumetalla*
d.—fore-wings unicolorous dark slaty-grey 5. *æthalota*
e.—fore-wings white with fuscous or ochre-
 ous markings.
 1. inner margin brownish-ochreous.. 18. *mnesicala*
 2. inner margin white.
 * antennæ wholly white .. 20. *ællomacha*
 ** antennæ annulated with dark
 fuscous 19. *lyginella*
f.—forewings ochreous with grey markings 6. *plagata*
g.—fore-wings ochreous or grey with white
 markings.
 1. with straight transverse fasciæ and
 marginal spots.
 * fasciæ spotted with black .. 8. *ordinatella*
 ** fasciæ not spotted, alternating
 with black transverse clouds 7. *lepidella*

*** fasciæ not spotted, without
black clouds.

† with one fascia and four spots 12. *hoplocala*

†† with one fascia and five spots. . 13. *calicella*

††† with two or three fasciæ.

‡ thorax greyish-ochreous . . 9. *tricuneatella*

‡‡ thorax white.

§ third fascia represented by two
opposite nearly equal spots. . 11. *cænotheta*

§§ third fascia entire, or if inter-
rupted, lower spot much the
larger 10. *autadelpha*

2. with a longitudinal, inner-marginal
streak and marginal spots.

* with five costal streaks . . 24. *alysidota*

** with two costal streaks.

† head and inner-marginal streak
ochreous 25. *ochrocephala*

†† head and inner-marginal streak
brassy-white 26. *nerëis*

††† head and inner-marginal streak
pure white.

‡ streak along inner-margin itself 27. *didymella*

‡‡ streak separated from inner-
margin by a streak of ground
colour 28. *laciniella*

3. with both margins irregularly white 29. *albomarginata*

4. with marginal spots only.

* fore-wings golden-ochreous,
clouded with dark bronze . . 23. *eupetala*

** fore-wings pale clear greyish-
ochreous 21. *thalassias*

Grac. cœnopella, n. sp.

♀ . 4". Head and thorax very dark fuscous; maxillary palpi whitish, apex of joints fuscous; labial palpi dark fuscous, internally ochreous-whitish. Antennæ longer than fore-wings, dark fuscous. Abdomen dull ochreous-grey. Legs ochreous-whitish, tarsal joints fuscous at apex; anterior tibiæ dark fuscous above; middle tibiæ very much thickened, dark purplish-fuscous. Fore-wings very dark purple-fuscous; a faint whitish fascia from before middle of costa, rather oblique outwardly; a few pale scales at apex; cilia dark grey, blackish round apex of wing. Hind-wings and cilia dark grey.

One specimen bred in May from larvæ found commonly in the Botanical Gardens, Sydney; the food-plant is native to Australia, but appears to grow north of Sydney.

Larva pale yellowish, feeding in a flat irregular blotch, originating in a slender gallery, beneath upper surface of leaves of *Tetranthera ferruginea*, (*Laurineæ*) in April. Pupa in a white cocoon beneath the turned down corner of a leaf.

Grac. xanthopharella, n. sp.

♂ ♀ . 5"-5½". Head above and thorax ochreous-reddish tinged with purple, face and maxillary palpi pale yellow. Labial palpi pale yellow, extreme apex dark fuscous. Antennæ longer than fore-wings, ochreous-reddish above, yellowish beneath, with darker annulations. Abdomen pale ochreous, suffused above posteriorly with fuscous-grey. Legs pale ochreous-yellow; anterior and middle tibiæ dark purplish-red fuscous, middle tibiæ much thickened; posterior tarsi with the two apical joints very narrowly dark fuscous at base. Fore-wings reddish-violet, partially tinged with ochreous; a small, very oblique, rather oval, pale yellow spot near base, its lower end reaching the fold; a large pale yellow costal triangle, rather before middle, its apex almost reaching inner margin, its upper angle produced along costa as a semiovate patch, reaching nearly to apex; a few yellow scales at

anal angle; cilia fuscous-violet round apex, containing a reddish-yellow patch below apex, and with three indistinct blackish lines, thence fuscous-grey. Hind-wings and cilia fuscous-grey.

Scarce; occurs at Sydney and Parramatta from November to February, flying in the sun. Allied to the group of *alchimiella*, Sc., and apparently nearest to the North American *superbifrontella* Clem., but not to be mistaken.

Grac. adelina, n. sp.

♂ ♀. 6". Head and thorax ochreous-reddish with violet reflections, face snow-white. Maxillary palpi whitish, externally ochreous-reddish. Labial palpi reddish-ochreous, white at base, lower half of terminal joint externally purple-fuscous. Antennæ longer than fore-wings, pale reddish-ochreous, annulated with dark fuscous. Abdomen fuscous-grey, pale ochreous at base, beneath metallic-yellow. Legs pale ochreous; anterior tibiæ blackish; middle tibiæ very much thickened, deep reddish suffused with violet black. Fore-wings deep reddish-ochreous with violet reflections, with a very broad, pale metallic-yellow costal band, covering more than half the breadth of wing, and extending almost from base to apex; the ground colour sends a conical projection into this band before middle, cutting half through it, and midway between this and base is a much shorter, obtuse projection, both suffused with deep cobalt-blue; the lower $\frac{2}{3}$ of the reddish-ochreous inner-marginal portion is marked from base to apex with regular, transverse strigulæ of brilliant deep cobalt-blue, appearing black in some lights; cilia reddish-ochreous round apex, thence dark fuscous-grey. Hind-wings and cilia dark fuscous-grey.

This magnificent species is unsurpassed in the elegance and intensity of its colouring. I took one pair in dense swampy forest in January, near Hamilton, on the Waikato, New Zealand. It seem to be nearly allied to the North American *violacella*, Clem., and *blandella*, Clem.

Grac. auchetidella, n. sp.

♀. $4\frac{1}{2}$ "-5". Head and thorax whitish-ochreous mixed with grey. Maxillary palpi white. Labial palpi white, apex of second joint and a broad ring before apex of terminal joint black. Antennæ whitish-ochreous, annulated with black. Abdomen pale greyish-ochreous. Legs pale ochreous, joints of tarsi very narrowly black at base; anterior tibiæ black; middle tibiæ very much thickened with black scales. Fore-wings with costal half whitish, dorsal half and hind-margin pale ochreous, irrorated sparsely throughout with blackish scales, and densely along a longitudinal dilating streak from base to apex; these scales tend to form regular transverse strigulæ on costal and dorsal margins; on the white costal half is a broad central pale ochreous transverse perpendicular fascia, densely irrorated with black; cilia fuscous-grey, with three indistinct black lines round apex. Hind-wings fuscous-grey, cilia paler, tinged with ochreous at base.

Allied to the preceding, but very different. Two specimens beaten in October from the dense subtropical forest near the top of the Bulli Pass, Illawarra, 1,500 feet above the sea.

Grac. æthalota, n. sp.

♂. $4\frac{1}{4}$ ". Head glossy dark grey, face paler. Labial palpi whitish, apex of second joint and a subapical ring of terminal joint black. Antennæ longer than fore-wings, grey-whitish, with evanescent fuscous annulations. Thorax and abdomen dark fuscous-grey. Legs whitish, tarsal joints suffused with pale fuscous except an apical ring, anterior and middle tibiæ not thickened, suffused with fuscous above. Fore-wings unicolorous dark glossy slaty grey, with one or two pale scales at apex; cilia dark fuscous, with three obscure blackish lines round apex, and a whitish hook. Hind-wings and cilia dark fuscous-grey.

Not apparently nearly allied to any described species; superficially it seems to belong to the preceding group, but differs in

the middle tibiæ being quite slender. One specimen beaten from forest near Dunedin, New Zealand, in January.

Grac. plagata, Stt., Trans. Ent. Soc., Lond., Vol. I., 3rd Ser.

"5½". Head greyish-ochreous. Maxillary palpi white, spotted with dark fuscous. Labial palpi white, base of second joint and two spots on terminal joint dark fuscous. Antennæ pale fuscous, with darker annulations, basal joint pale ochreous-grey in front, dark fuscous behind. Thorax greyish-ochreous. Legs white, tarsi spotted with dark fuscous, anterior and middle tibiæ dark brown. Fore-wings greyish-ochreous, faintly olive, with an oblique darker fascia beyond middle, followed by a large irregular blue-black blotch; before the apical black spot is a slender whitish fascia, perpendicularly placed; basal portion of wing rather irregularly marbled with darker, the first defined marking being the oblique fascia, which is anteriorly edged with blackish, and broadest on inner margin; the blotch beyond this begins on the disc, sharply edged with black; it then extends to the costa on which it is of considerable breadth, enclosing a small costal spot of the pale ground-colour; it slopes gradually towards inner margin, reaching it just at anal angle, its outer edge pretty well defined with black scales and followed immediately by a slightly oblique fascia of the pale ground-colour towards the costa but much suffused towards inner margin; this is followed by a fuscous patch nearly of the colour of the central fascia, intersected by an oblique, black streak, beyond which is the slender, perpendicularly placed, dark-margined white fascia; a minute, black apical spot; cilia olive-brown, paler towards tips, intersected by two blackish lines, on inner-margin dark grey. Hind-wings dark grey, cilia grey."

The above is Stainton's original description, accompanied by a figure, and taken from a single specimen, said to be from the neighbourhood of Brisbane. The species appears to be somewhat allied to *syringella*, F., and intermediate between the two main

divisions of the genus ; I have not met with any specimens coming at all near the description, so that it is probably a subtropical species.

Grac. lepidella, n. sp.

♂. $3\frac{1}{4}$ "- $4\frac{1}{4}$ ". Head and thorax whitish-ochreous or white mixed with fuscous. Maxillary palpi whitish-ochreous, second joint black. Labial palpi whitish-ochreous, second joint and a median ring of terminal joint blackish. Antennæ slightly longer than fore-wings, whitish-ochreous, annulated with dark fuscous. Abdomen whitish-ochreous. Legs whitish, anterior and middle tibiæ somewhat thickened, blackish ; tarsal joints with black apical rings, broadest on basal joint, basal joint of posterior tarsi also with broad black median ring. Fore-wings brownish-ochreous, clouded with black, and with two fasciæ and four spots white, confusedly black-margined ; first spot on inner margin near base, large, irregular, meeting a blackish cloud on costa ; first fascia at $\frac{1}{4}$, second in middle, both rather narrow, straight, perpendicular ; intermediate between them is a transverse fascia-like blackish cloud, and another similar one beyond second fascia, distinct and clearly margined posteriorly, meeting the very small second spot on anal angle ; third spot on costa beyond $\frac{3}{4}$, small, wedge-shaped, broadly margined posteriorly by a black subapical fascia from costa to hind-margin ; fourth apical, somewhat fascia-like, extending into cilia above apex ; cilia pale fuscous-grey, with four irregular black lines round apex. Hind-wings and cilia fuscous-grey.

Not closely allied to any known species. Two specimens taken on a fence near Sydney, in September and January.

Grac. ordinatella, n. sp.

♀. 4". Head and thorax ochreous-white. Maxillary palpi whitish, terminal joint fuscous. Labial palpi whitish, a broad apical ring on second joint, a median and an apical ring of

terminal joint dark fuscous. Antennæ ochreous-white, becoming obscurely dark fuscous at apex. Abdomen above fuscous-grey, beneath white with black rings. Legs white; anterior and middle tibiæ somewhat thickened, base narrowly and apex broadly black, tarsi with two black rings; posterior tibiæ stiff-haired above, with median and apical black bands. tarsi with bases of joints narrowly and centres of first and second joints broadly black-banded. Fore-wings greyish-ochreous, irrorated with blackish, along costa suffused with blackish, with three fasciæ and two spots, white spotted with black and edged with black scales; first fascia at $\frac{1}{4}$, perpendicular, broader on inner margin and suffusedly produced on inner margin towards base, containing costal, discal, and dorsal black spots; the basally produced portion projects across disc close to base, between which and the fascia is a white dot below costa; second fascia from costa slightly before middle, outwardly oblique, evenly broad, irregularly margined, containing large subcostal and discal black spots, and a few black scales on inner margin; third fascia from costa slightly before $\frac{3}{4}$, parallel to second, narrower, and partially interrupted on disc, containing large subcostal black spot; a small irregular partially black-centred costal spot at $\frac{5}{8}$; a rather large apical spot, containing a few black scales; cilia dark fuscous-grey, with a blackish line round apex. Hind-wings dark fuscous, cilia fuscous-grey.

Somewhat allied to the preceding, but distinguished from all by the black spots in the white fasciæ; *quadrifasciata*, Stt., from India (bred from *Urena lobata*) seems from the figure to be an allied species. One specimen on a fence near Sydney in June.

Grac. tricuneatella, n. sp.

♂ ♀. 4". Head and palpi snow-white, apex of maxillary palpi dark fuscous; labial palpi with apex of second joint and a sub-apical ring of terminal joint dark fuscous. Antennæ longer than fore-wings, dark fuscous with faintly paler annulations, basal joint white. Thorax greyish-ochreous. Abdomen dark fuscous,

beneath whitish. Legs white; anterior tibiæ black with white basal and median bands, middle tibiæ slightly thickened, black with white median band, posterior tibiæ with narrow basal and broad median black bands, all tarsi with four black bands. Forewings moderately dark greyish-ochreous, with three sometimes confluent wedge-shaped fasciæ and two spots snow-white, black margined; first and second fasciæ very narrow on costa, rapidly dilating, very broad on fold, narrower on inner margin, second more oblique; third oblique, formed by union of very small costal spot and very large dorsal triangle; these three are sometimes confluent along fold; a small costal spot before apex, produced as an oblique narrow streak to hind-margin; a small apical spot, extending into cilia; cilia round apex whitish, with two partial black lines, thence pale grey. Hindwings and cilia fuscous-grey.

Distinguished from the allied species by the greyish-ochreous thorax and strongly dilated fasciæ. The imago is retired in habits; taken sparingly in April on the creek at Parramatta amongst its foodplant, and also bred.

Larva tapering posteriorly throughout, segments deeply incised; dull yellowish, tinged with greenish-grey, each segment with an irregular, oblong transverse, blackish-green dorsal spot; head black, with a pale line on each side meeting behind; anal segment very small, blackish. Feeds in irregular flat whitish blotches beneath upper surface of leaves of *Typha latifolia* (*Typhaceæ*), in March. Pupa inside the mine in an oval flattened cocoon.

Grac. autadelpha, *n. sp.*

♂ ♀. $3\frac{1}{4}''$ - $3\frac{3}{4}''$. Head, thorax, and palpi snow-white, terminal joint of labial palpi with slender black basal and subapical rings. Antennæ longer than forewings, dark fuscous, whitish at base, basal joint white with black apex. Abdomen dark fuscous, anus white, beneath white with slender black rings posteriorly. Anterior tibiæ blackish, with indistinct basal and median whitish rings, tarsi white with two dark fuscous bands; middle tibiæ somewhat

thickened, blackish with broad white median band, tarsi white with two dark fuscous bands; posterior tibiæ dark fuscous with narrow basal and broad median white bands, tarsi white with four dark fuscous bands. Fore-wings deep ochreous-grey, with three straight fasciæ and two spots snow-white, black margined; base narrowly white; first fascia very broad, almost as broad on costa as on inner margin, outer edge irregular; second fascia less broad, not oblique, irregular-margined, rather broadest on inner margin; third oblique, very broad on inner margin, very narrow on costa, strongly contracted below costa, rarely interrupted, but if so, costal spot minute, dorsal very large; a small costal spot before apex, indistinctly obliquely produced to hind-margin, sometimes obscured with black scales; an ovate apical spot, extending into cilia; cilia whitish round apex, with a black line, thence fuscous-grey. Hind-wings fuscous-grey, cilia paler.

Differs from *tricuneatella*, especially by the white thorax; very closely allied to the succeeding *cænotheta*, easiest distinguished by the white basal joint of antennæ and different shape of fasciæ. Frequents dry scrub; the larva is no doubt attached to one of the *Proteaceæ*, probably to a *Banksia*; the food plant of *cænotheta* does not grow where this species has been taken. Scarce; in the bush near Sydney, in February and March.

Grac. *cænotheta*, *n. sp.*

♂ ♀. $3\frac{1}{2}$ "-4". Head and palpi snow-white, terminal joint of labial palpi with slender, black, basal and sub-apical rings. Antennæ longer than fore-wings, grey-whitish towards base, becoming black fuscous towards apex, basal joint black. Thorax white, anterior margin narrowly black. Abdomen blackish, anus white, beneath with white rings. Anterior tibiæ black, with indistinct basal and median whitish rings, tarsi white with two black bands; middle tibiæ somewhat thickened, black with broad median white band, tarsi white with two black bands; posterior tibiæ black with narrow basal and broad median white bands,

tarsi white with four black bands. Fore-wings deep ochreous-grey, with two strait fasciæ and four spots snow-white, black margined; base narrowly white; first fascia broad, dilating from costa to inner margin, outer edge irregular; second much narrower broadest on inner-margin, slightly oblique outwardly; a small costal spot at $\frac{3}{4}$ and a rather larger one somewhat beyond it on inner margin, nearly meeting; a smaller costal spot immediately before apex, produced by black scales obliquely to hind-margin; a rather large ovate apical spot, extending into cilia; cilia greyish-ochreous beneath apex, with a black line, thence fuscous-grey. Hind-wings fuscous-grey, cilia paler.

Very close to the preceding species, but the basal joint of antennæ is black above, and the third fascia is always represented by two not very unequal opposite spots. The Indian *terminalia*, Stt., belongs to this group, but the third fascia is represented by a costal spot only; it was bred from *Terminalia catappa*. The imago of *cænotheta* is retired in habits, and I have only once taken it; I bred several from the larvæ, which are not uncommon; I have only found the species at Blackheath on the summit of the Blue Mountains, 3,500 feet above the sea.

Larva yellowish, (undescribed); feeds in a large irregular whitish blotch in upper surface of leaves of *Telopea speciosissima* (*Proteaceæ*), the well-known "Waratah"; the mine is at first flat but later the upper epidermis contracts and causes the formation of a hollow chamber, somewhat similar to the mines of the genus *Lithocolletis*, but much larger in proportion. Pupa in an ochreous cocoon, outside the mine.

Grac. hoplocala, n. sp.

♂ ♀. $3\frac{3}{4}$ "-4". Head and palpi snow-white, apex of second joint of labial palpi faintly grey. Antennæ dark fuscous with faint paler annulations, basal joint white. Thorax white, lateral margins golden-brown. Abdomen fuscous-grey, beneath white with dark bands. Legs white, anterior tibiæ blackish with a

white spot, middle tibiæ slightly thickened with black median and apical bands, posterior tibiæ stiff-haired with blackish apical and subapical bands, all tarsi with five black rings. Fore-wings rather pale golden-brown, with a fascia and four spots snow-white black-margined; first spot on inner margin almost at base, black-margined externally only, fascia-like, rather oblique, not reaching costa, indistinct above; fascia before $\frac{1}{3}$, somewhat oblique inwardly, narrow on costa, gently dilated to fold, where it is much less broad than in *calicella*, thence parallel-sided; second spot on costa before $\frac{2}{3}$, very small; third very large, acute-triangular, on inner margin at anal angle, its apex only separated from second spot by the black margins; fourth forming an oblique subapical streak from costa to middle of hind margin; cilia fuscous-grey, with two black streaks radiating from apex at an obtuse angle, the lower produced backwards into white costal cilia. Hind-wings and cilia fuscous-grey.

Allied to the three preceding species, but with only one complete fascia; very nearly allied to the following *calicella*, Stt., but immediately known by the absence of one of the costal spots, as well as the narrower fascia. Taken rather freely on a fence in Sydney in October, during windy weather; the larva is probably attached to some species of *Eucalyptus*.

Grac. *calicella*, Stt., Trans. Ent. Soc. Lond., Vol. I., 3rd Ser.

♂ ♀. $3\frac{3}{4}$ "- $4\frac{1}{4}$ ". Head and palpi snow-white, apex of second joint of labial palpi faintly grey. Antennæ dark fuscous, faintly annulated with paler, towards base whitish. Thorax snow-white lateral margins ochreous-brown. Abdomen fuscous-grey, beneath white with narrow dark bands. Legs whitish, anterior and middle tibiæ slightly thickened, with black median and apical bands, posterior tibiæ stiff-haired, all tarsi with five black rings. Fore-wings rather pale golden brown, with a fascia and five spots snow-white, black margined (except first); first spot on inner margin almost at base, not blackmargined, fascia-like, very oblique, not

reaching costa, above indistinct; fascia before $\frac{1}{3}$, very narrow on costa, very rapidly dilated and extremely broad on fold, where its outer edge is angulated inwards to inner margin; second spot on middle of costa, small, outwardly oblique; third on costa beyond it, much slenderer, rather less oblique; fourth broadly triangular on inner margin at anal angle, united to third by a small black cloud; fifth forming an oblique subapical streak from costa to middle of hind-margin; cilia fuscous-grey, with two black streaks radiating from apex at an obtuse angle, the lower produced backwards into white costal cilia. Hind-wings and cilia fuscous-grey.

Closely allied to the preceding species, but recognisable by the additional spot in middle of costa, and the more strongly dilated fascia. I have little doubt that my specimens are really Stainton's species; the only point of difference in his description is that he represents the first spot on inner margin as being extended to costa, which may be a slight error or an individual variety, as the description was taken from one specimen only, sent from Brisbane; moreover he gives the size as only 3", and the fascia in his figure appears to be less broad; however it seems best to adopt his name. I have only once taken the imago; I have bred it sparingly from larvæ found in the dry bush round Sydney and Parramatta. in July and October.

Larva yellowish, tapering posteriorly; feeds in a broad, flat, irregular blotch in upper surface of leaves of *Eucalyptus*, *sp.*, in September. Pupa in a flat cocoon within the mine. In the case of this and other *Eucalyptus*-feeding insects it is commonly very difficult or impracticable to discover the specific name of the *Eucalyptus* to which they are attached; the determination of this genus is always difficult, and the larvæ are generally found to occur on young plants which have not yet flowered.

Grac. chalcoptera, *n. sp.*

♀. 4". Head, thorax, and palpi bright metallic coppery bronze. Antennæ dark fuscous with indistinct paler rings, basal joint

bronze. Abdomen very dark purplish-fuscous. Legs coppery-bronze, tarsi bronzy-fuscous, paler towards base of joints, middle tibiæ hardly thickened. Fore-wings bright metallic coppery-bronze, with two small yellowish-white spots; first on inner-margin beyond middle, narrow, curved, parallel-sided, not reaching middle of disc; second on costa before apex, wedge-shaped, outwardly curved, reaching half across wing; cilia dark fuscous, with indistinct blackish lines round apex. Hind-wings dark fuscous, cilia rather paler.

A brilliant insect, somewhat allied to the group of *auroguttella*, Stph. One specimen taken in March with a lamp amongst the reedbeds in the creek at Parramatta.

Grac. ethela, *n. sp.*

♂ ♀. $5\frac{1}{2}$ "- $5\frac{3}{4}$ ". Head yellow on crown, crimson behind, face snow-white with a pale crimson-pink spot on each side. Maxillary palpi white, lower $\frac{2}{3}$ externally pale crimson. Labial palpi white, second joint externally crimson, beneath fringed with a few loose hairs. Antennæ much longer than fore-wings, pale greyish-ochreous, basal joint yellow. Thorax yellow, anterior margin broadly crimson, and with a small crimson spot behind. Abdomen pale greyish-ochreous. Legs yellowish-white, tarsi with very slender blackish rings at apex of joints, anterior and middle tibiæ slightly thickened, crimson-fuscous at apex and with two slender dark fuscous rings. Fore-wings pale yellow, deeper along inner margin, with a bright crimson irregular-edged undulating central streak from base to apex, connected with inner margin by four perpendicular half-fasciæ, one close to base, the others at $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$, and expanding abruptly at apex into a large apical spot; at the base this streak reaches costa, and at $\frac{1}{2}$ from base is again connected with it by a perpendicular spot; beyond this on costa are two small crimson strigulæ; central streak in parts margined above with black; parallel to its upper edge, and immediately above it, is a waved, black, longitudinal line, extending from

midway between third and fourth inner-marginal spot to midway between fourth and apical spot ; apical spot pure crimson, containing a circular black spot above centre, above which the colour becomes brownish-ochreous and is margined on costa with black ; lower half of apical spot filled up with a sharp wedge-shaped snow-white spot, the base of which is yellow and separated from the rest by a crimson line : cilia yellow round apex, containing a blackish hook, crimson below apical spot, thence pale crimson-grey. Hind-wings dull pale purple-crimson, costal cilia grey, rest suffused with pale crimson.

Var. *a*.—all the crimson markings replaced by dull fuscous.

This exceedingly beautiful insect cannot be compared with any other, but is probably most allied to *formosa* and *ida*, The loosely haired second joint of the palpi render^s it peculiar in the genus, but the hairs do not form a tuft, and it cannot therefore be referred to *Coriscium*, to which it is not otherwise specially related ; probably Stainton is correct in stating his opinion that a knowlⁿledge of the exotic species of *Gracilaria* will tend to widen the definition of the generic structure in respect of the scaling of the labial palpi, in which allied species deviate. I took seven very perfect specimens (six typical, one of the variety) amidst dense growth in the swampy virgin forest near Hamilton, on the Waikato, New Zealand, in January, mostly under tree-ferns. New Zealand insects are usually rather sombre ; and I shall not easily forget the emotion with which, in the depths of the forest shades, I saw this lovely insect, whose ethereally pure hues cause it to be one of the most wonderful manifestations of the beauty of nature.

Grac. formosa, *Stt.*, Trans. Ent. Soc. Lond., Vol. I., 3rd Ser.

♂ ♀ . 4½"-5". Head pale yellow, with a central stripe on crown and the sides crimson ; face white with a few crimson scales. Maxillary palpi white, faintly crimson-tinged. Labial palpi white, second joint externally faintly suffused with crimson and with slender dark fuscous apical and subapical rings, terminal joint

with slender ring near base. Antennæ longer than fore-wings, pale ochreous-brown, darker towards apex, basal joint yellow in front, crimson above. Thorax crimson, with a white central streak. Abdomen dark fuscous, at base ochreous, beneath white. Legs whitish; anterior tibiæ crimson, apex suffused with dark fuscous, middle tibiæ somewhat thickened, almost tufted at apex, crimson with yellow basal and median bands, all tarsi with dark fuscous rings at apex of joints. Fore-wings crimson, paler and partially suffused with yellow along costa, especially beyond middle, with a basal streak, six costal and four dorsal streaks, and a spot on fold white, partially suffused with yellow; basal streak very short, irregular, dark-margined, its extremity produced through centre of wing to middle as a dark fuscous line; first and second costal streaks irregular, very oblique, white, not margined; third elongate-triangular, very oblique, not margined; fourth irregular black margined; fifth short, less oblique, strongly black margined, the black margins continued to anal; costal space between fourth and fifth yellish-white; sixth short, black margined, not oblique, black margins produced to hind-margin and diverging; first dorsal spot at base, very small; second small, opposite first costal, obtuse-triangular, white, black edged in front on inner-margin; third before middle, yellow, very broad on inner-margin, very much contracted on fold and proceeding as a very oblique white dark-margined streak to disc; fourth yellow, very broad on inner-margin, extending from middle to anal angle, obtuse-triangular, apex dark-margined; a round white spot on fold between second and third, not touching either; hind-margin suffused with dark fuscous except within the two pairs of dark streaks from costa; apical spot round, black; cilia crimson at apex, yellow on hind-margin, thence dark fuscous, with a crimson subapical hook. Hind-wings and cilia dark grey.

Stainton's description clearly includes both this insect and the succeeding species, which is very closely allied to it; they are however certainly distinct. His figure seems to be taken from a

specimen of this species, for which I have accordingly retained the name. The true *formosa* is best known by the narrower fore-wings, yellower markings, which also differ in detail, and especially by the round white spot on the fold, which in *Grac. ida*, forms part of a dorsal streak. A widely distributed species, but almost always taken singly, without any clue to its habits; occurs at Sydney, Parramatta, and Bulli, and also near Brisbane and Melbourne, from October to March without apparent interruption, usually in thick bush.

Grac. ida, n. sp.

♂ ♀ . 5"-5½". Head white, very faintly tinged with yellowish, with a broad central stripe on crown and the sides crimson; face white, speckled with crimson. Maxillary palpi white, apex of second and terminal joints dark fuscous. Labial palpi white, base and apex crimson, second joint with subapical and apical rings, terminal joint with a ring near base dark fuscous. Antennæ longer than fore-wings, ochreous-grey, darker towards apex, basal joint crimson, in front white. Thorax whitish, irregularly suffused and spotted with crimson. Abdomen blackish, beneath snow-white. Legs whitish, anterior tibiæ crimson with two slender white rings, middle tibiæ somewhat thickened, almost tufted at apex, with two white bands, all tarsi with slender dark fuscous rings at apex of joints. Fore-wings crimson, disc usually suffused with fuscous-grey, with seven costal and normally five (sometimes partially confluent) dorsal streaks and an apical spot white, faintly tinged with creamy-yellowish; a minute white spot on costa at base; first, second, and third costal streaks irregular, very oblique, not margined, reaching middle of wing; fourth subquadrate, unmargined; fifth immediately adjacent to fourth, fifth and sixth short, subquadrate, each enclosed between dark fuscous margins which are extended very obliquely to beyond middle of wing, ending in loops; costal space between fifth and sixth white; seventh subquadrate, enclosed between dark margins

contracted and produced to middle of hind-margin; first dorsal spot small, close to base; second and third long, acute-triangular very oblique, second sometimes confluent with first on margin; fourth before anal angle, obtuse-triangular, not oblique; fifth on hind-margin above anal angle, elongated along margin, sometimes confluent with fourth; a small white spot above middle of wing between second and third costal streaks; a curved white streak immediately before apex, enclosing a round black apical spot; cilia yellowish round apex, with two crimson hooks, thence dark fuscous-grey. Hind-wings and cilia dark fuscous-grey.

Somewhat less brightly coloured than *formosa*, but even more elegant. At first sight the two species are very similar, and both are somewhat variable, but within constant limits; for the identification of this species I should lay stress upon the broader wings, the frequent (but not invariable) suffusion with fuscous-grey, the irregular crimson spotting of the thorax, the head white rather than yellow, and the detailed differences in marking, especially the presence of several additional small spots, the absorption of the spot on the fold by the second dorsal streak, and the termination of the dark costal streaks not on hind-margin but in loops before reaching it. The species is also widely distributed, and has the same habits as the last; taken at Sydney, Parramatta, Bulli, and Brisbane, from August to November, in January, and March.

Grac. mnesicala, *n. sp.*

♂. $3\frac{3}{4}$ ". Head and palpi snow-white, terminal joint of labial palpi with slender black basal, central, and apical rings. Antennæ as long as fore-wings, white, annulated with dark fuscous. Thorax white, posteriorly brownish-ochreous. Abdomen pale greyish-ochreous. Legs white, tarsal joints very slenderly black at apex, anterior and middle tibiæ ringed with black, not thickened. Fore-wings snow-white, inner margin within an irregular line from centre of base to anal angle brownish-ochreous, intersected

by two very oblique white lines before and beyond middle; eight dark fuscous oblique, transverse strigulae from costa between base and $\frac{3}{4}$, nearly reaching inner-marginal streak, the first four interrupted and broken into spots, the seventh connected on disc with a longitudinal strigula from centre of wing; between the eighth and apex are two other similar, less oblique strigulae from costa reaching across wing, the interior one connected with the eighth by three longitudinal streaks; a small cloudy subapical fuscous spot, and a black apical dot; cilia white round apex, with a greyish-ochreous spot at apex, and with two faint fuscous lines, thence whitish-grey. Hind-wings fuscous-grey, cilia whitish-grey.

Allied to the preceding and following species, but at once distinguished from all by the ochreous inner-marginal streak. Two specimens taken in dry scrub near Sydney and Parramatta, in September.

Grac. lyginella, n. sp.

♀. 3". Head and palpi snow-white, terminal joint of labial palpi with a black subapical ring. Antennae as long as fore-wings, white, annulated with black. Thorax white (?). Abdomen greyish-ochreous, anal segment black at base. Legs white, tarsal joints very broadly black at base, tibiae irregularly banded with black, not thickened. Fore-wings white, with blackish-fuscous markings, tending to become suffused towards apex; a central streak from base to middle of wing; an inwardly oblique costal strigula near base; two costal spots before and after $\frac{1}{4}$, the first larger; between the second and the basal streak is a short longitudinal streak; beyond these are three irregular oblique strigulae from costa becoming confluent on disc and extending confusedly to inner-margin; on inner-margin is a small spot near base, and two oblique strigulae before middle, uniting with basal streak; a cloudy costal spot before apex; an elongated black apical streak; cilia round apex white with two black lines, thence fuscous-grey. Hind-wings fuscous-grey, cilia rather paler.

Distinguished by its small size and cloudy markings, which also differ in detail. One specimen only, from dry bush at Parramatta in October.

Grac. aëllomacha, *n. sp.*

♂. $3\frac{1}{2}$ ". Head and palpi snow-white, labial palpi with apex of second joint and a subapical ring of terminal joint black. Antennæ longer than fore-wings, white. Thorax snow-white, with a small black shoulder spot. Abdomen dark fuscous, beneath with white rings and white towards apex. Legs white, tarsi with three black rings, anterior tibiæ black, middle tibiæ hardly thickened, apical half black. Fore-wings white, with coarsely scaled fuscous-black markings; a cloudy, central, longitudinal streak from near base to disc above anal angle, connecting obscurely with seven oblique costal and five oblique dorsal streaks; costa blackish at base; first and second costal streaks thick, hardly oblique, meeting first and second dorsal streaks; third slender, very short, not reaching central streak; fourth strong, from middle of costa; fifth slender, short; sixth thick, black, very oblique, uniting with the small fifth dorsal on anal angle; fourth dorsal thick, before middle; seventh costal slender, produced nearly to hind-margin; apical spot black, large, round, cloudy; cilia white round apex, dark fuscous at anal angle, with two black lines and a short black apical hook, thence fuscous-grey. Hind-wings fuscous-grey, cilia paler.

Not particularly close to the preceding; it resembles rather the figure of Zellers's *urbanella*, from South America, which however he considers to be hardly a true *Gracilaria*. One specimen from forest growth at Wellington, New Zealand, in January.

Grac. thalassias, *n. sp.*

♂ ♀. $2\frac{3}{4}$ "- $3\frac{1}{2}$ ". Head and maxillary palpi white. Labial palpi white, second joint loosely scaled beneath, with apex blackish, terminal joint with slender blackish median and subapical rings.

Antennæ not longer than fore-wings, white, annulated with dark fuscous. Thorax white, lateral margins ochreous. Abdomen pale greyish-ochreous, beneath white. Legs white, anterior and middle tibiæ hardly thickened, blackish with three white rings, all tarsi with blackish rings at apex of joints. Fore-wings varying from pale clear ochreous to greyish-ochreous, with a basal streak, five costal and three dorsal streaks white; basal streak rather short, rather slender, not margined, sometimes connected at its middle with costa; first costal streak at $\frac{1}{3}$, second at $\frac{1}{2}$, both long, slender, oblique, dark-margined; third rather less oblique, dark-margined, more or less perfectly uniting with third dorsal streak from anal angle; fourth costal from before apex to middle of hind-margin, continued into cilia, dark-margined; first dorsal slightly beyond first costal, rather long, very oblique, dark-margined above, produced along inner-margin as a white unmargined streak to base; second dorsal rather thick, irregular, its apex swollen, dark-margined, very oblique; a small white apical spot, continued above into cilia, enclosing the small linear-ovate black apical dot; cilia greyish-ochreous round apex, extremities white, beneath apex whitish. Hind-wings and cilia whitish-grey.

This species belongs to the group of *pavoniella*, Z., but is readily known by its pale ground colour, which gives it much the appearance of some species of *Lithocolletis*. Where its foodplant grows, the imago may be taken in great profusion, flying out in swarms when the bush is shaken; it occurs principally on coast sand-hills, at Sydney and Newcastle, New South Wales, from September to January, and in May.

Larva slightly tapering posteriorly, very pale whitish-green, yellowish-tinged on back; head very pale whitish-brown. It mines the leaves of *Leptospermum lævigatum* (*Myrtaceæ*), forming a blotch which occupies the whole of the small leaf, both surfaces being much inflated, in January (and no doubt at other times). Pupa outside the mine, in a firm white cocoon beneath a folded

corner of leaf. I have also found the larva on *Agonis flexuosa*, a closely allied plant, but a native of West Australia, and only found here under cultivation; it does not however frequent the other common species of *Leptospermum*.

Grac. eumetalla, *n. sp.*

♂ ♀. 3"-3½". Head, palpi, and thorax bright metallic bronzy-green, face bright silvery. Antennæ as long as fore-wings, blackish. Abdomen black above, silvery-white beneath. Legs metallic silvery, posterior tibiæ stiff-haired above, and, together with tarsi, suffused externally with fuscous. Fore-wings bright metallic coppery or bronzy green, with white violet-shining markings, consisting of four costal and four dorsal short slender wedgeshaped streaks, and a discal spot, all black-margined; first costal streak at $\frac{1}{3}$, second at $\frac{1}{2}$, both slightly oblique outwardly; third at $\frac{3}{4}$, short, not oblique; fourth uniting with fourth dorsal streak to make an inwardly curved fascia; first dorsal streak much before first costal, rather long, curved, very oblique; second short, straight, between first and second costal streaks; third opposite third costal, outwardly oblique, nearly uniting with fourth; a small irregular, sometimes double, discal spot between second and third pairs of streaks; apical spot round, black, obscure; cilia blackish-fuscous, with a black line round apex. Hind-wings and cilia blackish-grey.

A brilliant insect, distinguished amongst its allies by its bright metallic colouring. I beat several specimens from a phyllodineous *Acacia* (to which it is probably attached) near Brisbane in September; also once taken on a fence near Sydney, in October.

Grac. eupetala, *n. sp.*

♂ ♀. 3¼"-3½". Head and palpi bright metallic grey-silvery. Antennæ as long as fore-wings, blackish. Thorax deep metallic bronze. Abdomen blackish, beneath snow-white with black bands. Legs dark fuscous, tarsal joints with slender whitish

apical rings. Fore-wings pale golden-ochreous on disc, elsewhere especially on inner-margin, suffused with dark metallic bronze, with pearly-white obscurely dark-margined markings, consisting of four costal and four dorsal streaks or spots, and a small discal spot; first three costal streaks before and beyond middle and at $\frac{3}{4}$, slender, short, oblique, with violet reflections; fourth closely after third not oblique; first dorsal spot conspicuous, broadly wedgeshaped, oblique and curved outwards; second rather smaller, triangular, not oblique, between first and second costal; third still smaller, triangular, opposite third costal; fourth minute, indistinct, opposite fourth costal; discal spot small, circular, between second and third pairs of streaks; apical space suffused with blackish; cilia white round apex, with a black line, thence fuscous-grey. Hind-wings and cilia fuscous-grey.

Nearly allied to the preceding, but much less brilliant, and the first three dorsal spots are much broader and more conspicuous. Not common; in *Acacia* groves near Parramatta, and on fences in Sydney. I once bred the species, almost certainly from a branch of *Acacia decurrens*, (*Leguminosæ*), which was in my room; but the larva had not been noticed.

NOTE.—I have found a *Gracilaria* larva mining flat whitish blotches in the phyllodia of *Acacia longifolia*, which I have not yet succeeded in breeding; it is probably an allied species.

Grac. alysidota, n. sp.

♂ ♀. 3"-4½". Head white, with a dark fuscous stripe on sides. Palpi whitish, maxillary palpi very short. Antennæ not longer than fore-wings, dark fuscous, apical third white. Thorax dark fuscous, with a white spot in front. Abdomen dark fuscous, beneath white. Legs greyish-fuscous, apex of tarsal joints indistinctly whitish, posterior tibiæ stiff-haired near apex. Fore-wings dark fuscous, towards apex sometimes suffused with ochreous, with five costal and four dorsal streaks, and a streak along inner-margin white, blackish-margined; first costal streak

at $\frac{1}{4}$, rather long, very oblique, slightly produced along costa towards base; second at $\frac{1}{2}$, longer, very oblique; third before $\frac{3}{4}$, rather shorter, equally oblique; fourth short, not oblique, uniting with fourth dorsal to form a straight slender fascia; first dorsal immediately before middle, short, oblique, connected with a streak along inner-margin to base; second beyond middle, small, semiovate; third opposite third costal, rather short, oblique; fifth costal apical, intersecting the round black apical spot; cilia whitish round apex, with two black lines, thence dark fuscous-grey. Hind-wings and cilia fuscous-grey.

Not very near to any described species; easily recognised by the white streak on basal half of inner-margin on a dark fuscous ground. Three specimens, taken in mixed bush near Sydney, and on the Bulli Pass, in October and March.

Grac. ochrocephala, n. sp.

♂ ♀. 4". Head whitish-ochreous above, face whitish. Maxillary and labial palpi wholly white. Antennæ longer than forewings, dark fuscous, with faint paler annulations. Thorax whitish ochreous, lateral margins ochreous-fuscous. Abdomen dark fuscous, beneath narrowly white, anus white. Legs dark fuscous posterior tibiæ and apical rings of all tarsal joints ochreous-whitish, posterior tibiæ stiff-haired. Forewings deep brownish-ochreous, with a broad stripe along inner-margin from base, terminating abruptly at anal angle, whitish, entirely suffused with ochreous except along its upper edge, black margined above; a clear white, black margined, slender, oblique streak from costa at $\frac{3}{4}$, extending to hind-margin, its upper extremity produced along costa as a very slender white unmargined streak to $\frac{1}{4}$ from base; a second similar parallel streak immediately before apex; cilia dark fuscous, containing two snow-white posteriorly black-edged strigulæ above apex, and an ochreous-whitish mark beyond anal angle. Hind-wings blackish-fuscous, cilia slightly paler.

This and the three following species are very closely allied together; they belong to the group of *scalariella*, Z. and *gemoniella* Stt. They are best distinguished from one another by the different groundcolours, and the colouring of the inner-marginal streak and of the head; *ochrocephala* is also to be known by the slender white streak along costal edge. Two specimens, from mixed growth at Sydney and on the Bulli Pass, in October and November.

Grac. nerëis, n. sp.

♂. 4". Head and thorax glossy-white tinged with brassy-yellow, lateral margins of thorax blackish. Maxillary palpi white, exteriorly dark fuscous. Labial palpi white, second joint exteriorly dark fuscous, terminal joint with some scattered fuscous scales. Antennæ longer than fore-wings, dark fuscous. Abdomen blackish above, wholly snow-white beneath. Legs white, tarsal joints with broad dark fuscous rings at base, anterior tibiæ dark fuscous, middle tibiæ hardly thickened, dark fuscous with white median band, posterior tibiæ stiff-haired. Fore-wings dark fuscous, with a rather broad brassy yellowish-white stripe along inner-margin from base terminating abruptly at anal angle, very strongly black margined above; a white circular spot on hind-margin just above anal angle; a thick black oblique streak from costa at four-fifths, extending to the white hind-marginal spot; a similar streak just before apex, ending in apex; cilia dark fuscous-grey, with two white posteriorly black margined strigulae above apex, and a black apical hook. Hind-wings blackish-fuscous, cilia slightly paler.

Nearest to *didymella*; distinguished by the darker ground colour, brassy-metallic tints, and the obscuration of the white costal streaks with black scales. One specimen on a fence in Sydney, in November.

Grac. didymella, n. sp.

♂. $4\frac{1}{2}$ ". Head and palpi pure white, labial palpi with extreme apex of second joint blackish. Antennæ longer than fore-wings, dark fuscous, beneath whitish; basal joint black, longitudinally striated with white. Thorax white, lateral margins dark fuscous. Abdomen dark fuscous, beneath whitish, anal tuft white. Legs whitish, suffused above with dark fuscous, except posterior tibiæ and apex of tarsal joints; posterior tibiæ stiff-haired above. Fore-wings dark greyish-ochreous, with a broad white, above black margined, stripe along inner-margin from base, abruptly rounded off at anal angle; extreme inner-marginal edge faintly ochreous; immediately beyond end of dorsal stripe a white elongate spot along hind-margin; a white strongly black margined slender, oblique streak from costa at $\frac{3}{4}$, reaching hind-marginal spot; another similar parallel streak immediately before apex, terminating in the small round, black, apical spot; cilia fuscous-grey, with two white posteriorly black margined strigulæ above apex, inner one very marked. Hind-wings fuscous-grey, cilia paler.

Differs from both the preceding by the white head and almost wholly white dorsal streak; from *ochrocephala* also by the white hind-marginal spot, and from *nerëis* by the white costal streaks. One specimen in a garden near Sydney in September.

Grac. laciniella, n. sp.

♂ ♀. $3\frac{1}{4}$ "- $3\frac{3}{4}$ ". Head and palpi white, second joint of labial palpi dark fuscous at apex, apical scales somewhat produced beneath, terminal joint with a fuscous ring near base. Antennæ as long as fore-wings, white at base, becoming gradually dark fuscous. Thorax white, lateral margins dark greyish-ochreous. Abdomen ochreous-grey, beneath pure white. Legs white, anterior and middle tibiæ hardly thickened, dark fuscous with white rings near base and in middle, posterior tibiæ stiff-haired, all tarsi with apical bands of joints and two rings on basal joint

dark fuscous. Fore-wings ochreous-fuscous, with a clear white streak along fold from base to just above anal angle, not touching inner-margin, margined with black above and below at extremity only; a white elongate spot on hind-margin; an oblique slender white black margined streak from costa at four-fifths, meeting the white hind-marginal spot; a second similar streak just before apex; both these streaks are often quite obsolete; apical spot irregular, black; cilia fuscous-grey, with two white posteriorly black margined strigulae above apex. Hind-wings and cilia fuscous-grey.

Distinguished from its allies by its smaller size, and by the white streak being clearly removed from inner-margin. It also has the peculiar habit of holding its antennae porrected forwards, and somewhat divergent, when at rest. A common species, occurring among dry scrub near Sydney and Parramatta, at Bulli, and at Blackheath on the Blue Mountains (3,500 feet); also at Brisbane. It is generally beaten from *Eucalyptus*, and I have found a larva mining flat whitish blotches in the leaves of *Eucalyptus*, which I expected to produce it, but have not yet succeeded in rearing.

Grac. albomarginata, *Stt.*, Trans. Ent. Soc. Lond., Vol. I.,
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"4½". Head white, with a few grey scales. Maxillary palpi white, very minute. Labial palpi white, with a dark grey ring before apex of second joint, and base and apex of terminal joint greyish. Antennae white, with grey annulations. Anterior tibiae dark grey, tarsi white, with two broad dark grey blotches; middle tibiae dark grey with white blotches, tarsi white; posterior tibiae whitish, tarsi white spotted with dark grey; all the legs appear usually hairy. Fore-wings dark brownish-grey, with a narrow, white stripe all along inner-margin, and the costa narrowly white from middle to near apex; margins of these streaks not sharply defined, that on the inner-margin especially is very

jagged; a minute black apical spot, with a metallic-bluish tinge; hind-margin expressed in black scales; cilia grey, intersected by a row of blackish scales round the hind-margin, and with a tendency to a small projecting blackish hook."

The above is Stainton's description, taken from a single specimen with thorax injured, and no abdomen, from near Brisbane; it does not appear to correspond to any insect I have seen, but the species is probably allied to the group of *laciniella*.

CORISCUM, Z.

Head smooth; no ocelli; tongue long. Antennæ as long or longer than fore-wings, slender, filiform. Maxillary palpi rather long, filiform. Labial palpi moderately long, slender, ascending, second joint beneath with projecting tuft of hairs; terminal joint longer than second, pointed. Fore-wings elongate, very narrow, parallel-sided. Hind-wings very narrowly-lanceolate, much narrower than fore-wings, cilia thrice or four times as broad. Abdomen elongate, slender. Legs long. Fore-wings with 12 or 11 veins, 5 branches to costa, no secondary cell, 1 simple. Hind-wings with 8 veins; 5 and 6 stalked, cell open.

A small genus, comprising only some eight or nine species as yet, but found in every part of the globe; it only differs from *Gracilaria* by the distinct rather long tuft of hairs on the second joint of the palpi. In repose they usually have the same attitude as in *Gracilaria*; the larval habits are also similar.

Cor. ochridorsellum, n. sp.

♂ ♀. $4\frac{1}{2}$ "-5". Head pure ochreous, face white. Maxillary palpi whitish, basal joint fuscous. Labial palpi whitish, second joint externally dark fuscous, with a blackish tuft nearly as long as terminal joint, its anterior edge white; terminal joint with an indistinct fuscous ring near base. Antennæ much longer than fore-wings, dark fuscous with slender whitish annulations, basal joint whitish. Thorax ochreous-whitish, with a dark fuscous

spot on shoulder. Abdomen pale greyish-ochreous, with a row of oblique linear dark fuscous spots on sides. Legs slender, dark fuscous, all tarsi with whitish rings at apex of joints, posterior tibiae stiff-haired. Fore-wings blackish with a few ochreous scales, with inner-margin rather broadly whitish-ochreous from base almost to apex, dilating and becoming deeper ochreous above anal angle; three small white costal spots; first beyond middle, very small; second and third near together before apex, slender, oblique, meeting the dorsal streak; extreme apex jet black; cilia whitish round apex, with two black lines, thence dark fuscous-grey. Hind-wings and cilia dark fuscous-grey.

Easily known by the broadly ochreous inner-margin. This species walks with the forepart raised and the legs moderately displayed, as usual in the genus; but in repose on tree-trunks, as it is generally found, the body is closely appressed to the bark, and the anterior and middle pairs of legs stretched out laterally and also closely appressed to the surface, a modification adopted for the sake of concealment. The imago is common on the trunk of its food-plant in gardens in Sydney, from November to February.

Larva attenuated posteriorly, deep green; head extremely small, black; it mines an irregular flat, rather small blotch, on upper side of leaves of *Phyllanthus Ferdinandi*, (*Euphorbiaceæ*), in January and February. Pupa inside the mine, in a slight cocoon; this is certainly the normal habit.

Cor. æolellum, *n. sp.*

♂. $4\frac{1}{4}$ ". Head white, on crown tinged with ochreous and mixed with grey. Maxillary palpi whitish. Labial palpi white, second joint externally dark fuscous, with a blackish tuft nearly as long as terminal joint; terminal joint with two black rings. Antennæ longer than fore-wings, dark fuscous with paler annulations, extreme apex white. Thorax ochreous-grey mixed with dark fuscous. Abdomen greyish-ochreous. Legs dark

fuscous, tarsi with white rings at apex of joints. Fore-wings whitish, irrorated with dark grey-fuscous scales, especially towards costa and apex, leaving an ill-defined whitish space along fold from base to middle of wing, and with obscure black markings; a short central streak from base; two large irregular discal spots before and after middle; some cloudy blackish spots beneath costa; a very oblique thick streak from $\frac{2}{3}$ of costa nearly to hind-margin, above which is a similar shorter streak, not reaching costa; a black curved transverse line across wing just before apex, followed by a white line; apical spot round, upper half white, lower black; cilia whitish round apex, with two black lines, thence fuscous-grey. Hind-wings and cilia fuscous-grey.

An obscurely marked species, of which the only specimen is not very perfect, but certainly distinct from the preceding. One specimen taken on Mount Keira, near Wollongong, in October.

EPICEPHALA, *n. g.*

Head roughly short-haired on crown, hairs longer and directed forwards between antennæ, face smooth; no ocelli; tongue moderate. Antennæ longer than fore-wings, slender, filiform, basal joint compressed. Maxillary palpi rather-long, filiform. Labial palpi moderate, somewhat drooping, cylindrical, second joint with appressed scales. Fore-wings elongate, narrow, tolerably evenly pointed. Hind-wings narrow-lanceolate, cilia as broad. Abdomen elongate, in ♂ tufted, in ♀ with exserted ovipositor. Legs moderate, slender. Fore-wings with 10 veins; 4 branches to costa, no secondary cell, 1 simple. Hind-wings with 7 veins; 4 and 5 stalked, cell open.

In general structure near *Ornix*, Z., though the head is not quite so rough; differs in the venation, and also in the peculiar posture assumed in repose; the imago rests with the head appressed to the surface, the hind-part raised considerably and seemingly to be supported on the posterior legs, the anterior and

middle pair extended laterally and appressed to the surface. The wings are relatively broader than in *Gracilaria*.

Epic. colymbetella, *n. sp.*

♂ ♀. $4\frac{1}{2}$ "-5". Head white, with a few black hairs above antennæ. All palpi white, externally mixed with fuscous. Antennæ white, annulated with dark fuscous. Thorax fuscous-grey, speckled with whitish. Abdomen greyish-ochreous. Legs whitish, anterior and middle tibiæ fuscous-grey, tarsal joints fuscous-grey at base. Fore-wings whitish, densely irrorated with dark fuscous-grey scales, the absence of which causes white markings, more or less strongly margined with dark fuscous-grey; three rather short oblique costal streaks, the first longest; a fourth immediately after third, a little before apex, not oblique, almost or quite meeting a similar dorsal streak beyond anal angle; three other longer and more oblique dorsal streaks, but these are almost always confused and confluent into an irregular streak along inner margin; a bright ochreous round apical spot, containing a smaller black spot; cilia round apex white, with two strong black lines, thence dark fuscous-grey. Hind-wings and cilia dark fuscous-grey.

Common on garden fences in Sydney, from November to January.

BEDELLIDÆ.

BEDELLIA, *Stt.*

Head rough above, almost tufted, face smooth; tongue short. Antennæ as long as fore-wings, filiform; basal joint thickened. No maxillary palpi. Labial palpi very short, somewhat porrected, filiform. Fore-wings elongate, narrow, long-pointed. Hind-wings linear-lanceolate, $\frac{1}{3}$ of fore-wings, cilia six times as broad. Abdomen moderate. Legs slender, posterior tibiæ compressed, hairy. Fore-wings with 8 veins; 3 and 4 stalked, 4 branches to

costa, cell closed, 1 simple. Hind-wings without cell; median three-branched, 1 branch to costa.

There appears to be but one species known in this genus, occurring throughout Europe and in North America, as well as Australia. The imago rests with the fore-part somewhat raised, but the fore-legs retracted beneath the body. The larva is sixteen-legged, and mines flat blotches in leaves. The pupa is naked and angulated, suspended from a leaf.

Bed. somnulentella, Z.

♂ ♀. $3\frac{1}{2}$ "-4". Head and palpi whitish-ochreous mixed with fuscous. Antennæ dark fuscous. Thorax whitish-ochreous, in front brownish-grey. Abdomen fuscous-grey, anal tuft ochreous. Legs whitish-ochreous. Fore-wings pale dull-ochreous, suffused and irrorated with brownish-grey, except on a streak along inner-margin; costal cilia sharply ochreous-whitish, the rest grey, irrorated with darker at apex. Hind-wings and cilia grey.

The description is from Australian specimens, which do not appear to differ specifically from the English. I have not however observed the larva in this country as yet; elsewhere it mines the leaves of *Convolvulus* and *Ipomæa*. It hardly seems a very likely species to have been introduced artificially, but it does not now seem easy to decide; it is not confined to the near neighbourhood of civilisation, and there are many native species of *Ipomæa*. Taken commonly in particular localities at Sydney and Parramatta and amongst the dense forest growth on the descent of the Bulli Pass, where it is especially abundant.

ARCTOCOMA, n. g.

Head roughly haired above, face smooth; no ocelli; tongue short. Antennæ rather shorter than fore-wings, filiform, basal joint somewhat thickened. No maxillary palpi. Labial palpi very short, drooping. Fore-wings elongate-lanceolate, rather broad comparatively. Hind-wings lanceolate, $\frac{1}{2}$ of fore-wings,

cilia thrice as broad. Abdomen moderate, stout. Legs rather short, posterior tibiæ compressed, very hairy. Fore-wings with 6 veins; 1 and 2 simple; 3, 4, 5 to costa, forming branches of subcostal vein; no cell. Hind-wings without cell; median simple; submedian very obsoletely twice-branched.

Allied to the preceding genus, but distinguished by the much broader wings, the antennæ shorter than fore-wings, and the low type of neururation. The imago in repose sits closely appressed to surface.

Arct. ursinella, *n. sp.*

♂ ♀. $3\frac{3}{4}$ "-4". Head, palpi, thorax, and abdomen deep ochreous brown. Antennæ dark fuscous. Legs brownish-grey. Fore-wings unicolorous rather deep ochreous-brown; cilia fuscous-grey. Hind-wings and cilia dark fuscous-grey.

Beaten commonly from *Acacia decurrens*, at Parramatta, and also at Bulli, in October.

LYONETIDÆ.

STEGOMMATA, *n. g.*

Head roughly tufted on crown, face smooth; no ocelli; tongue moderate. Antennæ as long or longer than fore-wings, slender, filiform, basal join dilated into a moderate eyecap, fringed in front. Maxillary palpi obsolete. Labial palpi moderately short, straight, rather drooping, smoothly scaled. Fore-wing elongate, narrow, pointed, apex caudate. Hind-wings linear-lanceolate, cilia five times as broad. Abdomen elongate. Legs moderate, slender. Fore-wings with 8 veins, cell closed, 1 strongly furcate at base, 5, 6, 7 to costa. Hind-wings without cell; median twice-branched; submedian apparently simple.

This genus is nearly allied to *Lyonetia*, Hb., and the neururation is essentially identical; it differs in the strongly-tufted, rough

head. The species have some superficial resemblance to *Gracilaria*, but rest closely appressed to the surface.

Steg. leptomitella, *n. sp.*

♂ ♀. $3\frac{1}{2}$ "-4". Head, palpi, and thorax white, crown with a few fuscous-grey hairs. Antennæ white, annulated with dark fuscous. Abdomen grey-whitish. Legs white; anterior tibiæ, apex of middle and posterior tibiæ and of all tarsal joints dark fuscous-grey. Fore-wings white with dark fuscous-grey markings; two obscure longitudinal parallel streaks above middle of wing from near base to beyond middle, sometimes obliterated; seven very oblique streaks from costa, variable in thickness and intensity meeting the longitudinal streaks when distinct; beneath the two longitudinal streaks are four longitudinal short black streaks on disc, nearly in a line, third longest, in middle of wing, fourth rather oblique upwardly; five oblique dorsal streaks, but these are generally partially obliterated or interrupted; an irregular black spot in cilia, preceded by two pairs of outwardly radiating fuscous streaks, and followed by two dark fuscous lines round apex; hind-marginal cilia grey-whitish. Hind-wings grey, cilia whitish-grey.

Tolerably common on some fences in Sydney, in December and January.

Steg. sulfuratella, *n. sp.*

♂ ♀. 4"-4 $\frac{3}{4}$ ". Head, palpi, antennæ, and thorax white, faintly tinged with pale sulphur. Abdomen and legs white. Fore-wings white, dorsal half delicately suffused with pale sulphur-yellow; a very faint pale ochreous, longitudinal line in centre of wing from near base to beyond middle; three costal and two dorsal very faint ochreous oblique streaks; costal streaks between $\frac{2}{3}$ and apex, first dorsal streak in middle, second at anal angle, dorsal margin faintly ochreous for a short distance before anal angle; a clear round black apical dot, preceded by two pairs of

fuscous-grey outwardly radiating streaks in cilia, and an additional streak in hind-marginal cilia, and emitting a fuscous-grey apical hook; cilia white. Hind-wings pale fuscous-grey, cilia white.

Not capable of being confused with the last species. Common on fences in Sydney, in January and from April to August.

PHYLLOCNISTIS, Z.

Head smooth; no ocelli; tongue short. Antennæ shorter than fore-wings, slender, filiform, with a rather small eyecap. No maxillary palpi. Labial palpi short, drooping, very slender, filiform. Fore-wings elongate, narrow, pointed, apex rather produced. Hind-wings very narrowly lanceolate, $\frac{1}{3}$ of fore-wings, cilia five times as broad. Fore-wings with 9 veins; 4 and 5 stalked; 4 branches to costa, cell closed, 1 simple. Hind-wings without cell; median twice-branched.

The genus contains only a few closely allied species, but is found also in Europe, North and South America, and India. The larvæ are apodal, mining blotches in leaves. The pupa is in a cocoon inside the mine.

Phyll. diaugella, *n. sp.*

♂ ♀. $1\frac{3}{4}''$ - $2\frac{3}{4}''$. Head, palpi, antennæ, thorax, abdomen, and legs shining silvery-white. Fore-wings pearly white, with two longitudinal fuscous streaks from base of costa to middle of disc, not united posteriorly; an outwardly oblique, rather curved fuscous streak from costa beyond middle, nearly meeting a straight perpendicular fuscous transverse fascia immediately beyond it, the lower extremity of which sometimes forms a spot on inner-margin; between the fascia and apex is a rather large oval golden-ochreous patch; apical spot very distinct, round, black, preceded by two divergent fuscous streaks in costal cilia, and two others less distinct and equally divergent in hind-marginal cilia, and emitting a short grey apical streak; cilia white. Hind-wings whitish, cilia white.

Easily known from the following species by the longitudinal lines, and the absence of the costal blotch. Some specimens are extremely small, apparently the later brood. Taken occasionally at Manly, near Sydney, where the larva is common; in December March, and May.

Larva apodal, somewhat tapering posteriorly, pale yellowish; mines a flat irregular blotch, apparently consisting of a spiral gallery, in leaves of *Euphorbia sparmanni*, (*Euphorbiaceæ*), in February (and doubtless at other times).

Phyll. iodocella, *n. sp.*

♂. $2\frac{1}{4}$ ". Head, palpi, thorax, abdomen, and legs shining silvery-white. Antennæ white, towards apex infuscated. Fore-wings yellowish-white, with a semi-ovate dark fuscous, oblique blotch on costa near base, reaching to middle of wing; three costal and one dorsal, slender, oblique dark fuscous streaks; first costal in middle, second very short, third longest, continued to hind-margin; the dorsal streak beyond middle, bordered posteriorly by a small greyish-fuscous spot; dorsal margin slenderly blackish about anal angle; apical spot round, black, with apparently three radiating fuscous streaks in cilia above it, and one below it; cilia white. Hind-wings and cilia white.

Conspicuous by the costal blotch near base. One specimen on a fence in Sydney in November.

OPOSTEGA, Z.

Head smooth behind, roughly short-haired on face and forehead; no ocelli; no tongue. Antennæ shorter than fore-wings, thick, filiform, with a large eyecap. Maxillary palpi distinct. Labial palpi short, drooping, terminal joint very short. Fore-wings elongate, narrow, pointed. Hind-wings very narrowly lanceolate, cilia long. Abdomen flattened. Legs moderate; posterior tibiæ and first joint of tarsi stiff-haired. Fore-wings

with four simple attenuated longitudinal veins. Hind-wings without cell; median three-branched.

Also a small genus, of which the larvæ are all practically unknown, occurring in Europe and North America.

Op. orestias, n. sp.

♀, 3". Head, palpi, antennæ, thorax, abdomen, and legs snow-white. Fore-wings snow-white, with a small, bright ochreous-yellow apical blotch; an oblique dark fuscous streak from costa at $\frac{2}{3}$, bent posteriorly, ending in apex; a small clear black apical dot in cilia; three rather indistinct radiating fuscous streaks above it in costal cilia, the middle one darkest; cilia white. Hind-wings very pale whitish-grey, cilia white.

Distinguished by the yellow apex, and single costal streak. One specimen near Brisbane in swampy bush, in September.

Op. stiriella, n. sp.

♂ ♀. $2\frac{1}{2}$ "-3". Head, palpi, thorax, abdomen, and legs snow-white. Antennæ ochreous with white rings, basal joint white. Fore-wings snow-white; costal edge slenderly blackish at base; a small wedge-shaped oblique dark fuscous spot on costa, and a similar rather smaller one before middle of inner-margin, neither extending across more than $\frac{1}{4}$ of breadth of wing; an oblique ochreous-fuscous streak from $\frac{3}{4}$ of costa, ending suffusedly in apex; a minute black apical spot, with an inwardly oblique fuscous streak above it in costal cilia, and sometimes a second less oblique and very obscure, and one below it in hind-marginal cilia; cilia white. Hind-wings and cilia white.

Nearly allied to the following species, but may be known by the white hind-wings, and the oblique spots never form a complete fascia. Tolerably common at Parramatta, and in parts of the dense forest-growth on the slope of the Bulli Pass, in September and October, and again in March.

Op. gephyræa, n. sp.

♂ ♀ . 3"-3 $\frac{3}{4}$ ". Head, palpi, thorax, and legs snow-white, tarsi slightly infuscated. Antennæ ochreous-fuscous, very slenderly annulated with white, basal joint white. Abdomen fuscous-grey. Fore-wings snow-white, extreme edge very slenderly blackish; a rather broad oblique blackish-fuscous spot on middle of costa, and a strong oblique fascia-form blackish-fuscous spot from before middle of inner-margin, uniting to form an angulated fascia, rarely not quite meeting; a very oblique black streak from $\frac{3}{4}$ of costa to apex, anteriorly broadly edged with fuscous; a second similar one immediately following it, partly in costal cilia, rather less oblique; a small black apical spot; cilia whitish round apex, tips suffused with fuscous, sometimes with a faint perpendicular streak above apical spot, hind-marginal cilia fuscous-grey. Hind-wings and cilia fuscous-grey.

Readily distinguished from the preceding by the dark hind-wings and usually perfect fascia. Apparently rather scarce; taken on fences in Sydney in October.

ATALOPSYCHA, n. g.

Head smooth, with appressed scales; no ocelli; tongue very short. Antennæ shorter than fore-wings, filiform, with a small eyecap. No maxillary palpi. Labial palpi short, drooping, filiform. Fore-wings elongate, narrow, pointed. Hind-wings narrowly lanceolate, less than $\frac{1}{2}$ of fore-wings, cilia thrice as broad. Abdomen moderate. Legs slender, posterior tibiæ long-haired. Neuration (?).

The single species has an extraordinary superficial resemblance to *Bucculatrix*, and might easily be confused with some of the paler species, yet structurally it is very distinct, since the labial palpi are plainly visible, and the head is not rough. Generally it is more difficult to distinguished from *Phyllocnistis*, especially as I have not been able to examine the venation, although it certainly does not belong to the immediate neighbourhood of

that genus; the best points to depend on seem to be the proportionally broader hind-wings, the somewhat loose, not glossy, scaling of the head, and the apex of fore-wings not produced.

Atal. atyphella, *n. sp.*

♀. $3\frac{3}{4}$ ". Head, palpi, and thorax white. Antennæ fuscous with whitish annulations, basal joint white. Abdomen greyish-ochreous. Legs whitish-ochreous. Fore-wings white, with pale ochreous markings irrorated with black scales; a small ovate-linear spot beneath costa slightly before middle; a very oblique streak from middle of costa, posteriorly suffused into an attenuated cloud along costa nearly to apex; a very oblique streak from dorsal margin just beyond middle, almost interrupted on margin itself; apex faintly suffused with ochreous, with indications of a linear apical spot of black scales; cilia very pale whitish-ochreous with a row of black points round apex. Hind-wings pale grey, cilia whitish-grey.

One specimen on a fence near Sydney in October.

CROBYLOPHORA, *n. g.*

Head roughly tufted on crown, face smooth; no ocelli; tongue very short. Antennæ shorter than fore-wings, filiform, with moderate eyecap. No maxillary palpi. Labial palpi short, drooping, filiform. Fore-wings elongate, narrow, pointed, apex hardly produced. Hind-wings very narrowly lanceolate, $\frac{1}{3}$ of fore-wings, cilia four or five times as broad. Abdomen moderate. Legs slender, posterior tibiæ stiff-haired. Fore-wings with seven veins; cell closed, 1 simple, 5 and 6 to costa. Hind-wings without cell; median obsoletely two-branched.

This genus is intermediate between *Stegommata* and *Bucculatrix*, resembling both in the roughly tufted head, and also having considerable affinity with them in other respects; it differs from the former by the short antennæ, and from the latter by the presence of labial palpi. The species described are very elegant

with a peculiarly thickened metallic spot at the anal angle of the fore-wings; they are slow in flight, and generally appear sluggish.

Crob. daricella, *n. sp.*

♂. $3\frac{1}{4}$ ". Head, palpi, antennæ, thorax, abdomen and legs snow-white; all tarsi with three blackish rings. Fore-wings snow-white, with two slender short oblique black costal streaks, first in middle, second immediately beyond it, closely strewn about which are a few irregular blackish and ochreous scales; a rather large circular thickened silvery metallic spot on anal angle, partially black-edged; cilia white, with a faint fuscous spot in costal cilia, from which proceeds a clear black line round apex, terminating abruptly just beyond it. Hind-wings and cilia white.

Differs from the following species by the larger size, and the absence of the basal and dorsal streaks. Two specimens taken in the thick subtropical scrubs at Rosewood, Queensland, in September.

Crob. chrysidiella, *n. sp.*

♂ ♀. $2\frac{1}{2}$ "- $2\frac{3}{4}$ ". Head, palpi, antennæ, and legs snow-white. Thorax snow-white, with a yellowish spot on shoulder. Abdomen white, beneath with a yellowish band. Fore-wings white, with a yellowish, longitudinal, central streak from base to beyond middle, and with three oblique, yellowish, costal streaks and one dorsal; first costal streak long, very oblique, from $\frac{1}{4}$ of costa to apex of central streak, anteriorly margined with blackish scales; second rather beyond middle, third at $\frac{3}{4}$, shorter and less oblique, posteriorly margined by slender blackish lines, which are sometimes alone distinct; dorsal streak in middle, anteriorly margined by a slender, blackish line, sometimes alone visible, meeting apex of central streak; a faint yellowish spot at anal angle, containing a circular, thickened, silvery-golden metallic spot; cilia white, with a slender bent blackish line round apex terminating abruptly just beyond it. Hind-wings and cilia white.

Allied to the preceding, but with additional yellowish markings from base, and on costa and hind-margin. Common at Sydney and Newcastle from January to April, and in July and August, in dry scrub amongst different species of *Banksia* (*Proteaceæ*), on which the larva must feed. I have found rather commonly a larva mining blotches in upper surface of leaves of *Banksia serrata*, which I conjectured to belong to this species, but they proved difficult to rear, all drying up.

BUCCULATRIX, Z.

Head roughly tufted on crown, face smooth; no ocelli; tongue very short. Antennæ shorter than fore-wings, filiform, slender, with rather small eyecap. No maxillary palpi. No labial palpi. Fore-wings elongate, narrow, long-pointed, apex somewhat produced. Hind-wings narrowly lanceolate, $\frac{1}{3}$ to $\frac{1}{2}$ of fore-wings, cilia $2\frac{1}{2}$ to 4 times as broad. Legs slender, posterior tibiæ long-haired. Fore-wings with from 8 to 10 veins; 4 or 5 veins to costa, cell closed, 1 simple. Hind-wings without cell; median three-branched.

Probably a genus of moderate extent, at present represented by about forty rather closely allied species from Europe, and North and South America. The Australian species are very similar to the typical forms, and to one another. The genus may be immediately separated from all others by the roughly tufted head and the absence of palpi. The larvæ are peculiar amongst their allies; sixteen-legged, rough-skinned, mining when very young, but afterwards feeding externally and unprotected on the under side of leaves. Pupa in a silken cocoon, generally characteristically ribbed with raised longitudinal lines.

Bucc. eucalypti, n. sp.

♀. $2\frac{3}{4}$ ". Head with dark fuscous hairs on crown, behind whitish, face white. Antennæ white with dark fuscous annulations. Thorax whitish-ochreous. Abdomen whitish-grey. Legs whitish-

ochreous, tarsi with black rings at base of joints. Fore-wings brownish-ochreous mixed with paler, with suffused darker ochreous brown markings; an obsolete cloudy spot on costa beyond middle; a rather larger cloudy spot, suffused with blackish scales, on middle of inner-margin; apical spot minute, linear, black; cilia brownish-ochreous round apex, with scattered blackish points, whitish-grey on hind-margin. Hind-wings fuscous-grey, cilia pale grey.

Smaller than the two following species, and distinguished generally by the obsolescence and suffusion of the markings on the brownish-ochreous fore-wings. One specimen bred in March from a single larva found at Sydney in February.

Larva of the typical form, pale dull green, head pale brownish; feeds on the under side of the leaves of *Eucalyptus* sp., (probably *tereticornis*), (*Myrtaceæ*), gnawing the surface of the leaf. Pupa in a firm, white, longitudinally five-ribbed cocoon.

Bucc. lassella, n. sp.

♂ ♀. $3\frac{1}{2}$ ". Head brownish-ochreous, with a pale stripe on each side of crown, and mixed with fuscous hairs; face whitish-ochreous. Antennæ whitish, with strong black annulations. Thorax brownish-ochreous irrorated with paler. Abdomen and legs pale brownish-ochreous, tarsi with distinct black rings at base of joints. Fore-wings whitish-ochreous, finely irrorated with dark fuscous scales, and with brownish-ochreous ill-defined markings; a central streak from base nearly to middle; two short broad oblique streaks from costa, first in middle, second at $\frac{3}{4}$, produced to apical spot; a fuscous oblique spot on inner-margin beyond middle, and extreme edge of inner-margin more or less distinctly brownish-ochreous; apical spot irregular, black; cilia ochreous-whitish round apex, with irregular rows of black points, pale grey on hind-margin. Hind-wings fuscous-grey, cilia rather paler.

Differs from the preceding by the duller colouring, and the much more distinct and more numerous markings. Four specimens taken on fences near Sydney, in December and January.

Bucc. asphyctella, n. sp.

♀. $3\frac{3}{4}$ ". Head white, centre of crown with a few fuscous hairs. Antennæ white at base, elsewhere suffused with dark fuscous. Thorax ochreous-whitish, with pale ochreous shoulder-spot. Abdomen ochreous-fuscous, sprinkled with white scales. Legs pale ochreous, tarsi with broad, cloudy, blackish rings at base of joints. Fore-wings dull whitish, with greyish-ochreous markings irrorated with dark fuscous scales; a central streak from base to middle; two oblique costal streaks, first in middle, produced along costa towards base as a very slender streak, second at $\frac{3}{4}$, ending in apical spot; a narrow irregular streak along inner-margin from base to apex; an oblique streak from inner margin beyond middle, its apex nearly confluent with second costal streak; an irregular elongated black apical spot; cilia whitish with scattered black points, on hind-margin whitish-grey. Hind-wings grey, cilia whitish-grey.

Much paler and more distinctly marked than *lassella*, and distinguished besides by the absence of the black and white annulations of the antennæ. One specimen in dry scrub near Parramatta in October.

The above descriptions include all the species of these families with which I am acquainted as occurring in this region, by whomsoever described. Walker has indeed described three species of *Micros* under *Gracilaria* as from Australia; one of these I have identified (*G. terminella*, Brit. Mus. Cat., p. 855), and it is not a *Gracilaria* at all, but one of the *Elachistidæ*, referable to a genus of which I have several other Australian species; it is highly improbable that the other two are correctly referred, but I cannot recognise them. He has also two species under *Gracilaria* from New Zealand; I have identified one (*G. arenosella*,

Brit. Mus. Cat., p. 857), and it is a *Batrachedra* (*Elachistidæ*). Walker's references of the smaller *Micros* are entirely haphazard and consequently not in reality worth even a passing notice.

NOTES AND EXHIBITS.

Note on a Block of Shale from the Hawkesbury Sandstone, by W. J. Stephens, M.A.—I desire to bring before the notice of our geological members, a specimen of shale from a boulder embedded in the Hawkesbury Sandstone at Broughton's Pass, where the tunnel between the Cataract and Nepean Rivers, in connection with the Sydney water supply, is now in progress. The point to which I wish to draw attention at present is that the block has before its deposition among the sands, which have ultimately hardened into rock, been subjected to severe strain and pressure in various directions, producing within its structure those smooth striated surfaces, which are known to miners as "Slickensides." The unconformity of these slides shows that they were not produced by any uniform or contemporaneous pressures or movements, and appear to me to corroborate in a very unexpected way the conclusions at which Mr. Wilkinson has arrived as to the existence of a glacial period during the formation of the Hawkesbury Rocks, *i. e.*, posterior to the formation of our upper coal, and probably equivalent to the Permian formations of better surveyed countries. For the irregular and sudden strains which are produced by massive Ice, when drifted by wind or current, forced along the land by pressure, or when slipping and tumbling in huge blocks in consequence of the alteration of their centres of gravity during the process of melting, are precisely such forces as must have produced the phenomena under our notice. Some confirmation may also be found in the absence from the shale thus affected of any of those fossil ferns which appear so abundantly in similar portions of the formation; and in the occurrence of thin laminae of fine clay, sometimes with a smooth, mammillated surface,

suggesting the collection of films of mud upon thawing ice, which are dispersed through the Sandstone at all angles of inclination, and quite uninjured by attrition, as though they had been gently deposited in the sand as the ice which supported them melted away. The bed of stone in which these phenomena occur contains less iron than usual, and while free from the false bedding so common in the series, has the aspect of an artificially stirred up or mixed mass of stuff. There are many other circumstances in the immediate neighbourhood which argue strongly in favour of the hypothesis, and I hope at no distant date to lay these before the Society. It would however, be unreasonable to do this at present, without the specimens to which reference must be made. But, in the interim, we must remind ourselves that the formation is, so far as we know, not at all marine, but entirely from fresh water. If glaciers existed, they must have debouched on rivers or lakes, and not on the sea. But without assuming the existence of actual glaciers, we may suppose that there may have been heavy ice on these rivers and lakes, packing at times, and perhaps occasionally forming dams, whose disruption may have led to the sudden floods of which we have many indications in our Hawkesbury Rocks, which are so very difficult, problematical and obscure to the observer.

Note on a Japanese Drawing of an *Octopus*, by W. J. Stephens M.A.—I have brought for the inspection of members a Japanese work, consisting of a series of illustrations printed in colours, and representing various forms of Japanese industry. Fishing, hunting, weaving, bronze-working, mining, tea gathering, the management of horses and cattle, and many other rural operations are depicted with considerable spirit and apparent accuracy. It is quite evident that the pictures are intended to be realistic, and in no degree imaginary. One cannot, therefore, but feel an unusual interest in the eighth figure, in which we observe an enormous *Octopus*, with eyes not less than two feet in diameter, a body not less than twelve in length, and arms which may fairly

be estimated at about thirty feet long. This monster has one of these arms extended over a fishing boat, one of the occupants of which is drawn as in the act of striking with a large knife at this huge tentacle, as thick as a man's body, where it crosses the gunwale. For my own part, I am inclined to suppose that the picture is by no means an exaggeration, but that it is drawn from actual fact. This *Octopus* is not longer than other specimens, portions of which have recently been obtained and subjected to scientific observation on the coast of the North-west Atlantic. It will be seen that he is moving in the normal manner of his tribe, backwards. The break of the sea around his body and arms is plainly intended to indicate this. The colour of both body and arms is a monotonous brownish-drab, very different from the varied and beautiful tints of the smaller octopods. As in these latter their chameleon faculty of changing the colour of their external surface is related to, or (as I should say) designed for, the protection of the weaker individuals, one can readily understand why in such Hydras as this under our eyes all shyness and shrinking from public observation may reasonably have been surrendered. I have entered into these details only because they seem to corroborate the truthfulness of the general representation.

Mr. Stephens exhibited the Block of Shale and the Japanese Pictures referred to above.

Mr. G. Masters.—a very large Fish-hook formed of wood, with sinker of basaltic rock and line of coir fibre, used by the natives of Fiji in catching the large rock fish.

The President—a number of shells from Western Australia, and a *Cassis Achatina* from Bass' Straits, previously known only from Port Jackson.

and there may be more. With regard to *S. rarispina*, Agas., there is little to add to its known habits. It is rather common and always found upon a sandy bottom. I obtained it recently from Port Denison, and in many places as far south as Moreton Bay.

Mespilia globulus, Agass. In my list given last year in the Proceedings of this Society, I expressed a doubt as to the genuineness of the Australian habitat for this species. I have now no doubt on the matter as I have found a specimen on a sandy beach in Trinity Bay.

Amblypneustes ovum, Lamarek. This is the most common of all the Australian urchins on the southern coasts, but I do not know if it extends either to the west or north side of the continent. Some stress has been laid on the shape of the test for specific distinction. Nothing of this kind can be relied upon. In some specimens of *A. ovum* you have a marked pentagonal outline and every gradation from depressed orbicular, to perfectly oval and egg-shaped. The pentagonal form is very common in young individuals. Among about 200 specimens picked up after a gale of wind on the beach at Wollongong, I was able to arrange a perfect series of shape and colour, the tints in extreme cases giving bright blue, red and yellow shades. It is a gregarious species and is found only upon sandy coasts. At Guichen Bay in South Australia, and Lacepede Bay, which is the next bay to the north, I have seen the beach strewn for miles with the tests of this urchin, of all sizes up to nearly three inches in length. It has a very thin shell and is easily broken. It is common on all the South Australian coast as far as Spencer's Gulf, and is often strung like beads for ornamental purposes. The color of the test varies exceedingly, almost every shade may be met with, but grey-green is the prevailing tint. I cannot help thinking that *A. griseus* and *A. pallidus* may only be varieties of this species.

With regard to all the species of *Holopneustes*, I am still obliged to state that I have seen none on the Australian coast, though I

have been taking an interest in our *Echini* for many years. There is no species known to me in any of our Museums in any of the colonies.

Echinus Darnleyensis, nobis. Since I described this species I have seen other specimens from different parts of the East Australian coast. It is very gregarious and goes, I should imagine in shoals on sandy bottoms. I sent specimens to Professor Alexander Agassiz, of Cambridge Mass., and he tells me that the species was known to him and he always regarded it as a variety of the South American *E. magellanicus*. But as that species differs from mine in some important particulars, is not known to occur outside American waters, we may perhaps regard ours as distinct.

Hipponœ variegata, Leske. I have already remarked the very variable character of this species, but I am more disposed than ever to regard the large individuals which are found occasionally in Port Jackson as distinct species. The described light violet or blue variety is not at all uncommon inside the Barrier Reef. Every specimen met by me was denuded of spines and cast high and dry amid the debris on the sand and coral shingle, which is found on one side of every reef. It is always a most conspicuous object of light violet or lilac colour. The white tubercles and the markings of the coronal sutures giving it a most elegant appearance. These features and the very deep actinal cuts easily distinguish it.

Evechinus chloroticus, Vernl. This seems to be rather a common species in New Zealand, judging from the facility with which specimens are obtained. The spines are short and stout, and of a uniform green colour. I know nothing of its habits, but should be inclined to think that it took in New Zealand the place which is occupied by *Strongylocentrotus eurythrogrammus* in Australia. Two small and young specimens were found near Port Jackson.

Echinanthus testudinarius. In my list of *Echini* I have stated that this species is found fossil in the Murray River beds, but

Prof. McCoy has shown that the living form is distinct, though resembling it in many respects. It has a very wide range and is rather common. Prof. Agassiz called my attention to the variability of the species and has suggested that my *E. tumidus* may be one of the varieties. But the two species are so entirely different that the matter will not bear discussion. I intend to publish a figure of *E. tumidus*, and then this will I think be put beyond a doubt. I have found *E. testitudinarius* all along the East Australian coast, both within and outside the tropics and have not noticed any great variability in its character, in fact I should have said that it is one of the exceptionally constant species in Australia. I obtained one small example from Moreton Bay, which I presented to the National Museum Melbourne, which had a remarkable depression in one of the petals, but this arises clearly from a malformation. The specimen is dwarfed and depressed, but not otherwise different from the normal type.

Laganum depressum, Lesson, and *L. Bonami*, Klein, are both rather common on sandy situations, but the species of this genus and *Peronella* are so extremely alike that unless the interior of the test is examined they cannot be referred with certainty to any genus or species.

Peronella decagonalis, Lesson, is found of large size at Port Denison and on sandy places all along the inside of the Barrier Reef. It extends to Port Jackson, but there it is only very small. Within the tropics it is very large and of a blood red colour. Though very much depressed at the edges, and seemingly thin and fragile it has a very strong test, and is seldom found broken. It lies on the sea bottom covered with sand, so that without a dredge specimens are not easily obtained.

Clypeaster humilis, Leske. A very fine specimen of this urchin was obtained by Messrs. Haswell and Morton, in Port Denison. This is the first time it has been found on the Australian coasts.

Echinarachnius parma, Klein, is not so common on the northern coast as I supposed, but *Arachnoides placenta*, Linn., is very

plentiful. At the mouth of the Endeavour River the coast was strewn with dead and broken tests of the species. Using a very small dredge at about ten fathoms one can obtain hundreds or thousands of specimens anywhere between Cape Grenville and Port Denison.

Maretia planulata, Leske, is also a very common species and is found on a sandy bottom at moderate depths from about five fathoms. We know very little about the *Spatangidæ*, but their habits might be easily studied in Sydney with even a small aquarium. The peculiar smooth actinal plastron points no doubt to some distinct habits and modes of getting its food, which would be very interesting to study. Though it is not at all rare on the east coast, yet because the test is very brittle it is never found on the beach. Any specimens that are washed up must be broken to pieces. This shows how nothing but the dredge will reveal what urchins we have in Australia.

Echinocardium australe, Gray. This species is abundant on sandy shores, from Port Jackson to East Tasmania. Like all the clypeastroid urchins it seems to feed on Foraminifera.

Breynia australasie, Gray, is extremely abundant in the sandy shallow bays about Port Denison.

Rhynobrissus apicalis, *nobis*. Small specimens of this urchin have lately been found in Port Jackson at sixteen fathoms. They were not one-fourth the size of the type specimen obtained by me from Moreton Bay.

DESCRIPTIONS OF AUSTRALIAN MICRO-LEPIDOPTERA.

BY E. MEYRICK, B.A.

IV. TINEINA, (Continued).

The present instalment treats of the families *Glyphipterygidæ* and *Erechthiadæ*, giving descriptions of fifty-three species, of which

number forty-two are new to science. One species appears to have been introduced, sixteen are confined to New Zealand, the remaining thirty-six are confined to Australia. Before giving the descriptions, I will offer some general remarks upon the classification of the families forming the subject of the paper.

Amogst the *Glyphipterygidæ* I have included the genera *Simaëthis* and *Choreutis*, usually separated by European entomologists as a distinct family, under the title of *Choreutidæ*. These insects have long been held to be of doubtful location, but our recent increased knowledge of the group has caused unprejudiced minds to have little hesitation in referring them at least to the neighbourhood of the *Glyphipterygidæ*; so near do they come to this family in structure that no definite point of distinction can be alleged, except the abnormally broader wings, a variable and insufficient character. I am decidedly of opinion that there is no ground for separating the two families; were they regarded as distinct, it would certainly be necessary to form a third family for the Australian genera *Hypertrophæa*, *Eupselia*, and *Aeolocosma*, which are allied to but differ from both. Perhaps this might eventually be done, but at present I think it would be at least premature. It must be admitted, however, that it is hardly possible to define the family as a whole so as to distinguish it from the *Oecophoridæ*, to which it comes nearest. The best points on which to rely consist in vein 1 of fore-wings not being furcate at base, veins 7 and 8 not being stalked, and the antennæ of ♂ not being conspicuously ciliated; but to all these points there are several exceptions, though I think one or more will always be found to hold. The characters of the *Oecophoridæ* proper (which family I hope shortly to take in hand) are remarkably uniform in themselves.

Of the *Glyphipterygidæ* three European genera occur here, but only two (*Simaëthis* and *Glyphipteryx*) are represented by native species, the single species of *Choreutis* being doubtless introduced and tolerably cosmopolitan. The development of the genus

Glyphipteryx is remarkable, the number of species found in these regions already exceeding all those known from the rest of the world, nor do I think that future discoveries will reverse this proportion. Besides these I have been obliged to form five new genera, two of these being nearly allied to *Glyphipteryx*, the other three forming a group together. The group of *Glyphipteryx* appears especially predominant in New Zealand, where their numbers are out of all proportion to those of other families of *Tineina*, compared with the standards of other regions; the *Glyphipterygidæ* collected by myself on my New Zealand journey formed about a twelfth part of the *Tineina* obtained, whilst in Europe they constitute about a hundred and eightieth.

The other family, the *Erechthiadæ*, is new, and contains five new genera, which I have been compelled to form for the reception of a peculiar group of species, which will not harmonise with any previously established family. It is in my opinion related to the *Glyphipterygidæ*, although in point of structural characters it certainly approaches nearer to the *Tineidæ*. The following will be a general summary of its characteristics:—

ERECHTHIADÆ, *nov. fam.*

Head rough, tufted between eyes (face smooth in one genus of rather uncertain position). Ocelli present. No tongue. Maxillary palpi well developed, folded. Labial palpi rather short or moderate, porrected or drooping, generally roughly scaled or haired. Antennæ shorter than fore-wings, in ♂ not ciliated. Legs moderate, posterior tibiæ usually clothed with long hairs. Fore-wings elongate-lanceolate, rarely with distinct hind-margin. Hind-wings rather narrower than fore-wings, lanceolate, with long cilia. Fore-wings with 11 (rarely 12) veins, subcostal vein obsolete towards base; secondary cell indicated; 1 simple or furcate at base; 6 and 7 separate, or more rarely stalked. Hind-wings with 8 (or rarely 7) veins, subcostal obsolete towards base;

5 and 6 stalked or separate. Larva sixteen-legged, feeding internally on seeds or bark.

The normal type of markings consists of a pale central longitudinal streak and oblique costal and dorsal streaks on a darker ground. Structurally, as mentioned above, the family approaches the *Tineidæ*, especially in the rough head and folded well-developed maxillary palpi; the head is however less rough behind, and especially tufted on the forehead, where the hairs commonly form a projecting ridge; all the wings, especially the hind-wings, are narrower and more lanceolate, though there are exceptions; vein 1 of fore-wings is often not furcate; the obliteration of the subcostal veins of both wings on their basal halves appears to be a constant character; the type of markings is quite different, and approximates in principle to that of the *Glyphipterygidæ*. I am aware that these points hardly afford sufficient justification for the creation of a new family; but the insects themselves assort so ill with the *Tineidæ*, that I prefer to regard them provisionally as a distinct group, believing that science will be better served by an attempted arrangement, even if it be proved hereafter faulty, than by throwing all together into a heterogeneous mass. The group as constituted is at least natural in itself.

The family is probably of some extent in the Australian region, though not at present known to me as occurring elsewhere. I have described ten Australian and six New Zealand species, and have every reason to believe that many more remain to be found, especially in New Zealand, where the typical genus *Erechthias* seems to be dominant.

I purpose reserving until I come to treat of the *Oecophoridæ* (where they will have an especial significance) some remarks on the meaning and value attached to the group called a family, with reference to the difficulty of limiting these groups when natural by any fixed definition of characters.

GLYPHIPTERYGIDÆ.

The eight genera hitherto found in Australia may be tabulated as follows :—

I. Hind-wings broader than fore-wings.

A. veins 7 and 8 of fore-wings stalked .. *Hypertropha*

B. veins 7 and 8 of fore-wings separate.

1. second joint of palpi roughly scaled
beneath *Simaëthis*

2. second joint of palpi with long, erect
bristles beneath *Choreutis*

II. Hind-wings narrower than, or hardly as broad as fore-wings.

A. second joint of palpi beneath smooth, with
appressed scales.

1. fore-wings with 11 separate veins .. *Eupselia*

2. fore-wings with 12 veins, 7 and 8 stalked *Aeolocoma*

B. second joint of palpi beneath roughly scaled
in somewhat projecting whorls *Glyphipteryx*

C. second joint of palpi with long, loose, projecting hairs, tuft-like.

1. veins 7 and 8 of fore-wings stalked .. *Apistomorpha*

2. veins 7 and 8 of fore-wings separate. .. *Phryganostola*

HYPERTROPHA, n. g.

Head smooth; with ocelli; tongue moderate. Antennæ half as long as fore-wings, filiform, simple. No maxillary palpi. Labial palpi short, recurved, second joint with appressed scales, terminal joint slender, hardly acute. Thorax with a bifid crest behind. Fore-wings very broadly triangular, less than twice as long as broad, costa rounded, apex somewhat produced, hind-margin waved, hardly oblique. Hind-wings rounded-triangular, slightly broader than fore-wings, cilia short. Abdomen short, rather stout. Legs short, stout, anterior and middle tibiæ

thickened with dense scales, posterior tibiæ clothed with dense long hairs. Fore-wings with 12 veins; no secondary cell; 1 strongly furcate at base; 7 and 8 long-stalked, going to either side of apex. Hind-wings with 8 veins; 2 and 4 from posterior angle of cell.

The genus may be recognised by the very unusually broad wings, the crested thorax, and amongst those nearest to it by the stalking of veins 7 and 8 of fore-wings. In shape of wing it resembles *Simaëthis*, but surpasses it in breadth; in the palpi, and black hind-marginal spots it has affinity with *Eupselia* and *Aeolocosma*. The only species at present known is brilliantly marked; it flies in the hot sunshine with rapidity, and is then difficult to see; in repose the wings form a broad nearly flat roof, and are not raised as in *Simaëthis*.

Hyp. thesaurella, n. sp. = *desumptana* Walk.

(nom. provis.)

♂ ♀. 7½"-8". Head, palpi, and thorax dark fuscous, densely and irregularly mixed with ochreous and pale scales. Antennæ of ♂ ochreous-fuscous, of ♀ ochreous annulated with dark fuscous. Abdomen dark fuscous, lateral margins yellow. Legs dark fuscous, indistinctly ringed with ochreous; posterior tibiæ yellow. Fore-wings black, basal half almost entirely occupied by four transverse, rather outwardly curved, almost confluent faint ochreous-whitish bands, composed of numerous very fine transverse strigulæ, these bands being very obscurely separated by slender black lines, only distinct as black spots on costa, where also the pale bands are usually more distinct; a small ochreous-whitish spot on costa in middle, giving rise to an indistinct orange-ochreous transverse line marking off the basal half, and itself immediately followed by a metallic bluish-purple line of raised scales; immediately preceding the ochreous line are three small metallic bluish-purple raised spots, one on inner-margin, one above and one below middle; and at about ¼ from base is a transverse metallic blue raised line from middle of disc perpendicularly to

inner-margin, interrupted on fold; an outwardly curved metallic blue-purple line from $\frac{3}{4}$ of costa to anal angle, lower half interrupted to form three spots near and parallel to hind-margin; lower $\frac{3}{4}$ of space between this and central line strewn with ochreous-whitish scales, especially towards inner-margin; beyond this line is a white outwardly oblique spot on costa, emitting a faint band of transverse whitish strigulae along hind-margin to anal angle, leaving three elongate black spots on lower part of hind-margin; beyond this band is an outwardly oblique orange-ochreous subapical spot from costa; cilia at extreme apex black, beneath apex with an oblong transverse snow-white spot, thence metallic blue-purple. Hind-wings deep yellow, with a broad black margin; cilia yellow, with a black basal line.

This richly adorned insect cannot be confused with any other. Its habits are truly sun-loving; it sports in the hottest sun-shine over the tops of young trees of *Acacia decurrens*, to which it appears certainly attached. Taken occasionally in New South Wales at Parramatta, and at Waratah on the lower Hunter; also at Melbourne and Brisbane, from January to March.

SIMAETHIS, *Leach*.

Head smooth; with ocelli; tongue strong. Antennae about half as long as fore-wings, filiform, in ♂ ciliated. No maxillary palpi. Labial palpi moderately long, recurved, second joint beneath with rough scales often forming a small apical projection; terminal joint compressed, rather shorter than second, blunt. Fore-wings broadly-triangular, apex somewhat produced, hind-margin slightly oblique. Hind-wings broader than fore-wings, triangular, cilia short. Abdomen short, stout. Legs short, broadly compressed, tibiae densely scaled. Fore-wings with 12 veins; no secondary cell; 1 furcate at base. Hind-wings with 8 veins; 7 and 8 remote, 3 and 4 sometimes stalked or coincident.

Larva sixteen-legged, active, living in a web within a drawn-together leaf; pupa in a firm white cocoon.

This genus, though by no means large, is distributed throughout the world, but seemingly more commonly towards the tropics. In repose the imago rests with the fore-wings slightly raised and partially expanded, so as not to entirely conceal the hind-wings.

Sim. sycopola, *n. sp.*

♂ ♀. $5\frac{1}{2}''$ - $6\frac{1}{2}''$. Head and thorax deep ochreous-brown, irrorated with whitish scales. Palpi black, at base ochreous-whitish, second and terminal joints clothed each with three whorls of black white-tipped scales. Antennæ black, annulated with white, in ♂ with long ciliations. Abdomen dark fuscous, strewn with orange-ochreous scales. Legs dark fuscous, densely irrorated with ochreous-whitish; middle and posterior tibiæ suffused above with orange-ochreous, densely clothed with hair-scales expanded in whorls in middle and at apex; tarsi white with four black bands. Fore-wings strongly dilated, hind-margin slightly waved; dark fuscous, faintly suffused with orange-ochreous posteriorly, most distinctly at apex and along hind-margin; two cloudy transverse bands of finely-strewn purple-whitish scales; first from $\frac{1}{3}$ of costa to $\frac{1}{3}$ of inner-margin, slightly waved above middle, well-defined anteriorly only; second indistinctly double, from $\frac{2}{3}$ of costa to just before anal angle, sharply angulated outwards above middle, below which the inner portion is thrice sharply and irregularly toothed; fine purple-whitish scales are strewn near base, on disc between first and second bands, and between the second band and orange-ochreous hind-margin except on costa; cilia dark fuscous, with paler reddish-ochreous-tinged spots above and below middle. Hind-wings orange, with costa irregularly black and a large black spot at apex, whence proceeds a straight narrower black band above hind-margin to anal angle, whence it is continued broadly along inner-margin to base, becoming mixed with orange towards margin; cilia fuscous with a paler line near base, orange beneath apex.

Immediately recognisable from its Australian allies by the orange hind-wings; it comes nearest to *S. taprobanes*, Z., from Ceylon, which has similar hind-wings, but distinct ferruginous-orange markings on the fore-wings. The imago appears in March and again (apparently a second brood) in May, flying in the sunshine for about half-an-hour at sunset round *Ficus stipulata*, a climbing fig grown commonly over garden walls in Sydney, and native in tropical Australia. Larva slender, cylindrical, greyish-ochreous marbled with rather darker; dorsal brownish-ochreous, irregular; head pale ochreous. Feeds in a web within partially folded leaves of *Ficus stipulata*, in February and April. Pupa pale olive-greenish, in an elongate spindle-shaped firm white cocoon, placed on upper surface of leaf beneath a flat white covering web.

Sim. *melanopepla*, n. sp.

♀. 6"-6½". Head and thorax deep ochreous-brown, irrorated with whitish scales in irregular transverse lines. Palpi white at base, second and terminal joints clothed each with three whorls of black white-tipped scales. Antennæ black, annulated with white. Abdomen deep ochreous-brown, segmental margins with a few white scales. Legs dark fuscous, densely irrorated with white; middle and posterior tibiæ densely clothed with hair-scales expanded in whorls in middle and at apex; tarsi white with four black bands. Fore-wings strongly dilated, hind-margin slightly waved; dark fuscous, tinged with ochreous towards base, more blackish posteriorly, with cloudy whitish markings caused by the aggregation of black white-tipped scales; a few scales at base, and a slender transverse fascia near base; a broad nearly straight transverse band at $\frac{1}{3}$, and a very broad rather outwardly curved band from $\frac{2}{3}$ of costa to before anal angle, the two bands almost confluent on lower half, leaving a triangular blackish costal spot; an orange-ochreous streak on costa near apex, continued round apex along hind-margin to anal angle; cilia fuscous, black at base, with a paler line. Hind-wings blackish-fuscous, rather

lighter towards base; cilia blackish-fuscous, with a black line near base.

Very similar to the preceding in all respects except the blackish hind-wings; the fore-wings are also darker and the markings rather clearer.

Two females taken on garden fences in Sydney, in November.

It is very probable that the larva of this species also is attached to some one of the several cultivated species of *Ficus*.

Sim. combinatana, *Wkr.*, Brit. Mus. Cat., 456.

Sim. abditella
a synonym

♂. $6\frac{1}{2}$ ". Head and thorax deep ochreous-brown, with a few white scales. Palpi white at base, second joint clothed with four whorls of black white-tipped scales, terminal joint black with three slender white rings. Antennæ black, annulated with white, in ♂ with long ciliations. Abdomen blackish, with a few whitish scales. Legs dark fuscous, thickly irrorated with whitish, tarsi with indistinct whitish rings, posterior tibiæ clothed with dense hair-scales. Fore-wings slightly dilated, hind-margin distinctly waved; blackish-fuscous, tinged with reddish-brown on costa beyond middle, and within each pair of transverse lines; some purple-whitish scales irregularly arranged transversely near base; four transverse cloudy lines of purple-whitish scales, arranged in pairs, and starting from small white costal spots; first pair from $\frac{1}{3}$ of costa to $\frac{1}{3}$ of inner-margin, rather curved outwards, irregularly toothed; second pair from $\frac{2}{3}$ of costa to just before anal angle, angulated outwards beneath costa, but indistinct and irregular; a streak of purple-whitish scales from apex very near but not on hind-margin, reaching to middle; a second similar streak from middle of hind-margin, immediately beyond end of first, continued along hind-margin, not extending to anal angle; cilia dark fuscous containing a cloudy white basal spot above and another below middle of hind-margin. Hind-wings rather narrow, hind-margin strongly sinuate below middle, anal angle prominent; dark fuscous, broadly blackish along hind-margin, with two rather

short cloudy parallel streaks of blue-whitish scales, one nearly along hind-margin at anal angle, the other immediately above it; cilia white on the hind-marginal sinuation, becoming gradually smoky-fuscous towards apex and on anal angle, black at base throughout.

The narrower wings and more sinuate margins give this species a very different figure to the two preceding, with which it cannot therefore be confused. It is very nearly allied to the well-known European *S. oxyacanthella*, L., (*fabriciana*, Steph.), from which it would appear to be best distinguished by the deep sinuation between anal angle and middle of hind-margin, by the much less distinct double bluish-tinged streaks of the hind-wings, and the deeper tint of the fore-wings.

Two males taken amongst forest growth at Wellington, New Zealand, flying towards sunset; in January. Walker's specimens are merely stated to be from New Zealand.

CHOREUTIS, *Hb.*

Head smooth; with ocelli; tongue strong. Antennæ about half as long as fore-wings, filiform, in ♂ ciliated. No maxillary palpi. Labial palpi moderately long, recurved, second joint beneath with long dense projecting bristles; terminal joint slender, pointed. Fore-wings broadly triangular, hind-margin straight. Hind-wings broader than fore-wings, triangular, cilia very short. Abdomen short, stout. Legs short, broadly compressed, posterior tibiæ densely scaled. Fore-wings with 12 veins; no secondary cell; 1 furcate at base. Hind-wings with 8 veins; 7 and 8 remote; 3 and 4 sometimes stalked or coincident.

This is a very small genus, of which the species described here is almost universally distributed, but has probably been transported through the medium of civilisation. In habits the species resemble *Simaëthis*, and the imago holds the fore-wings slightly raised in the same manner.

Larva sixteen-legged, living in a web between drawn-together leaves. Pupa in a firm cocoon.

Chor. bjerkanrella, *Thnb.*

♂ ♀ . 4"-5". Head grey, face tinged with yellow. Palpi white, second joint grey on side with two black rings before apex, beneath with long blackish and white diverging bristles, terminal joint blackish. Antennæ black, annulated with white, in ♂ with moderate ciliations. Thorax yellowish-ferruginous, with five longitudinal metallic grey-silvery lines. Abdomen black, with silvery-white rings. Legs white, tibiae with central and apical black bands, tarsi with four black bands. Fore-wings moderately dilated, apex and hind-margin rounded; dark fuscous, basal third yellowish-ferruginous, except on margins and a central longitudinal streak; two short metallic-silvery streaks from base along the costal margin and central streak; two cloudy whitish transverse bands, first from $\frac{1}{3}$ of costa to $\frac{1}{3}$ of inner-margin, rather curved outwards, furcate on inner-margin; second from $\frac{2}{3}$ of costa to before anal angle, angulated outwards above middle; the space between these is irregularly sprinkled with whitish scales; two round black blotches immediately preceding second band, one on inner margin, the other below middle, each containing an elongate metallic purple-silvery mark, that in the upper one being three-pointed; several other metallic purple-silvery markings, consisting of an elongate mark on inner margin of second band above middle, a small costal spot between the two bands, an elongate mark on hind-margin below middle, preceded by an elongate black blotch, a spot on costa immediately beyond second band, and an elongate mark round apex: cilia dark grey, with a pale line in middle and another before tips, tips white round apex. Hind-wings dark fuscous, blackish towards apex, with a white elongate spot on disc beyond middle, parrallel to hind-margin, and sometimes another less distinct white spot above it on costa; cilia blackish, with two white lines.

I have thought it well to redescribe from Australian and New Zealand specimens this species, which is well-known in Europe, doubtless its home. The same species (subject to local variations) has been recorded also from South Africa and South America. In New South Wales it occurs round Sydney, at Shoalhaven, Murrurundi, Blackheath (3,600 feet), and Bowenfels, but rather sparingly; also at Melbourne, and in Queensland at Rosewood and Toowoomba; always more or less casually. In New Zealand however, I met with it on the swampy thistle-grown plains at Hamilton, on the Waikato, in immense profusion, swarming on the thistle-blossoms in the sunshine, in January. In Australia it occurs from September to January.

In Europe the larva feeds on *Inula*; probably in other parts of the world it is not restricted from other *Compositæ*; in New Zealand at least it must certainly feed on the thistle.

I do not see any tangible difference between Australian, New Zealand, and South European specimens.

EUPSELIA, *n. g.*

Head smooth; with ocelli; tongue moderate. Antennæ much shorter than fore-wings, filiform, simple. No maxillary palpi. Labial palpi short, recurved, not reaching vertex, second joint with appressed scales, terminal joint slender, acute. Fore-wings elongate, rather broad, costa gently arched, apex rounded, hind-margin oblique, rounded. Hind-wings elongate-ovate, as broad as, or slightly narrower than fore-wings, cilia moderate. Abdomen moderate. Legs moderate, posterior tibiæ clothed with long hairs, anterior tibiæ sometimes thickened with scales. Fore-wings with 11 veins; no secondary cell; 1 furcate at base. Hind-wings with 8 veins; 3 and 4 from posterior angle of cell.

The only larva as yet known is sixteen-legged, slender and active, and mines in galleries in leaves, with peculiar accessory habits; pupa naked, erect, attached by the tail.

The genus is the only one in the family, in which the fore-wings have only 11 veins. Its nearest ally is the succeeding genus *Aeolocosma*, from which it differs in the antennæ of ♂ being quite simple, and in the neuration. The round black metallic-edged hind-marginal spots are a remarkable secondary characteristic, (shared also to some extent by *Aeolocosma* and *Hypertropha*,) which is very constant and trustworthy. In repose the imagoes rest with the wings forming a rather sloping roof; *E. aristonica* extends the furry anterior legs in front, but this habit is not shared by the rest. The species are all more or less retired and sluggish in habit, and hence appear not common.

The genus is peculiar to Australia, so far as known. Probably it contains a considerable number of species; the seven here described may be thus tabulated:—

I. Hind-wings yellow at base.

- A. Fore-wings with a dark fuscous blotch on
inner-margin4. *beatella*
- B. Fore-wings without dark fuscous blotch
on inner-margin.
 - 1. with three black hind-marginal spots 3. *carpocapsella*
 - 2. with five black hind-marginal spots ..6. *theorella*

II. Hind-wings wholly fuscous-grey or blackish.

- A. Fore-wings brownish-ochreous, irrorated
with whitish7. *melanostrepta*
- B. Fore-wings with basal half yellow, apical
purple5. *satrapella*
- C. Fore-wings blackish.
 - 1. with white spots near base of inner-
margin and on costa1. *aristonica*
 - 2. without white spots2. *percussana*

Eups. aristonica, n. sp.

♂. 6". Head dark fuscous, face rather lighter. Palpi dark fuscous, mixed with whitish towards base. Antennæ dark fuscous. Thorax dark fuscous, with a small whitish indistinct spot on middle of lateral margin. Abdomen black with indistinct yellowish rings, anal tuft ochreous-yellow. Anterior and middle legs blackish-fuscous, beneath mixed with whitish, anterior tibiæ much dilated with hair scales; posterior legs pale ochreous-yellow, base of tibiæ and basal rings of all tarsal joints black. Forewings rather broad, hind-margin rather slightly oblique; very dark fuscous, almost black; a square white spot on inner-margin near base, anteriorly somewhat suffused, its upper anterior angle connected with two short suffused white streaks, one running to centre of base, the other to costa near base, followed by a few scattered whitish scales; a small rectangular white spot on middle of costa, divided into two by a transverse dark fuscous line, each half giving rise to a leaden-blue metallic line, proceeding parallel directly across wing; a leaden-blue metallic spot before them on inner-margin; a leaden-blue metallic line from middle of disc immediately beyond them to anal angle, interrupted beneath its apex; beyond this line are thickly strewn very fine longitudinal whitish hair-scales; a very small white spot on costa before apex, giving rise to a short outwardly oblique leaden-metallic line, and with a small leaden-metallic spot beneath it; extreme apex ochreous-orange; four circular black spots on lower half of hind-margin, surrounded by a few pale ochreous scales, the uppermost spot small; a violet-metallic line along hind-margin on base of cilia, rest of cilia dark fuscous. Hind-wings blackish-fuscous; cilia ochreous-yellow, with a darker line near base.

Not to be confused with any other species; in repose the fore-legs are extended. One specimen beaten from dry scrub near Parramatta in December.

Eups. percussana, *Wkr.*, Brit. Mus. Cat., 998.

“♂. 7". Head, thorax, and abdomen cupreous-blackish. Fore-wings with hind-margin moderately oblique; cupreous-blackish, with transverse cinereous lines, some of which posteriorly are blue-metallic; disc near hind-margin with minute longitudinal cinereous hair-scales; hind-marginal dots deep black, partly bordered with metallic blue. Hind-wings cupreous-blackish; cilia pale cinereous. Tasmania.”

The above is Walker's description, divested of superfluities and interpreted; brief and incomplete as it is, it is sufficient to clearly indicate a species of this genus distinct from any I have seen. I thought it best therefore to include the descriptions of this and the following species in the present paper, to direct attention towards them, and render the subject as complete as possible.

Eups. carpocapsella, *Wkr.*, Brit. Mus. Cat., 998.

“♀. 7". Head, thorax, and abdomen slaty-cinereous. Fore-wings rounded, slaty-cinereous, posteriorly cupreous-tinged, with transverse brown streaks, interrupted towards the base, but complete posteriorly, and forming the ground-colour along hind-margin; three deep black cupreous-bordered spots on lower part of hind-margin; cilia slaty-cinereous, tinged with cupreous. Hind-wings yellow, with a very broad dark fuscous border, excavated interiorly; cilia partly yellow. Brisbane, Queensland.”

The description is Walker's, similarly treated as the preceding; I have not seen the specimen, but it is certainly an *Eupselia*, nearly allied to *E. beatella*, but without the dark fuscous triangular patch on inner margin.

Eups. beatella, *Wkr.*, Brit. Mus. Cat., 999.

♀. 6½". Head, palpi, and thorax pale ashy-grey, crown and upper portion of thorax suffused with dark fuscous. Antennæ pale grey. Abdomen yellowish-fuscous. Legs whitish, anterior and middle tibiæ thickened with scales; anterior tibiæ and tarsi

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suffused above with dark fuscous; middle tibiæ with two suffused fuscous rings, tarsi with fuscous rings at base of joints; posterior tibiæ yellowish, tarsi pale yellowish with indistinct fuscous rings at base of joints. Fore-wings moderately broad, hind-margin rather oblique; very pale ashy-grey; six short cloudy grey streaks from costa before middle, the first two uniting with two similar streaks from inner-margin; a large rounded-triangular clearly-marked dark fuscous blotch on inner-margin slightly before middle, reaching half across wing; two parallel nearly straight grey lines crossing wing from slightly beyond middle of costa to just before anal angle; beyond the second line the apical portion of the wing is entirely dark fuscous, intersected by a straight leaden-metallic line from above middle of disc to anal angle, nearly parallel to the second line; and by a cloudy ashy-whitish line, strongly curved outwards, from $\frac{3}{4}$ of costa to anal angle, preceded by thickly strewn longitudinal whitish hair-scales on disc below middle; a similar cloudy slaty-whitish line from costa just before apex to hind-margin, continued along hind-margin, and coalescing with the first; four oval black spots on lower half of hind-margin, uppermost small, each surrounded with a whitish ring; a violet-metallic line along base of cilia, rest of cilia dark fuscous. Hind-wings pale yellow, with a broad blackish-fuscous border along hind-margin, broadest at apex; cilia dark fuscous, beneath apex and on inner-margin yellowish, with a blackish line near base.

Easily known by the dark fuscous dorsal blotch and hind-margin on a pale ground, and yellow hind-wings. One ♀ taken at rest on a Eucalyptus-trunk at Sydney, in December; Walker's specimen was a ♂ and is simply given as from 'Australia.'

Eups. satrapella, *n. sp.*

♂ ♀. $6\frac{1}{2}''$ - $7\frac{1}{2}''$. Head and palpi deep yellow. Antennæ dark fuscous, indistinctly annulated with whitish. Thorax deep yellow, anterior margin and a square central spot connected with it dark purple-fuscous; in ♀ the whole anterior portion is suffused with

fuscous. Abdomen dark fuscous, tinged with yellowish on sides. Legs dark purple-fuscous, posterior tibiæ yellow, posterior tarsi yellowish with dark fuscous rings at base of joints. Fore-wings moderately broad, hind-margin considerably oblique; deep yellow apical portion beyond an inwardly curved line from three-fifths of costa to $\frac{3}{4}$ of inner-margin purple (light reddish-purple scales being thickly strewn on a black ground, towards anal angle in longitudinal lines); a suffused dark fuscous streak along costa from base to middle; a dark fuscous streak along lower half of division-line of the yellow and purple portions, immediately beyond which are two small deep blue spots one in middle, the other above inner-margin; a broader dark fuscous streak from costa at junction of yellow and purple portions to anal angle, slightly curved inwards, bordered posteriorly on its lower half with purple-blue; a very oblique, short, dark fuscous streak from costal extremity of this streak towards hind-margin a little below apex, above which is a deep purple-blue spot, and the extreme costa is yellow; four round black spots on lower part of hind-margin, surrounded by ochreous scales, and alternating with three smaller longitudinally elongate black spots; a metallic purple line along base of cilia, rest of cilia dark fuscous. Hind-wings dark fuscous; cilia dark fuscous, on costa yellowish.

This very handsome species is superficially very dissimilar to all its congeners from its yellow and purple colouring; in this it has at first sight an external resemblance to some of the *Oecophoridæ* but, apart from structural points, may be known from them by the black hind-marginal spots. It appears tolerably common, though retired in habit; occurring round Sydney and Parramatta, and in Queensland at Helidon, from September to November, and again in February and March.

The larval and pupal stages of this species are very singular. Larva very elongate, tolerably cylindrical but slightly flattened, smooth, head, second and anal segments with a few short blackish

bristles; whitish, slightly tinged with greenish-grey; a slender irregular reddish-ochreous line on each side of dorsal space; sub-dorsal rather broader, darker reddish-ochreous, anteriorly partially double, enclosing irregular spaces of ground-colour; spiracular slender, nearly straight, interrupted, reddish-ochreous; subspiracular similar, more interrupted; spots small, distinct, blackish-grey; head grey-whitish, with three longitudinal rather broad pale amber stripes, mouth blackish; second and anal segments with markings obsolete, anal segment obliquely flattened. When half-grown, all the markings are nearly obsolete, the head and part of second segment blackish. Feeds in a long rather sinuate swollen gallery within leaves of *Eucalyptus*, *sp.*, issuing by night through a hole and eating substance of leaf outside; by day remaining concealed in the gallery, but traversing it with great celerity if disturbed; found in August and September.

Pupa long, slender, dull brown, wingcases short, whitish, thorax almost angulated on shoulders; quite naked, affixed by the tail, stiffly and perpendicularly projected from the surface of its attachment, so as to be actually standing erect upon its tail. I had several of these pupæ, which were all similarly fastened to twigs and the sides of the glass containing them.

Eups. theorella, *n. sp.*

♀. 6". Head, palpi, thorax, and abdomen light ochreous-brown. Antennæ ochreous-whitish, annulated with black. Legs light ochreous-brown, anterior tibiæ and tarsi suffused with dark fuscous, post tibiæ and tarsi pale ochreous-yellow. Fore-wings elongate, hind-margin extremely oblique; ochreous-brown, thickly irrorated with paler scales, becoming elongate hair-scales towards lower portion of hind-margin; about ten very obscure and faint transverse streaks from costa, caused by the disappearance of the pale scales, some of them faintly continued to inner-margin; two in middle of wing more distinct, rather divergent on disc, confluent on inner-margin and forming there a transversely

elongate metallic-ochreous spot, becoming ochreous-white on inner-margin itself; an oblique ochreous-brown streak from $\frac{3}{4}$ of costa to hind-margin beneath apex, and an oval ochreous-brown spot at apex; five round black spots very close together below middle of hind-margin; a violet-metallic line on base of cilia, broken into spots, especially towards apex; rest of cilia ochreous-fuscous, towards apex blackish, with two small whitish spots on tips beneath apex. Hind-wings with basal half yellow with a few scattered dark fuscous scales; apical half dark fuscous, sending a cloudy protuberance inwards above middle; cilia blackish-fuscous, on costa yellowish.

This and the following species differ from all the preceding by the much more oblique hind-margin of fore-wings; the two are nearly allied, but immediately separable from each other by the different hind-wings.

Two females taken amongst dry scrub at Parramatta in November.

Eups. melanostrepta, *n. sp.*

♂ ♀. 6". Head, palpi, and thorax ochreous-whitish, mixed with ochreous-grey. Antennæ ochreous-whitish, annulated with dark fuscous. Abdomen ochreous-grey. Legs ochreous-whitish, anterior and middle pair irrorated with grey. Fore-wings elongate, hind-margin very oblique; brownish-ochreous, so densely irrorated with ochreous-whitish scales that the ground-colour is entirely obscured, except on a few faint transverse streaks; two more distinct transverse ochreous-brown streaks in middle from costa to inner-margin, divergent above middle, approximated on inner-margin, where they enclose a small white spot; before these the inner-margin is obscurely whitish nearly to base; an oblique ochreous-brown streak from $\frac{3}{4}$ of costa to hind-margin below apex, and an indistinct ochreous-brown oblique streak immediately before apex; surface of wing strewn with ochreous-whitish hair-scales towards lower part of hind-margin;

six round black spots very close together on hind-margin below middle; a violet-metallic line on base of cilia, broken into roundish spots, especially towards apex; rest of cilia smoky-fuscous. Hind-wings and cilia dark fuscous.

Quite of the same form as the preceding; the forewings more suffused with ochreous-whitish, and therefore paler, with an additional black spot, the hind-wings wholly dark fuscous. Several specimens taken by Mr. G. H. Raynor at Melbourne, and also at Brighton in Tasmania, in January.

AEolocOSMA, n. g.

Head smooth; with ocelli; tongue moderate. Antennæ shorter than forewings, filiform, in ♂ ciliated. No maxillary palpi. Labial palpi rather short, recurved, second joint with appressed scales, terminal joint shorter, slender, acute. Forewings elongate, moderately broad, costa slightly arched, apex rounded, hind-margin very oblique, rounded. Hind-wings ovate-lanceolate, narrower than fore-wings, pointed, cilia as broad. Abdomen moderate. Legs moderate, posterior tibiæ clothed with long hairs. Fore-wings with 12 veins; 7 and 8 stalked, to either side of apex; no secondary cell; 1 simple at base. Hind-wings with 8 veins; 3 and 4 from posterior angle of cell.

Allied to the preceding genus, and agreeing with it in the palpi, and in the possession of the black hindmarginal spots (though these are obscured in one species), but differing in the strongly ciliated antennæ of ♂, the acute hind-wings, and the different neuration. In these points the genus approaches more nearly to the type of the *Oecophoridæ*, from all of which family it is at once distinguished by vein 1 of fore-wings not being furcate at base, as well as by the secondary character of the black hind-marginal spots. In markings and shape of forewings the genus approximates to *Eupselia*. I have as yet only two species, confined to Australia. The larvæ are unknown.

In repose the imagos rest with the wings forming a sloping roof; they fly slowly towards sunset in sheltered places.

Aeol. iridozona, n. sp.

♂ ♀. $4\frac{3}{4}''$ - $5\frac{1}{2}''$. Head, palpi, and thorax, dark fuscous mixed with grey. Antennæ dark grey, in ♂ with moderately long dense ciliations. Abdomen dark fuscous. Legs dark fuscous, posterior tibiæ paler and with ochreous-whitish hairs, all tarsi with indistinct whitish rings at apex of joints. Fore-wings elongate, rather narrow, hind-margin extremely oblique, apex broadly rounded; ochreous-grey, strewn with ochreous-whitish scales; two slender straight golden-ochreous black-margined transverse fasciæ, one immediately on each side of middle of wing, perpendicular to costa, and enclosing a slender pale silvery-grey space; from the dorsal extremity of second fascia proceeds a third similar golden-ochreous black-margined fascia obliquely to $\frac{3}{4}$ of costa, its posterior edge bordered by a pale silvery-grey fascia of equal breadth; six nearly square black spots, separated by silvery-whitish scales, on lower portion of hind-margin, very near together and sometimes almost confused, uppermost and lowest smaller than the rest; cilia fuscous-grey, with an indistinct dark line round apex. Hind-wings narrow, ovate-lanceolate, fuscous-grey; cilia fuscous-grey.

This elegantly marked species has a very delicate and fragile appearance; it is very distinct from all others known. It occurs at Parramatta and Sydney in August and September amongst dry scrub, in very sheltered places only; it is tolerably common, but local, and only obtainable towards sunset, when it flies gently close to the ground.

Aeol. marmaraspis, n. sp.

♂ ♀. $5\frac{3}{4}''$ - $7''$. Head and thorax deep bronzy-fuscous, tinged with purple. Palpi golden-yellow, terminal joint with a black line beneath. Antennæ dark fuscous, in ♂ with rather long ciliations. Abdomen blackish-fuscous, segments above suffused

with ochreous except on margins. Legs dark fuscous, tarsi with slender whitish rings at apex of joints, posterior tibiæ clothed above with long whitish hairs. Fore-wings elongate, rather narrow, hind-margin oblique, apex rather acutely rounded; dark fuscous, coarsely strewn with pale golden-ochreous scales; a short deep golden-yellow longitudinal streak of hair-scales from base, posteriorly suffused into a cloudy spot of whitish scales on disc before $\frac{1}{3}$, which is faintly expanded to costa and inner margin, forming an obsolete band; a straight rather oblique obsolete band of whitish (in some lights bluish) scales from costa before middle to just before anal angle, where it forms a small distinct white spot; a rather large clear white rectangular spot on costa at $\frac{3}{4}$, from which proceeds a cloudy band of pale leaden-blue scales towards hind-margin above anal angle; a few leaden-blue scales on hind-margin beneath apex; some irregular black scales along lower $\frac{2}{3}$ of hind-margin, tending to form obscure broken spots; cilia dark metallic grey, with ochreous reflections. Hind-wings elongate-ovate, dark fuscous-grey; cilia dark fuscous-grey, with an obsolete darker line near base.

In shape of wing this species approaches many of the *Oecophoridæ*, and the black hind-marginal spots being ill-defined, it would be difficult of location if the neuration were not examined. Specifically it is very distinct; the golden-yellow palpi, and basal line of fore-wings are marked characters; though not brightly coloured, it is a handsome insect. I have only found it on the swampy grass-covered ledges which project from the face of the perpendicular precipice that overhangs the Grose Valley by the waterfall at Govett's Leap, near Blackheath, 3,500 feet above the sea. Here it is common in November, flying languidly in the sunshine over the tops of the long grass.

GLYPHIPTERYX, *Hb.*

Head smooth; with ocelli; tongue moderate. Antennæ much shorter than forewings, slender, filiform, in ♂ pubescent or very shortly ciliated. No maxillary palpi. Labial palpi rather short,

thick, arched; second joint laterally compressed, often roughly scaled beneath; terminal joint as long as second, pointed. Fore-wings elongate, variable in breadth, hind-margin often indented, oblique, apex rounded, often produced. Hind-wings varying from ovate to lanceolate, narrower than forewings, cilia rather narrower or broader. Abdomen rather elongate. Legs rather short, smoothly scaled. Forewings with 12 veins; secondary cell indicated; 7 and 8 separate; 1 simple or more or less furcate at base. Hind-wings with 8 veins; 3 and 4 from posterior angle of cell, sometimes short-stalked.

The genus may always be recognized by the short palpi clothed with whorls of scales, and metallic transverse markings; it is a very conspicuously natural one, and not very close to any but *Phryganostola* and *Apistomorpha*, which have a long tuft on second joint of palpi. All the species have the same habit of alternately raising and depressing their wings when at rest, as though fanning themselves; I have noticed this habit in all the Australian and New Zealand species. They are sun-loving insects, and fly especially in the afternoon towards sunset, in grassy places.

The genus is apparently of universal distribution, but hitherto not numerous in species, 17 having been described altogether from other parts of the Globe; 18 are here described from Australia and New Zealand, where doubtless many more remain to be discovered, so that these regions would appear to be especially favoured by them. The proportion appears to be largest in New Zealand.

The larvæ are 16-legged, rather stout, and feed principally on the seeds of grasses and allied plants, except one European species on *Sedum*. I have not yet succeeded in finding the larvæ of any Australia species, but from the habits of the imago, I have little doubt that all will be found to feed in the seed-heads of different species of grass and sedge.

The following is an analytical table of the 18 species:—

I. Fore-wings without sharp apical hook in cilia.

A. Hind-wings bright yellow with fuscous

margin1 *Chrysolithella*

B. Hind-wings wholly fuscous-grey.

1. Fore-wings with a black patch towards anal angle.

a. A white complete transverse fascia

close to base6 *Asteriella*

b. A white transverse spot on inner margin near base.

*. Black patch narrow, containing 4

metallic spots in a row . . .5 *Triselenia*

***. Black patch broad, containing 5

or 6 irregular spots . . .4 *Iometalla*

c. No white spot or fascia close to base.

*. With a fan-shaped posterior

patch of ochreous lines . . .3 *Cometophora*

**. Without such patch . . .2 *Atristriella*

2. Fore-wings without black patch . . .7 *Euastera*

II. Fore-wings with a sharp black apical hook in cilia.

A. Fore-wings with two conspicuous pale spots on inner margin.

1. Spots yellow10 *Chrysoplanetis*

2. Spots white.

a. First spot extending to costa . . .9 *Meteora*

b. Both reaching to middle of wing only.

*. Third costal streak meeting anal

streak, forming a curved

fascia12 *Asteronota*

**. Third costal streak not united

with anal streak . . .11 *Leucocerastes*

- B. Fore-wings with a slender white streak
from middle of inner margin ..13 *Actinobola*
- C. Fore-wings with four indistinct silvery-
white streaks from inner margin ..8 *Sabella*
- D. Fore-wings grey, with a black streak
from middle of inner margin ..16 *Acrothecta*
- E. Fore-wings without dorsal markings
before anal angle.
1. Fore-wings dull dark bronze ..14 *Palæomorpha*
 2. Fore-wings grey, slightly bronzy-
tinged15 *Iocheæra*
 3. Fore-wings bright coppery-bronze.
 - a. With a complete curved fascia
beyond middle17 *Astrapæa*
 - b. With costal and anal streaks not
united18 *Transversella*

Glyph. chrysolithella, n. sp.

♂ ♀. $4\frac{3}{4}$ "-7".—Head dark fuscous, behind mixed with ochreous. Palpi ochreous-yellow, second joint with three flattened whorls of black yellowish-white tipped scales, terminal joint black at base and with a black longitudinal line beneath. Antennæ dark fuscous. Thorax dark fuscous, paler on sides. Abdomen dark fuscous, with indistinct yellowish rings, anal extremity yellow. Legs dark fuscous, posterior tibiæ with a central yellowish band, posterior tarsi with two apical joints and basal rings on the others yellowish. Forewings broad, hind-margin nearly straight, very slightly sinuate above middle; dark ochreous-bronze, with a few pale scales towards disc; an obscure whitish transverse spot on inner margin near base; a violet-golden metallic streak from costa at $\frac{1}{3}$, not oblique, reaching middle of wing; a rather shorter similar streak from inner margin immediately beyond it; two minute whitish spots on costa before and beyond middle, giving rise to indications of metallic

streaks; a white spot on costa at $\frac{2}{3}$, giving rise to a straight oblique violet-golden metallic streak, reaching middle of wing; a similar opposite streak from anal angle, almost meeting this; a rather broad black longitudinal streak on disc, extending from apex of first costal streak to apex of streak from anal angle, obtusely toothed above beyond middle, containing two rather large roundish violet-golden metallic spots on its lower margin, projecting beyond it, and a much smaller similar spot between and above them; an ochreous-white spot on costa at five-sixths, and another immediately before apex, both giving rise to oblique violet-golden metallic streaks reaching middle of hind-margin, one or other of which often unites with a violet-golden metallic streak nearly along lower part of hind-margin almost to anal angle; between $\frac{2}{3}$ and five-sixths is an oblique blackish streak from costa to middle of disc; cilia with a very strong black line almost at base, grey, at apex and anal angle black, with a large white spot on middle of hind-margin, and a small one just above anal angle. Hind-wings trapezoidal, moderately broad; golden-yellow, hind-margin very broadly blackish; cilia golden-yellow, on hind-margin black at base.

This splendid species is distinguished from all others in the genus by the yellow hind-wings. It is local, but occurs rather commonly on the ledges of the precipice at Govett's Leap, Blackheath, flying slowly in the sunshine in March; also at Campbelltown, Sydney, and Parramatta; and I have seen specimens from Tasmania.

Glyph. atristriella, Z. Hor. Ross., 1877, p. 398.

"♂. $6\frac{1}{2}$ ". Head and thorax brown. Palpi white at base, second joint black with white rings, terminal joint black with a white longitudinal line. Antennæ fuscous. Abdomen yellowish-fuscous with broad yellowish rings, anal extremity pale yellow. Anterior legs fuscous, tibiæ with two white spots, apex of three first tarsal joints whitish; (middle legs broken;) posterior legs

blackish-fuscous, tibiæ with whitish-yellow central and apical spots, tarsi with apex of first three joints whitish-yellow, two apical joints wholly whitish. Fore-wings rather parallel-sided golden-ochreous, duller towards base, lighter on disc, on inner margin irrorated with fuscous; a strong black longitudinal streak on middle of disc, posteriorly attenuated and bent upwards, with three silvery-metallic roundish spots, one at its origin, one in middle, the third before the extremity beneath; the first of these forms the apex of a rather oblique streak from costa before $\frac{1}{3}$, which is followed at equal intervals on costa by a silvery-metallic dot, a short transverse streak, and an outwardly curved transverse fascia, attenuated above middle, ending on inner margin beyond the black discal streak; two white costal spots before apex, each giving rise to a violet-silvery metallic line, half-way across wing uniting into a thick line ending at anal angle. Hind-wings fuscous, towards the base mixed with yellowish; cilia very pale yellowish, tips grey towards apex, and with a grey-fuscous line.

One ♂ from Tasmania."

I have not seen this species; I have translated Zeller's original description, which is written with his usual accuracy, and clearly points to an insect rather nearly allied to the preceding *G. chrysolithella*, but without the yellow hind-wings; the markings of the fore-wings are very similar.

Glyph. cometophora, n. sp.

♂ ♀. 7"-9". Head bronzy-grey. Palpi whitish at base, second joint clothed with three whorls of black white-tipped scales, terminal joint loosely scaled, black, with an ochreous-whitish line on each side, and an ochreous whitish sub-apical spot above. Antennæ dark fuscous. Thorax brassy-bronze. Abdomen dark greyish-fuscous, with pale ochreous rings beneath, apex pale ochreous. Legs dark fuscous; posterior tibiæ with central and apical whitish bands, posterior tarsi with whitish rings at apex of joints. Fore-wings broad, hind-margin slightly

sinuate above middle; ochreous-bronze, with a brassy tinge, with six complete or interrupted violet-silvery metallic transverse fasciæ, second to sixth starting from small whitish spots on costa; first from $\frac{1}{3}$ of costa, rather oblique, reaching to fold or sometimes to inner margin; second entire, straight, slightly oblique, on inner margin whitish; third broken in middle, apex of dorsal portion rather beyond apex of costal; sixth from five-sixth of costa to hind-margin just above anal angle, slightly curved outwardly; between third and sixth is an expanded fan-like patch of dense diverging pale ochreous lines on a black ground, its base resting on third fascia a little above middle, and its apex covering the whole length of sixth; the triangular space between this patch and inner margin is jet-black, cut by an irregular longitudinal golden-ochreous line; the fourth and fifth fasciæ are visible only as two transverse violet-silvery bars on this black space, and the corresponding whitish costal spots; a white spot on costa just before apex, sending a violet-silvery line to above middle of hind-margin; cilia whitish, greyer towards anal angle, dark fuscous-grey at apex, basal half clothed with dense golden-bronze scales, except where a white indentation meets the sub-apical silvery line. Hind-wings and cilia dark fuscous.

This handsome species is the largest of the genus, and may be known from all others by its fan-shaped patch of ochreous lines on a black ground, spreading like the tail of a comet. Common at Melbourne, frequenting rushes; also taken at Blackheath, on the Blue Mountains (3,600 feet), in November.

Glyph. iometalla, n. sp.

♂ ♀. 3"-3 $\frac{1}{4}$ ". Head and thorax deep bronzy-fuscous. Palpi whitish at base, second joint with two whorls of black white-tipped scales, terminal joint clothed except apex with a whorl of black white-tipped scales. Antennæ dark fuscous. Abdomen shining dark grey, beneath silvery. Legs dark fuscous-grey, all

tarsi with slender white rings at apex of joints; posterior tibiæ with white central and apical bands, posterior tarsi with two apical joints wholly white. Fore-wings short, posteriorly dilated, hind-margin sinuate beneath apex; dark golden-bronze, with transverse golden-ochreous strigulæ; a white transverse rather inwardly oblique oblong spot on inner margin near base, reaching to middle; a silvery-white violet-tinged perpendicular streak from costa at $\frac{1}{4}$, reaching to middle; a straight silvery-white violet-tinged fascia from just before middle of costa to inner margin at $\frac{3}{4}$, expanded and more snow-white on inner margin; a rather large black patch on anal angle and lower half of hind-margin, containing five or six golden-metallic spots, its base not touching fascia, its upper edge margined by a straight whitish-ochreous line, above the posterior part of which are three other whitish-ochreous longitudinal lines, separated by blackish spaces; a silvery-white violet-tinged streak from costa to upper anterior angle of the black patch; two parallel oblique silvery-white violet-tinged streaks from costa a little before apex to hind-margin above middle, becoming white on costal cilia: cilia white, becoming dark grey at apex and anal angle, basal half separated by a dark grey line and clothed with bronzy scales, except where a white indentation meets the anterior sub-apical streak. Hind-wings and cilia fuscous-grey.

This species has a strong superficial resemblance to *Apist. argyrosema*, but apart from structural differences it is smaller, and has only a costal streak corresponding to what in *A. argyrosema* is a second complete fascia. It is allied to the succeeding species *G. triselenæ*, but is smaller, broader-winged, darker, and the black patch is broader and contains usually six metallic spots instead of four. Tolerably common at Brisbane in September, flying towards sunset in dry grassy places amongst thin gum scrub; from its small size it is rather difficult to see.

Glyph. triselenia, *n. sp.*

♂. 4½". Head and thorax dark fuscous. Palpi white at base, second joint with two flattened whorls of black white-tipped scales, terminal joint black with two white rings. Antennæ dark fuscous. Abdomen very long, whitish-ochreous. Legs whitish-ochreous, anterior tarsi with obsolete fuscous bands at base of joints. Fore-wings elongate, narrowed posteriorly, hind-margin slightly indented below apex; pale golden-bronze; an obscure transverse whitish spot on inner margin near base; three silvery-white, obscurely dark-margined transverse fasciæ; first from $\frac{1}{4}$ of costa obliquely outwards, angulated in middle, to inner margin before middle; second and third straight, parallel, nearly perpendicular to costa, before and beyond middle; from third below middle proceeds a rather narrow longitudinal black band, bent downwards to anal angle, thence continued along lower half of hind-margin, containing four golden-metallic spots in a row; the space between this and costa is filled by six longitudinal ochreous-whitish lines, partially confluent or separated by narrow black interspaces; two oblique nearly parallel silvery-white sub-apical streaks from costa immediately before apex to hind-margin above middle, becoming white in the grey costal cilia; some dark, metallic-grey scales at apex, cilia whitish, basal third within a fuscous line clothed with pale golden-bronze scales, except where a white indentation meets anterior sub-apical line. Hind-wings pale grey, cilia whitish-grey.

Nearest to *G. iometalla* and *A. argyrosema*, but differing from both in the peculiarly narrowed fore-wings, the much paler colouring, three complete fasciæ, and narrow black patch containing four metallic spots in a straight line. Two males taken in January on the bare dry grassy volcanic hills near Christchurch, New Zealand.

Glyph. asteriella, n. sp.

♀. 6". Head and thorax dark bronzy fuscous. Palpi whitish-ochreous at base, second joint with two flattened whorls of black whitish-ochreous-tipped scales, terminal joint black with two white rings. Antennæ dark fuscous. Abdomen blackish-fuscous, posteriorly with silvery-white rings, anal extremity ochreous. Legs dark fuscous, middle and posterior tibiæ with slender central and apical whitish rings, all tarsi with slender whitish rings at apex of joints. Fore-wings elongate, rather broad, hind-margin sinuate beneath apex; deep bronze, all markings obscurely dark-margined; a clear white irregularly margined transverse fascia close to base, hardly touching costa broadest in middle; an oblique silvery-metallic streak from costa at $\frac{1}{3}$, meeting a clear white rectangular spot on middle of inner margin; a silvery-metallic transverse spot on middle of costa, and a similar spot slightly beyond it on disc; a silvery-metallic costal streak at $\frac{2}{3}$, bent obliquely inwards, reaching middle, from the extremity of which proceeds a bent longitudinal rather slender black streak to hind-margin above anal angle; above this streak are four short black longitudinal streaks on disc, and below it are two roundish confluent black spots on anal angle; an outwardly oblique silvery-metallic streak from inner margin before anal angle, cutting the first two black streaks; two silvery-metallic parallel sub-apical streaks from costa, becoming white in costal cilia, the anterior nearly meeting a curved silvery-metallic streak from anal angle along lower half of hind-margin, the posterior going to hind-margin below apex; cilia whitish, dark fuscous on costa, apex, and anal angle, basal half separated by a dark fuscous line and clothed with deep bronze scales, except where a white indentation meets the posterior sub-apical streak. Hind-wings somewhat trapezoidal, dark fuscous; cilia dark fuscous.

A handsome species, conspicuously distinct from its nearest allies through the white fascia close to base. One female taken

amongst the dense luxuriant forest clothing the steep slopes of a mountain overlooking Kangaroo Valley, near Shoalhaven, 1,500 feet above the sea, in January.

Glyph. euastera, *n. sp.*

♂ ♀. $3\frac{1}{4}$ "- $3\frac{1}{2}$ ". Head, antennæ, and thorax dark fuscous. Palpi whitish at base, second joint with two whorls of dark fuscous white-tipped scales, terminal joint black with two white rings. Abdomen blackish-fuscous, beneath silvery-whitish. Legs dark fuscous, middle and posterior tibiæ with white central and apical rings, all tarsi with white rings at apex of joints. Fore-wings elongate, very slightly dilated, hind-margin indented beneath apex; basal and apical thirds dark fuscous, densely strewn with whitish scales, central third bronzy-ferruginous, more or less broadly suffused with dark fuscous on costa and inner margin; a white oblique costal streak at $\frac{1}{3}$, reaching middle, ending in a leaden-metallic spot; an indistinct white spot on inner margin near base; two outwardly curved steel-blue metallic fasciæ ending in white spots on both margins, first hardly before, second beyond middle; beyond these are three white spots on costa, the first two giving rise to obsolete metallic streaks, the last sub-apical, sending a steel-blue metallic streak to hind-margin below apex; a blackish spot on apex; cilia whitish, fuscous-grey at apex and anal angle, basal half separated by a strong dark fuscous line, and clothed towards base with ferruginous scales, except where a wedge-shaped dark-margined white indentation meets the sub-apical streak. Hind-wings and cilia dark fuscous-grey.

Distinct from all others in the Australian region through the absence of both the black discal streak and the apical hook, as well as by the contrast of the central ferruginous third with the rest of the fore-wings, and the steel-blue markings. Five specimens taken on the dry grassy volcanic hills, near Christchurch, New Zealand, in January.

Glyph. sabella, *Newm.*, Trans. Ent. Soc., Lond., N.S. III., 299.

" Fore-wings shining brassy-black, with yellowish scales towards apex; four narrow fasciæ from costa, reaching to centre of wing, silvery white; close to apex two triangular white costal spots; from inner margin rise less distinct fasciæ, almost meeting those from costa; a silvery mark in anal angle; cilia pale brown, a black hook at apex. Hind-wings smoky brown, cilia concolorous. Exp. al. $5\frac{1}{2}$ ".

Allied to *G. thrasonella*, but costal fasciæ more perpendicular. Two specimens from Mount Alexander Range, Victoria."

The above description is Newman's original one as written; it is palpably insufficient and inaccurate, but appears to denote an insect very different from any Australian species known to me.

Glyph. meteora, *n. sp.*

♂ ♀. $4''-4\frac{3}{4}''$. Head and thorax dark bronzy-fuscous. Palpi whitish at base, second joint with two oblique whorls of black white-tipped scales, terminal joint clothed with two rough whorls of black white-tipped scales, apex black. Antennæ dark fuscous. Abdomen blackish fuscous, beneath with silvery-white rings, apex white. Legs fuscous, middle and posterior tibiæ black with white central and apical rings, all tarsi black with white rings at apex of joints, posterior tarsi with two apical joints wholly white. Fore-wings moderately dilated, hind-margin indented beneath apex; dark bronzy-fuscous; a broad conspicuous white transverse fascia near base, attenuated on costa; a rather large white transverse spot on inner margin rather beyond middle, dilated in middle, reaching half across wing, its apex silvery-metallic; a short oblique silvery-metallic streak from costa rather before middle, nearly meeting the dorsal spot; two other oblique silvery-metallic costal streaks at $\frac{5}{8}$ and $\frac{3}{4}$, reaching middle; an oblique silvery-metallic streak from inner margin just before anal angle, its apex resting between extremities of

these two costal streaks; a few irregular silvery-metallic scales on hind-margin above anal angle; two very short silvery-metallic streaks from costa immediately before apex, white in costal cilia, not produced to hind-margin, apex of posterior streak ending in the roundish black apical spot, immediately beneath which is a small golden-metallic spot on hind-margin; cilia white with a strong black apical hook, basal half separated by a blackish line and clothed with bronzy scales, except where a white blackish-margined indentation meets the golden-metallic hind-marginal spot. Hind-wings and cilia dark fuscous-grey.

Nearest to *G. chrysoplanetis*, but distinguished from it and all the other species with black apical hook by the broad white transverse fascia near base, preceding the central white dorsal spot. It appears to be a mountain species, occurring amongst the rich forest-growth on the ascent of the Bulli Pass, and also on the Liverpool Ranges near Murrurundi, in October.

Glyph. chrysoplanetis, *n. sp.*

♂ ♀. 4"-4½". Head and antennæ dark fuscous. Palpi yellowish at base, second joint with two whorls of dark fuscous broadly yellowish-tipped scales, terminal joint dark fuscous with two yellowish bands. Thorax dark fuscous, with a small yellowish spot on posterior margin. Abdomen dark fuscous, beneath with yellowish bands, apex yellowish. Legs dark fuscous, all tibiae with oblique yellowish basal, central, and apical bands, tarsi with apex of all joints yellowish. Fore-wings strongly dilated, hind-margin sinuate beneath apex; dark fuscous, almost blackish; two rather large yellow spots on inner margin, first near base, subquadrate, reaching $\frac{2}{3}$ across wing, second beyond middle, rounded-triangular, reaching half-way across wing; seven short oblique streaks from costa; first at $\frac{1}{4}$, second before middle, both yellow; third and fourth steely-metallic, violet-tinged, starting from small yellowish costal spots, third reaching middle of wing, fourth very short; fifth very short, yellowish,

apex steely-metallic; sixth and seventh close before apex, short, yellow; eight small roundish steely-metallic violet-tinged spots, first just beyond middle of disc, second between first and anal angle, third and fourth beneath extremities of third and fourth costal streaks, fifth on anal angle (these last three are in a straight line), sixth, seventh, and eighth on hind-margin, eighth being just below apex of seventh costal streak; cilia yellowish, with a strong black apical hook, basal half separated by a blackish line and clothed with dark fuscous scales, except where a yellowish black-margined indentation meets the eighth spot on hind-margin. Hind-wings and cilia dark fuscous.

Instantly recognisable from all others by the two conspicuous yellow dorsal spots. A handsome and common species, appearing in October and again much more plentifully in March; it occurs freely on dry grassy banks round Sydney and Parramatta, and also at Melbourne; specimens from the latter place appear somewhat larger; it flies readily in the afternoon towards sunset.

Glyph. leucocerastes, *n. sp.*

♂. 4". Head, thorax, and antennæ dark bronzy-fuscous. Palpi white at base, second joint with two oblique whorls of black ochreous-whitish-tipped scales, terminal joint black with two ochreous-whitish rings. Abdomen dark fuscous, apex white. Legs dark fuscous, anterior and middle tarsi with slender whitish rings at apex of joints, middle tibiæ with very oblique slender white central and apical rings; posterior tibiæ with slender white central and apical bands, posterior tarsi with first joint white at base, two apical joints wholly white. Fore-wings moderately dilated, hind-margin sinuate beneath apex; dark fuscous, almost blackish; two conspicuous clear white semilunate spots on inner margin, first near base, second hardly beyond middle, each reaching half across wing, their apices curved towards apex of wing, that of second attenuated; six slender oblique white streaks from costa; first at $\frac{1}{4}$; second before middle, very

oblique, becoming obsolete before reaching middle of wing; third reaching half across wing, its lower portion steely-metallic; fourth short; fifth and sixth acutely wedge-shaped, close before apex, very short; a short oblique steely-metallic streak from anal angle, forming a white spot in cilia; between its apex and that of third costal streak is a steely-metallic spot on disc; a steely-metallic line along lower half of hind-margin, and some scattered steely-metallic scales on disc towards apex; cilia grey, with a strong black, apical hook, basal half separated by a black line and clothed with dark fuscous scales, except on a wedge-shaped black-margined indentation beneath apex containing a small whitish spot. Hind-wings and cilia dark fuscous.

Closely allied to *G. asteronota*, but larger, and the third costal streak does not unite with the streak from anal angle. Two males taken on the dry grassy hill-slopes near Murrurundi, in November.

Glyph. asteronota, *n. sp.*

♂ ♀. $3\frac{1}{4}$ ". Head, thorax, and antennæ dark fuscous. Palpi whitish, with obsolete darker rings. (?) Abdomen dark fuscous, apex whitish. Legs dark fuscous, middle and posterior tibiae with whitish central and apical bands, all tarsi with broad whitish rings at apex of joints. Fore-wings somewhat dilated, hind-margin rather strongly sinuate beneath apex; dark fuscous; two conspicuous clear white semilunate spots on inner margin, reaching half across wing, first near base, second slightly beyond middle, both outwardly oblique, their apices curved towards apex of wing; six slender oblique white streaks from costa; first at $\frac{1}{4}$; second hardly before middle, not reaching half across wing; third uniting with a similar streak from anal angle to form an outwardly curved transverse fascia; fourth short; fifth and sixth small, wedge-shaped, close before apex; some irregular silvery-white scales above anal angle beyond the transverse fascia; cilia grey (?), basal half separated by a black line and

clothed with dark fuscous scales, except on a wedge-shaped black-margined indentation a little below apex, containing a whitish spot. (?) Hind-wings and cilia dark fuscous-grey.

Very similar to the preceding; best distinguished by the smaller size, and complete fascia formed by third costal and anal streaks. Two specimens, in rather imperfect condition, taken at Auckland, New Zealand, flying over damp grass on a shady bank, in January.

Glyph. actinobola, n. sp.

♂. $3\frac{1}{2}$ ". Head and thorax deep bronze. Palpi white, second joint with two oblique whorls of blackish broadly white-tipped scales, terminal joint black with two oblique white bands. Antennæ dark fuscous. Abdomen blackish-fuscous, beneath snow-white, apex white. Legs dark fuscous, middle and posterior tibiæ with white central and apical bands, all tarsi with slender white rings at apex of joints. Fore-wings narrow, somewhat dilated, hind-margin sinuate beneath apex; dark bronze, with one dorsal and six costal slender white dark-margined streaks; dorsal streak slightly beyond middle, obliquely curved towards apex of wing, hardly reaching $\frac{1}{2}$ across wing, tending to be produced along inner margin towards base; first costal streak beyond $\frac{1}{4}$, very oblique; second in middle, rather less oblique, not reaching half across wing, apex silvery-metallic; third before $\frac{3}{4}$, less oblique, ending in a violet-silvery metallic spot on disc; between second and third is sometimes an additional small white spot on costa; fourth, fifth, and sixth acutely wedge-shaped, small, hardly oblique, close together before apex; a violet-silvery metallic outwardly oblique streak from anal angle, ending in a spot between extremities of second and third costal streaks; an obscure violet-silvery metallic spot on hind-margin below middle; cilia white on tips, with a black hook at apex, basal $\frac{3}{4}$ separated by a blackish line and dark fuscous-grey, except a white dark-margined wedge-shaped

indentation below apex, meeting a few silvery scales on hind-margin. Hind-wings and cilia dark fuscous-grey.

Belonging to the group of *G. fischeriella*, *G. schœnicolella*, and the allied species, but distinguished from them all by the presence of an additional costal streak, nearer to the base than the dorsal streak; its nearest allies in Australia are the two following, which however do not possess the dorsal streak from middle of inner margin at all. Three ♂'s, taken at Sydney and Parramatta in dry places amongst low-growing *Carex*, in October and November.

Glyph. palæomorpha, *n. sp.*

♂ ♀. $3\frac{1}{2}''$ - $3\frac{3}{4}''$. Head and thorax deep bronze. Palpi bronzy at base, second joint with two whorls of black white-tipped scales, terminal joint black with two oblique white bands. Antennæ dark fuscous. Abdomen dark fuscous, in ♀ elongate, in ♂ whitish at apex. Legs obscure fuscous, tarsi with slender whitish rings at apex of joints. Fore-wings narrow, somewhat dilated, hind-margin sinuate beneath apex; rather dark bronze, with five costal silvery-white streaks, and one dorsal silvery-metallic; first costal in middle, oblique, reaching half across wing; second before $\frac{3}{4}$, equally oblique, becoming silvery-metallic at apex, uniting with the outwardly oblique silvery-metallic dorsal streak from just before anal angle to form an angulated transverse fascia; third, fourth, and fifth, short, close together before apex; an elongate silvery-metallic spot on hind-margin below middle; a round black apical spot, beneath which are some silvery-metallic scales; cilia whitish, dark fuscous at anal angle, and with a black apical hook, basal half separated by a black line and dark fuscous, except a wedge-shaped white indentation below apex, whence proceeds a strong black sub-apical hook. Hind-wings and cilia dark fuscous.

Distinguished from the group of *G. fischeriella*, to which it approximates, by the absence of the dorsal streak from middle

of inner margin, in which and other respects it is closely allied to *G. iocheæra*, but differs in the dark bronzy ground colour, and the clearer and more silvery streaks. Three specimens taken at Brisbane, and on damp goound on the forest-clad ascent of the Bulli Pass, at rest on the heads of a species of *Juncus*, in September and October.

Glyph. iocheæra, *n. sp.*

♂ ♀. 4"-4 $\frac{3}{4}$ ". Head and thorax dark bronzy-grey. Palpi whitish at base, second joint with two appressed whorls of fuscous whitish-tipped scales, terminal joint dark fuscous with two white rings. Antennæ dark fuscous. Abdomen elongate, dark fuscous. Legs ochreous-grey, tarsal joints basally slightly suffused with darker. Fore-wings narrow, hardly dilated, hind-margin sinuate beneath apex; dull grey, slightly tinged with bronze; one dorsal and five costal slender rather obscure white streaks, anteriorly margined with dark fuscous-grey; first costal in middle, second from before $\frac{3}{4}$, both very oblique, not reaching half across wing; dorsal from just before anal angle, very oblique, apex almost reaching extremity of second costal; third, fourth, and fifth costal streaks acutely wedge-shaped, short, almost wholly on costal cilia; a silvery-white metallic spot on middle of hind-margin; a clear round black apical spot; cilia whitish, towards anal angle dark fuscous-grey, with a strong sharp black apical hook, and with basal half separated by a black line and dark fuscous-grey, except on a whitish wedge-shaped indentation below apex, whence proceeds a sharp black sub-apical hook. Hind-wings and cilia dark fuscous-grey.

Closely allied to the preceding species, but rather larger and narrower-winged, ground colour grey only slightly tinged with bronzy, costal and dorsal streaks not silvery. Four specimens taken on rushes (*Juncus*) in swampy places in January, at Dunedin and Christchurch, New Zealand.

Glyph. acrothecta, *n. sp.*

♂. $4\frac{1}{2}$ "-5". Head and thorax dark bronzy-grey. Palpi white at base, second joint with two short oblique whorls of black white-tipped scales, terminal joint black with two oblique white rings and white above towards apex. Antennæ dark fuscous. Abdomen elongate, blackish-grey with white rings, apex white. Legs dark fuscous, posterior and middle tibiæ with white central and apical bands, tarsi with obsolete whitish rings at apex of joints, posterior tarsi with a clear white ring at apex of basal joint, and two apical joints wholly white. Fore-wings narrow, elongate, not dilated, hind-margin sinuate beneath apex; dull pale grey, suffused with brownish on disc and inner margin; six rather obscure white, anteriorly blackish-margined, oblique costal streaks; first at $\frac{1}{4}$, reaching to middle, partially black-margined posteriorly as well; second in middle, not reaching half across wing; third to sixth short, mostly on costal cilia, each silvery-metallic at apex; a black oblique streak from middle of inner margin, leading to an obscure whitish anteriorly black-margined spot below apex of first costal streak; a faint whitish spot on anal angle, preceded by a short curved black streak; two silvery-metallic spots on disc, beneath extremities of second and third costal streaks, sometimes united with them; a rather large conical silvery-metallic black-margined spot on hind-margin below middle; a small silvery-metallic black-margined spot on hind-margin below apex; cilia whitish, with a sharp black apical hook, fuscous-grey towards anal angle, basal half separated by a black line and fuscous-grey, except where a whitish black-margined indentation meets the small silvery-metallic sub-apical spot. Hind-wings and cilia dark fuscous-grey.

Not nearly allied to any described species; the markings have a peculiar confused appearance; the black dorsal streak from centre of inner margin is caused by the suffusion and disappearance of the accompanying white streak. Six ♂'s

taken on the dry grassy volcanic hills near Christchurch, New Zealand, in January.

Glyph. astrapæa, *n. sp.*

♂. $5\frac{1}{2}$ ". Head and thorax brilliant metallic coppery bronze, face dark fuscus. Palpi with second joint clothed with three whorls of black very narrowly white-tipped scales, terminal joint black with an oblique white lateral line. Antennæ dark fuscus. Abdomen blackish-fuscous, apex ochreous-white. Legs dark bronzy-fuscous, middle and posterior tibiæ with obscure slender whitish central and apical rings, tarsi with obscure white rings at apex of joints, two apical joints of posterior tarsi wholly white. Fore-wings moderately broad, somewhat dilated, hind-margin sinuate below apex; brilliant metallic coppery-bronze, with violet-silvery metallic obscurely dark-margined markings; a short oblique streak from costa before middle; a rather irregular outwardly curved fascia from beyond middle of costa to anal angle; a rather short oblique streak from $\frac{3}{4}$ of costa, opposite extremity of which is a triangular spot on hind-margin below middle; two small spots on costa before apex, second produced as a curved streak to hind-margin below apex; cilia whitish towards apex, blackish-fuscous towards anal angle, with a black apical hook, and intersected by a strong black line, obliterated at anal angle and where a white black-margined indentation meets the sub-apical streak. Hind-wings and cilia blackish-fuscous.

This and the succeeding species are very handsome insects, not coming very near any others, but very closely allied together; *G. astrapæa* is distinguished by the total absence of the longitudinal streak from base, and by the complete fascia beyond middle; in other respects it is extremely similar. One ♂ taken flying in the sun in a grassy swamp near Cambridge, New Zealand, in January.

Glyph. transversella, *Wkr.*, Brit. Mus. Cat., 849 (*Argyresthia*).

♂ ♀. $5\frac{1}{2}$ "-6". Head and thorax brilliant metallic-bronze, face dark fuscous. Palpi yellowish at base, second joint with three whorls of black white-tipped scales, terminal joint black with a white lateral line. Antennæ dark fuscous. Abdomen in ♂ dark bronzy-fuscous, beneath silvery-white, in ♀ blackish, apex whitish. Legs dark bronzy-fuscous, tarsi with whitish rings at apex of joints, posterior tibiæ with white central and apical rings, posterior tarsi with two apical joints wholly white. Fore-wings moderately broad, somewhat dilated, hind-margin sinuate below apex; brilliant metallic coppery-bronze, with golden-silvery metallic obscurely dark-margined markings; an indistinct paler bronzy-yellowish central longitudinal streak from base to beyond middle, broadest posteriorly, attenuated at base; a short oblique streak from costa before middle; an oblique streak from costa beyond middle, and a rather oblique streak from anal angle, which are not united, apex of dorsal streak lying beyond apex of costal; a rather short oblique streak from $\frac{3}{4}$ of costa, opposite the extremity of which is a triangular spot on hind-margin below middle; two small spots on costa before apex, second produced as a curved streak to hind-margin below apex; cilia whitish towards apex, dark fuscous towards anal angle, with a black apical hook, basal half, except towards anal angle, separated by a black line and clothed with bronzy scales, except where a white black-margined indentation meets the sub-apical streak. Hind-wings and cilia blackish-fuscous.

Very nearly allied to *G. astrapaæa*, but slightly less brilliant, and characterised by the paler central streak from base, and the costal and dorsal streaks beyond middle not being united into a fascia. Eight specimens taken flying gently in the shade over a damp grassy sheltered bank near Auckland, New Zealand, in January.

APISTOMORPHA, *n. g.*

Head smooth; with ocelli; tongue moderate. Antennæ much shorter than fore-wings, slender, filiform. No maxillary palpi. Labial palpi rather short, thick, arched; second joint beneath with a loose rather long tuft of projecting hairs, terminal joint loosely scaled, slender, pointed. Fore-wings elongate, hind-margin oblique, sinuate beneath apex, apex rounded, produced. Hind-wings ovate-lanceolate, rather pointed, narrower than fore-wings, cilia as broad as hind-wings. Abdomen rather elongate. Legs rather short, smoothly scaled. Fore-wings with 12 veins; secondary cell indicated; 7 and 8 stalked, one to each side of apex; 1 very shortly furcate at base. Hind-wings with 8 veins; 3 and 4 from posterior angle of cell.

Closely allied to *Glyphipteryx*, and in superficial appearance extremely similar, but characterised clearly by the stalking of veins 7 and 8 of forewings, and the tuft on second joint of palpi; in the latter character it resembles *Phryganostola*, but differs in the venation.

The habits of the imago are similar to those of *Glyphipteryx*; it has the same motion of fanning its wings when at rest. The larva is yet unknown.

Apist. argyrosema, n. sp.

♂ ♀. $3\frac{1}{2}''$ - $4\frac{1}{2}''$. Head and thorax dark fuscous. Palpi white at base, second joint with two whorls of black white-tipped scales, produced beneath to form a rough tuft of black and white hairs; terminal joint black, clothed except extreme apex with two whorls of black white-tipped hairs. Antennæ dark fuscous. Abdomen dark fuscous, with silvery-whitish rings. Legs dark fuscous, all tarsi with slender white rings at apex of joints, posterior tibiæ with white central and apical bands, posterior tarsi with two apical joints wholly white. Fore-wings rather short, rather narrow, hind-margin distinctly sinuate; dark

golden-bronze, with transverse golden-ochreous strigulæ; a white transverse spot on inner margin near base; a straight silvery-metallic streak from costa before $\frac{1}{3}$, reaching to fold; two straight parallel silvery-metallic transverse fasciæ, first from middle of costa, second from $\frac{2}{3}$ to anal angle, sometimes shortly interrupted below middle; two small silvery-metallic spots on costa at $\frac{3}{4}$, and a little before apex, becoming white in costal cilia; beneath the anterior one is a small discal silvery spot; a sub-apical silvery-metallic streak from costa to hind-margin a little below apex; a triangular black patch on hind-margin above anal angle; its base resting on lower part of second fascia, its apex on middle of hind-margin, containing five or six irregular golden-metallic spots; above this patch are sometimes one or two longitudinal black lines on disc; cilia whitish, grey at apex and anal angle, basal half separated by a dark fuscous line and clothed with golden-ochreous scales, except where a white indentation meets the sub-apical silvery streak. Hind-wings and cilia dark fuscous.

A handsome species, bearing considerable resemblance in markings to *Glyph. iometalla* and *Glyph. triselenæ*; being distinguished from the former by its larger size and the second complete fascia, from the latter by its darker colouring and broader irregularly-spotted anal patch. Rather common, occurring round Sydney and Parramatta, and at Bowenfels and Tarana on the Blue Mountains, about 2,500 feet above the sea; it flies in the sunshine towards sunset over dry grassy banks, in September, November, and from January to March, so that there is probably a succession of broods.

PHRYGANOSTOLA, *n. g.*

Head smooth; with ocelli; tongue moderate. Antennæ about half as long as fore-wings, filiform, in ♂ very shortly ciliated. No maxillary palpi. Labial palpi rather short, thick, arched; second joint clothed with long loose projecting hairs beneath,

forming a broad tuft; terminal joint short, acute. Fore-wings elongate, variable in breadth, apex produced, hind-margin indented, very oblique. Hind-wings lanceolate or ovate-lanceolate, narrower than fore-wings, pointed, cilia about as broad. Abdomen elongate, slender. Legs moderate, smoothly scaled. Fore-wings with 12 separate veins; secondary cell indicated; 1 simple or furcate at base. Hind-wings with 8 veins; 3 and 4 from posterior angle of cell.

Nearly allied to *Glyphipteryx*, but differing in the long tuft on second joint of palpi; from *Apistomorpha* it is distinguished by veins 7 and 8 of fore-wings not being stalked. The fore-wings and abdomen are mostly more elongate than in either of these genera. The imagos have the same habit of fanning themselves when at rest, but frequent the shade rather than the sunshine, and are less brilliantly marked. The larvæ are at present unknown. The four species described here may be known from one another by the following characteristics:—

1. Fore-wings with scattered silvery-metallic spots drosophaës
2. Fore-wings with central longitudinal white streak from base.. .. euthybelemna
3. Fore-wings with white streak from base along inner margin oxymachæra
4. Fore-wings unicolorous pale grey achlyoëssa

Phryg. drosophaës, n. sp.

♂. 6". Head and thorax dull bronzy-grey. Palpi ochreous-white at base, second joint with a long rough tuft of mixed black and white hairs, terminal joint slender, black, with two white rings. Antennæ dark fuscous. Abdomen dark fuscous, apex whitish. Legs dark fuscous, tarsi with white rings at apex of joints, posterior tibiæ dull grey, apex white. Fore-wings rather broad, dilated, dull fuscous-grey, with fine

transverse ochreous strigulæ, and silvery-metallic coarsely black-margined markings; five short rather oblique costal streaks, first before, second beyond middle; a spot on inner margin beyond middle, and a short rather oblique streak from anal angle; three spots on hind-margin, respectively below middle, in middle, and below apex; five spots on disc, first two forming a curve with second costal and first dorsal streak, second two forming a parallel curve with third costal and streak from anal angle, fifth beneath apex of fourth costal streak; a small silvery-metallic spot in apex; cilia whitish, with a black apical hook, basal half separated by a black line, and dark purple-fuscous, except where a white black-margined indentation meets the sub-apical silvery spot. Hind-wings and cilia dark fuscous-grey.

This is the broadest winged species of the genus. It appears to be a shade-loving insect; two ♂'s taken in a deep gully beneath damp overhanging rocks near Parramatta, in October.

Phryg. euthybelemna, n. sp.

♂. 5½". Head and thorax light bronzy grey. Palpi pale ochreous, second joint beneath with a rather long rough projecting fringe of white hairs. Antennæ dark fuscous. Abdomen ochreous-grey, apex whitish-ochreous. Legs fuscous-grey, tarsi with whitish rings at apex of joints, posterior tibiæ with whitish central and apical rings. Fore-wings moderate, slightly dilated, pale ochreous-bronze, with pure white fuscous-margined markings; a rather broad central longitudinal streak from base to $\frac{2}{3}$; a small spot on costa about $\frac{1}{4}$, slenderly produced along costa towards base; a short oblique streak from costa before middle, followed by a small obscure costal spot; a longer oblique streak from middle of costa, and a rather oblique streak from anal angle, their extremities meeting in a silvery-metallic spot on apex of basal streak; the apical half of costa filled with seven short rather oblique white streaks, separated only by their dark fuscous margins; an irregular silvery-metallic streak along

lower part of hind-margin, black-margined anteriorly; apex blackish, with some silvery-white scales; cilia white, with a blackish apical hook, towards anal angle fuscous-grey, basal half separated by a black line and fuscous-grey, except where a white black-margined indentation meets hind-margin below apex. Hind-wings fuscous-grey, cilia rather paler.

An elegantly-marked species, conspicuous through the central basal streak. Several ♂'s taken by Mr. G. H. Raynor at Melbourne, and also at Brighton in Tasmania, in January.

Phryg. oxymachæra, n. sp.

♂ ♀. $4\frac{3}{4}''$ - $5\frac{3}{4}''$. Head whitish. Thorax whitish, sometimes suffused with fuscous. Palpi white, second joint with two fuscous-grey rings, beneath with a long loose projecting tuft of white hairs, mixed with a few fuscous-grey. Antennæ dark fuscous. Abdomen very elongate, especially in ♀, varying from pale ochreous to dark fuscous-grey; with whitish rings. Legs fuscous-grey or ochreous-grey, posterior tibiæ white at apex, all tarsi fuscous or dark fuscous with white rings at apex of joints. Fore-wings elongate, narrow, hardly dilated, dull fuscous, sometimes suffused with whitish along costa, with white dark-margined markings; a broad streak along inner margin from base to beyond middle, thence attenuated and directed obliquely upwards, ending on middle of disc at $\frac{2}{3}$ from base; eight rather short oblique costal streaks, none reaching half across wing, first at $\frac{1}{4}$, produced along costa towards base, all sometimes rendered obsolete by a general white suffusion of the costa; a rather short oblique streak from anal angle, ending in a bright silvery-metallic spot on disc; a small silvery-metallic spot on hind-margin below middle; cilia white, with a black apical hook, and intersected by a strong black line, except where a white black-margined indentation meets hind-margin beneath apex. Hind-wings fuscous-grey, cilia whitish.

Remarkable from its lanceolate wings and very elongate abdomen; it varies rather considerably in depth of colouring. Six specimens taken on the dry grassy volcanic hills near Christchurch, New Zealand, in January.

Phryg. achlyoëssa, n. sp.

♂. $5\frac{1}{2}$ ". Head and thorax whitish-grey. Palpi whitish-grey, mixed with dark fuscous, second joint beneath with a long loose projecting fringe of hairs. Antennæ dark fuscous. Abdomen elongate, dark fuscous. Legs pale ochreous-grey. Fore-wings elongate, narrow, hind-margin strongly sinuate below apex; pale whitish-grey, faintly strigulated transversely with darker; a few solitary black scales, tending to be arranged longitudinally on fold and lower median vein; cilia whitish, with an obscure dark fuscous apical hook, basal $\frac{2}{3}$ separated by a blackish line and dark smoky-grey. Hind-wings and cilia fuscous-grey.

An inconspicuous narrow-winged almost unicolorous species. One ♂ taken flying at dusk on a bare grassy hill near Wellington, New Zealand, in January.

ERECHTHIADÆ.

I have at present five genera of this family, which may be thus tabulated:—

A. Face smooth Hippiochaetes

B. Face rough-haired.

I. Fore-wings with 12 veins Eschatotypa

II. Fore-wings with 11 veins.

a. Veins 6 and 7 of fore-wings stalked Ereunetis

b. Veins 6 and 7 of fore-wings separate.

1. Veins 5 & 6 of hind-wings stalked Erechthias

2. Veins 5 & 6 of hind-wings separate Comodica

HIPPIOCHÆTES, *n. g.*

Head roughly tufted above, face smooth; ocelli (?); no tongue. Antennæ shorter than forewings, in ♂ thickened, finely ciliated. Maxillary palpi rather short, folded. Labial palpi short, slender, drooping. Fore-wings elongate, rather narrow, hind-margin very obliquely rounded. Hind-wings lanceolate, narrower than fore-wings, cilia nearly twice as broad. Abdomen moderate. Legs rather short, slender, posterior tibiæ and first joint of tarsi clothed beneath with rather long dense hairs. Fore-wings with (apparently) 11 separate veins. Hind-wings with 8 veins; 5 and 6 stalked; one to each side of apex.

This genus, containing at present only a single species, is very remarkable, affording a clear connecting link between the *Glyphipterygidæ* and *Erechthiadæ*. It differs from the rest of the *Erechthiadæ* in the smooth face, and in superficial marking, and I have not been able to properly examine the neurulation of the single specimen; but the roughly-tufted crown prevents its association with the *Glyphipterygidæ*, and its reference to the *Erechthiadæ* is clearly determined by the absence of a tongue, the development of the maxillary palpi, and the short drooping labial palpi, as well as by what can be made out of the neurulation. Its habits are at present unknown.

Hipp. chrysaspis, n. sp.

♂. $3\frac{3}{4}$ ". Head dark ochreous mixed with fuscous on crown, face dark fuscous mixed with ferruginous. Palpi pale whitish-grey. Antennæ dark fuscous. Thorax and abdomen blackish-fuscous. Legs black above, shining ochreous-white beneath. Fore-wings blackish-fuscous; a large acute-triangular yellow oblique spot on inner margin at base, its base extending from middle of base of wing to $\frac{1}{4}$ of inner margin and including a roundish black spot, its apex resting on disc just before middle; a rather smaller oblique triangular yellow spot on inner margin before anal angle, bisected by a blackish line from its apex to

its base, its base broad, its apex reaching half across wing beyond middle of disc, its anterior side parallel to the posterior side of first spot; a very oblique white streak from middle of costa to above apex of second dorsal spot; a second much less oblique white streak from costa before $\frac{3}{4}$, reaching $\frac{2}{3}$ across wing; between its apex and that of second dorsal spot is a silvery-metallic spot near hind-margin; an oblique white sub-apical streak from costa; a silvery-metallic line along lower part of hind-margin; cilia white at tips, basal $\frac{2}{3}$ dark fuscous-grey, round apex (apparently) silvery-white with a black intersecting line. Hind-wings and cilia dark fuscous.

This is a beautiful and singular insect, not closely resembling any other known. I have but one specimen, of which the apical cilia are a little injured, but otherwise very perfect; taken at rest on a fence in Sydney, in November.

COMODICA, n. g.

Head rough all over, tufted between eyes; with ocelli; no tongue. Antennæ shorter than fore-wings, in ♂ thickened, basal joint large, broadly compressed. Maxillary palpi moderate, folded. Labial palpi moderate, porrected, rather slender, with appressed scales; terminal joint much shorter than second, bluntly pointed. Fore-wings elongate, rather narrow, tolerably evenly pointed. Hind-wings lanceolate, hardly narrower than fore-wings, apex rather produced, very acute, cilia rather broader. Abdomen elongate. Legs moderate, posterior tibiæ clothed with long hairs. Fore-wings with 11 separate veins, sub-costal obsolete towards base; secondary cell indicated; 1 simple. Hind-wings with 8 separate veins, sub-costal obsolete before middle, 6 running to apex.

The genus is readily recognised by the neuration, especially by the separation of veins 5 and 6 of hindwings, the sharp rather produced apex of hind-wings, and the double apical hook of fore-wings. In repose the imago sits closely appressed to

the surface, the double apical hook on the fore-wings being turned up, so as to present the semblance of four short erect tails round the posterior extremity of the insect. I have only one species, of which the larva is unknown.

Com. tetracercella, *n. sp.*

♂ ♀. 4" 5". Head whitish-ochreous, with a blackish-fuscous spot between antennæ. Palpi whitish-ochreous. Antennæ in ♂ dark fuscous above, whitish-ochreous towards base, in ♀ wholly whitish-ochreous. Thorax pale ochreous, with an irregular blackish central spot. Abdomen dark ochreous-grey, apex pale ochreous. Legs ochreous-whitish, anterior tibiæ suffused with dark fuscous, middle tibiæ with slender oblique dark fuscous central and apical bands, all tarsi suffused with dark fuscous at base of joints. Fore-wings ochreous-white or cream colour, sometimes partially suffused with ochreous; five oblique streaks from costa and five from inner margin blackish, suffused with ochreous, of variable intensity; a minute blackish spot on costa at base, sometimes obsolete, and a rather larger one on inner margin at base; first costal streak near base, generally very short, sometimes suffusedly produced very obliquely to apex of second; second at $\frac{1}{3}$, sometimes broad, very oblique, reaching half across wing; third from middle of costa, broadest of all, very oblique, not reaching half across wing; fourth a little beyond it, slender, bent at apex to meet extremity of third; fifth close before apex, very oblique, consisting of a few black scales preceded by a rather broad ochreous streak; first dorsal streak oblique, close to base, reaching middle; second at $\frac{1}{3}$, equally oblique, apex produced to meet extremity of second costal; third broad, in middle, fourth just beyond it, both often confluent and blotch-like, reaching half across wing, where their apices are often produced as slender longitudinal lines; fifth irregular, spot-like, on anal angle; a strong black apical streak, extending obliquely downwards from apex to disc below

extremities of third and fourth costal streaks; cilia ochreous-white, becoming grey at anal angle, containing a clear black spot directly above apex, and another more obscure directly below it, and with two straight thick black lines projecting from apex, the one rather obliquely upwards, the other rather obliquely downwards, beneath the lower of which the cilia are excavated to base by a curved wedge-shaped indentation. Hind-wings and cilia fuscous-grey.

The sharp erected apical hooks give this insect a singular appearance in repose. It has a peculiar streaked and variegated ornamentation, and does not nearly resemble any other. Common at Sydney on fences from November to January; also taken at Brisbane in the open bush in September.

ESCHATOTYPA, n. g.

Head rough all over, tufted between eyes; with ocelli; no tongue. Antennæ shorter than fore-wings, in ♂ somewhat thickened, basal joint slightly broader. Maxillary palpi long, folded. Labial palpi moderately long, porrected; second joint with a few bristles above, and clothed beneath with short projecting hairs, especially at apex; terminal joint much shorter than second, bluntly pointed, loosely scaled. Fore-wings elongate, somewhat dilated, hind-margin very obliquely rounded. Hind-wings ovate-lanceolate, rather narrower than fore-wings, cilia narrower. Abdomen rather elongate. Legs moderate, posterior tibiæ smoothly scaled, beneath fringed with long hairs. Fore-wings with 12 separate veins; 5 branches to hind-margin; sub-costal obsolete towards base; secondary cell indicated; 1 furcate at base. Hind-wings with 8 veins, sub-costal obsolete before middle; 5 and 6 stalked, 6 running to hind-margin.

This genus differs from all the rest of the family in possessing 12 veins (all separate) in the fore-wings, and is proportionately somewhat broader winged. In repose the apex of the fore-wings is somewhat turned up, but not very conspicuously.

Esch. melichrysa, n. sp. = *derogatella* Walk. (nom. n.)

♂ ♀. 4"-6". Head snow-white. Palpi white, fringe of second joint mixed with dark fuscous-grey. Antennæ whitish-ochreous, basal joint white. Thorax white, irregularly suffused on margins with greyish-ochreous. Abdomen dark ochreous-grey. Legs pale greyish-ochreous, tarsi suffused with darker grey at base of joints. Fore-wings white, with irregular and partially suffused greyish-ochreous or yellow-ochreous markings; an oblique rather narrow dark-margined band from $\frac{1}{3}$ of costa, meeting an obsolete similar band from $\frac{1}{3}$ of inner margin on disc, to form an angulated fascia of which the lower half is indistinct; before this are several irregular strigulæ on costa and inner margin; a similar dark-margined angulated rather broader fascia from $\frac{2}{3}$ of costa to about $\frac{2}{3}$ of inner margin, often furcate on costa (in one specimen obsoletely double throughout), most indistinct on disc; between the two fasciæ are faint greyish-ochreous clouds on disc, and sometimes indistinct fuscous-grey strigulæ on costa; apical portion of wing greyish-ochreous or ochreous, separated from second fascia by a narrow white fascia, and connected with it by an oblique greyish-ochreous dark-margined irregular band below middle; in the apical portion are two small white irregular spots on costa close before apex, a small blackish apical dot, white-margined above and below, a small white black-margined spot on hind-margin beneath apex, and some irregular confused white black-margined spots on lower part of hind-margin and on disc; all the markings are variable in shape and intensity of colouring; cilia yellowish-ochreous, with a dark grey dividing line, and a white spot below apex. Hind-wings and cilia pale slaty-grey.

A rather elegantly marked insect, but variable in size and colouring; my southern specimens are the largest and brightest. Rather common at Wellington and Dunedin, New Zealand, in December and January, beaten from forest growth; its habits are sluggish.

EREUNETIS, *n. g.*

Head rough all over, tufted between eyes; with ocelli; no tongue. Antennæ shorter than forewings, in ♂ somewhat thickened, basal joint broadly compressed. Maxillary palpi moderate, folded. Labial palpi moderately long, porrected, second joint beneath with a more or less long and dense fringe of hairs; terminal joint shorter, bluntly pointed, sometimes concealed in hairs of second joint. Fore-wings elongate, rather narrow, tolerably evenly pointed. Hind-wings lanceolate, rather narrower than fore-wings, cilia rather broader. Abdomen elongate. Legs moderate, posterior tibiæ beneath or entirely clothed with long hairs. Fore-wings with 11 veins; sub-costal obsolete towards base; secondary cell indicated; 6 and 7 stalked, both to costa; 1 simple. Hind-wings with 8 or 7 veins (vein 7 being sometimes obsolete); sub-costal obsolete before middle; 5 and 6 stalked, one to either side of apex.

Distinguished from all the other genera by the stalking of veins 6 and 7 of fore-wings; from *Erechthias*, to which it comes nearest, also by vein 1 of fore-wings not being furcate at base. In one species the hind-wings (? in ♂ only) possess a peculiar thickened patch of scales on disc near base, and in another a transparent hyaline spot in the same place. The species are rather retired and sluggish in habit; the only larva known appears to feed in the bark of trees. There are three species known to me, distinguished as follows:—

A. Hind-wings with a transparent patch at			
base	3. iuloptera		
B. Hind-wings without a transparent patch			
at base.			
1. Fore-wings with faint ochreous-yellow			
bands	1. selenophanes		
2. Fore-wings with dark fuscous and			
ochreous markings	2. brontoctypa		

Ereun. selenophanes, *n. sp.*

♂. $3\frac{3}{4}$ "-4". Head snow-white. Antennæ white, slenderly annulated with dark fuscous, and with a broader blackish band in middle, and four other black rings towards apex. Palpi snow-white, second joint of labial palpi with a short fringe. Thorax white, suffused with pale yellowish on sides. Abdomen ochreous-grey, beneath whitish-ochreous. Legs ochreous-whitish, tarsi suffused with darker grey at base of joints. Fore-wings whitish, faintly suffused with ochreous-yellowish, and with three rather darker faint ochreous-yellow transverse bands; first band near base, rather curved, margined on costa with two blackish spots; second at $\frac{1}{3}$; irregular, angulated outwards above middle, margined on costa with two very short blackish streaks; third much broader, from about $\frac{2}{3}$ of costa very obliquely outwards nearly to hind-margin, thence angulated very sharply and continued more obscurely, and parallel to hind-margin, to inner margin before anal angle, margined on costa with two very short blackish streaks; a longitudinal linear black apical spot; a faint grey line on hind-margin, becoming blackish round apex; cilia pale ochreous-yellow, with a cloudy whitish spot beneath apex. Hind-wings and cilia rather pale fuscous-grey.

A faintly-marked species, most nearly resembling *Ereun. iuloptera*, but smaller, without the transparent spot of hind-wings, and the markings differently arranged. Four ♂'s taken in the dry barren scrub above the Bulli Pass, and also at Brisbane, in September and October.

Ereun. brontoctypa, *n. sp.*

♂. $3\frac{1}{4}$ "- $3\frac{3}{4}$ ". Head and palpi white, second joint of labial palpi dark fuscous beneath, with a short fringe. Antennæ swollen above basal joint, white, slenderly annulated with dark fuscous, with three broader blackish bands towards apex, and sometimes one above base. Thorax ochreous-whitish, anterior margin dark fuscous. Abdomen dark grey. Legs ochreous-

grey, tibiæ darker grey. Fore-wings dull whitish, with ochreous and dark fuscous markings; a small oblique cloudy dark fuscous blotch on costa before $\frac{1}{4}$, and a rather larger oblique dark fuscous blotch from costa slightly before middle, reaching $\frac{1}{2}$ across wing; between second blotch and base the costa is slenderly dark fuscous; a much broader oblique dark blotch on costa above $\frac{3}{4}$, suffusedly truncate and reaching only $\frac{1}{2}$ across wing; two or three small irregular blackish-fuscous spots on inner margin near base; a cloudy dull ochreous streak along fold, extending to anal angle where it is expanded into a cloudy ochreous blotch, partially uniting with third costal blotch; hind-margin irregularly dark fuscous; a small linear blackish apical spot; cilia whitish-ochreous, towards anal angle grey-whitish, with a darker dividing line. Hind-wings and cilia rather pale fuscous-grey, with a roundish black thickened spot of dense scales (in ♂ only?) in disc close to base, visible on both surfaces, on lower surface forming a raised hooked projection.

Distinguished from both its congeners by the cloudy dark fuscous markings; it has somewhat the superficial appearance of a *Bucculatrix*. Three ♂'s taken amongst dry scrub at Sydney and Brisbane, in September, October, and April.

Ereun. iuloptera, n. sp.

♂ ♀. 4"-5". Head and palpi white, labial palpi entirely clothed with dense rough hairs, on sides mixed with ochreous-fuscous. Antennæ ochreous-whitish, slenderly annulated with black. Thorax white, anteriorly suffused with ochreous. Abdomen elongate, whitish-ochreous. Legs whitish-ochreous, anterior tibiæ dark fuscous, middle tibiæ with dark fuscous central and apical rings, all tarsi with dark fuscous rings at base of joints. Fore-wings whitish, irrorated and irregularly suffused with pale ochreous, with indistinct cloudy ochreous markings; a roundish spot at base of costa; an oblique fascia-like spot from $\frac{1}{4}$ of inner margin, reaching more than half across wing, mixed

with blackish near inner margin; an oblique fascia-like spot from costa just before middle, reaching half across wing; an irregular spot on anal angle; a rather larger irregular suffused spot on costa about $\frac{3}{4}$; a roundish dark fuscous apical spot; costa throughout tending to be irregularly strigulated with short blackish marks, sometimes obsolete; cilia white, round apex ochreous, with tips and an irregular dividing-line dark fuscous. Hind-wings grey, with an elongate-ovate transparent patch on disc at base, beneath lower median vein; cilia whitish.

Larger than either of the two preceding, remarkable from its densely haired palpi, and the hyaline patch on hind-wings. When at rest the tips of the fore-wings are bent up very strongly, more so than in the allied species. Common at Sydney at rest on fences, from November to January, and again in May.

I have bred this species from a pupa found in the bark of a fibrous-barked species of Eucalyptus, between the layers; although I have not observed the larva, I have little doubt that it had fed in that situation. Pupa elongate, slender, pale amber, antennal sheaths separate; enclosed in a cocoon of firm silk covered with refuse; found in November.

ERECHTHIAS, *n. g.*

Head rough all over, tufted between eyes; with ocelli; no tongue. Antennæ shorter than fore-wings, in ♂ somewhat thickened, basal joint rather broader. Maxillary palpi rather short, folded. Labial palpi moderately long, porrected, second joint with from a few bristles to a dense fringe of hairs beneath; terminal joint shorter, bluntly pointed, sometimes also fringed beneath with hairs. Fore-wings elongate, rather narrow, tolerably evenly pointed. Hind-wings lanceolate, about as broad as fore-wings, cilia about as broad. Abdomen elongate. Legs moderate, posterior tibiæ clothed with long fine hairs. Fore-wings with 11 veins, sub-costal obsolete towards base; secondary cell indicated; 4 and 5 sometimes approximated on

hind-margin; 1 furcate at base, but lower sometimes partially obsolete. Hind-wings with 8 veins, sub-costal obsolete before middle; 5 and 6 stalked, one to either side of apex.

This genus appears to be of some extent; it is subject to variation with regard to the scaling of the labial palpi, which are sometimes densely rough-haired, but the gradations do not admit of further division. The neuration throughout the genus is uniform; vein 1 of fore-wings is always furcate at some distance from base, but the lower branch is sometimes only distinct at its origin. The width of the fore-wings also varies. The habits of the imago are retired and sluggish; in repose they sit flatly appressed to the surface, with the apex of the fore-wings bent upwards. Though not brightly coloured, they are elegantly marked.

The larva of one species only is known to me; it is 16-legged, without peculiarity, and feeds in the seed-heads of one of the *Liliaceæ*; the pupa is placed in a slight cocoon amongst refuse in the seed-head.

I have ten species of this genus, which may be thus tabularly arranged:—

A. Fore-wings ochreous.

1. Fore-wings with dark fuscous streaks
along margins6 *charadrota*
2. Fore-wings without dark fuscous streaks
along margins.
 - a. Face white4 *acontistes*
 - b. Face orange-ochreous5 *elæorrhœa*

B. Fore-wings white, with dark fuscous markings.

1. Labial palpi beneath with long dense
fringe1 *mystacinella*
2. Labial palpi loosely haired, hardly
rough.

- a. With a central longitudinal streak
from base to apex 3 stilbella
- b. With a streak along inner margin
from base to middle 2 chasmatias
- c. With a band along inner margin
from base to apex 7 chionodira
- C. Fore-wings grey, with white markings . . 10 aëlophora
- D. Fore-wings dark fuscous with white
markings.
 - 1. Central streak from base broad,
extending to hind-margin . . 8 subpavonella
 - 2. Central streak from base narrow, not
reaching middle 9 niphadopla

Erech. mystacinella, *Wkr.*, Brit. Mus. Cat. 1006 (*Tinea*.)

♂ ♀. 5"-7". Head and palpi white, second joint of labial palpi with a dense long fringe beneath, more or less concealing terminal joint. Antennæ dark greyish-ochreous, slenderly annulated with whitish, with a slender black ring above white basal joint. Thorax white, anterior margin and two spots on back connected with it blackish. Abdomen whitish-ochreous. Legs white; anterior tibiae and tarsi black above, middle tarsi with dark fuscous rings at base of joints. Fore-wings white, with a black white-sprinkled streak along inner margin from base almost to anal angle, narrow at first and partially interrupted near base, emitting two oblique teeth (the first fuscous) before and after $\frac{1}{4}$, which reach half across wing, and beyond middle dilated into a broad semi-ovate spot, reaching half across wing, containing a linear white indentation on its posterior edge; a small black spot on costa at base; a small blackish spot on disc above and between teeth of dorsal streak; four slender dark fuscous streaks from costa; first before, second beyond middle, short, very oblique; third at $\frac{3}{4}$, longer, very oblique, uniting at

apex with fourth, which is almost apical and much less oblique, extending through costal cilia, and followed by a white line, beyond which is a round ochreous posteriorly black margined spot in apical cilia, containing a crescent-shaped black mark; hind-margin faintly clouded with grey; cilia white except on the apical ochreous spot, beyond which are two distinct blackish lines round apex only, and a strong short black hook projecting directly from apical spot, being a prolongation of the black crescent shaped mark. Hind-wings fuscous-grey, cilia whitish.

A handsome species, variable in size, southern specimens being the largest. It resembles the two following species in shape of wing, and general appearance, but is immediately known by the broad toothed inner-marginal streak, as well as by the long dense hairs of the labial palpi. A common and widely distributed species, generally taken at rest on fences, without any clue to its habits; it occurs at Sydney and Parramatta, at Springwood on the Blue Mountains (1,200 feet), also at Brisbane, Melbourne, and at Brighton in Tasmania, from October to March.

Erech. chasmatias, *n. sp.*

♂. $6\frac{1}{2}$." Head white. Palpi white, second joint of labial palpi dark fuscous above, beneath with loose scales, terminal joint loosely haired. Antennæ whitish, obsoletely annulated with darker. Thorax white, lateral and anterior margins dark fuscous. Abdomen ochreous-whitish. Legs whitish, anterior tibiæ and tarsi blackish above, middle tarsi with dark fuscous rings at base of joints. Fore-wings white, with dark fuscous markings; a broad streak along inner margin from base to beyond middle, where it is attenuated and bent upwards, ending on disc beyond middle; a slender straight line from base of costa through disc to apex, interrupted at $\frac{3}{4}$, beyond which it becomes much broader, containing a black longitudinal streak and ending in a round black apical spot; a short very oblique

blotch on costa beyond middle; a black streak along costa from about $\frac{3}{4}$ to apex; an elongate streak on hind-margin about anal angle, attenuated at both ends; cilia white, with two blackish dividing lines throughout, and indications of a projecting hook at apex. Hind-wings whitish-grey, cilia whitish, with two dark fuscous cloudy lines round apex.

At first sight very like the following species, but the markings are very differently arranged; probably other nearly allied species will be found. Two males taken at Wellington, New Zealand, amongst forest growth, in January.

Erech. stilbella, *Wkr.*, Brit. Mus. Cat. 849 (*Argyresthia*). = *fulgur*
Cno

♂ ♀. 6"-7". Head white, narrowly dark fuscous on sides and behind. Palpi white, labial palpi with second joint and base of terminal joint dark fuscous externally, second joint with loose scales beneath, terminal joint with loose rather long hairs. Antennæ dark fuscous. Thorax white, lateral margins broadly dark fuscous. Abdomen ochreous-whitish. Legs whitish, anterior tibiæ and tarsi dark fuscous above, middle tarsi with dark fuscous spots at base of joints. Fore-wings white, with dark fuscous markings; a rather broad straight central streak from base to apex; extreme costal edge blackish towards base; a slender partially indistinct straight line from base of costa through disc, coalescing with the central streak at $\frac{3}{4}$ of wing; a slender very oblique streak from costa beyond middle, also coalescing with central streak before apex; a slender streak along costa from $\frac{3}{4}$ to apex; a slender streak along hind-margin throughout; a round blackish apical spot in cilia; cilia white, with two dark fuscous dividing lines throughout towards tips. innermost indistinct. Hind-wings pale fuscous-grey, cilia whitish, with a blackish dividing line round apex.

Characterised by the strong central streak from base to apex. Three specimens taken amongst forest at Auckland and Wellington, New Zealand, in January.

Erech. acantistes, *n. sp.*

♂ ♀. $5\frac{1}{2}$ "- $7\frac{1}{4}$ ". Head white, sides of crown ochreous-fuscous. Palpi white, labial palpi with second joint and base of terminal joint externally ochreous-fuscous, both clothed with rather loosely appressed hairs, apex of second joint with two or three projecting bristles above. Antennæ dark ochreous-fuscous. Thorax dark ochreous-brown, with a central longitudinal white stripe. Abdomen greyish-ochreous. Legs whitish, anterior tibiæ and tarsi dark fuscous above, middle tarsi suffused with fuscous, posterior tarsi with dark fuscous rings at base of joints. Fore-wings brownish-ochreous, darkest towards costa; a white central longitudinal streak from base to $\frac{2}{3}$ of disc, somewhat attenuated at both ends, lower edge straight and sharply margined by a cloudy streak of blackish scales which is continued to apex of wing; two very oblique white streaks from costa, first from middle, second from $\frac{3}{4}$, extending almost to hind-margin; between them is a small cloudy white spot on disc, often confluent with the second; a slender white streak along hind-margin from beneath apex to anal angle; a blackish suffused apical spot, above which is a white spot, and sometimes anteriorly white-margined; cilia white, with a blackish dividing-line before middle, the intercepted basal portion brownish-ochreous, and with another entire blackish dividing-line beyond middle, and two others beyond it only visible on middle of hind-margin; beyond the second dividing-line at apex is a sub-quadrate blackish spot, forming a short blunt hook, being margined beneath by a short wedge-shaped indentation in the cilia. Hind-wings pale fuscous grey, cilia whitish, with two indistinct blackish lines round apex.

Nearly allied to the following species, but easily known by the white head, and pale grey hind-wings; the markings are very similar, but clearer. Common at Blackheath on the Blue Mountains (3,600 feet), and also occurring on the Bulli Pass, and at Parramatta, in September and October, and again in

March; it is a very sluggish insect, and habitually remains at rest on or near its food plant.

Larva moderately elongate, cylindrical, slightly flattened; dirty greyish-white, dorsal vessel darker, slate-coloured; head brown; second segment dark brown. Feeds in the tall spear-like seed-heads of *Xanthorrhœa Australis* (*Liliaceæ*), the so-called "grass-tree;" it burrows amongst the seeds, manifesting its presence by loosening them at their base and ejecting refuse; feeds in February and March, and in August. Pupa pale amber, in a slight cocoon amongst refuse in the head.

Erech. elæorrhœa, *n. sp.*

♂. $5\frac{1}{2}$ ". Head bright orange-ochreous, with a narrow white longitudinal stripe on crown. Labial palpi bright orange-ochreous, beneath whitish, with loosely appressed hairs. Antennæ dark fuscous, annulated with whitish. Thorax orange-ochreous, obsoletely whitish in centre. Abdomen dark fuscous. Legs ochreous-whitish, anterior and middle tibiæ and anterior tarsi suffused with dark fuscous above, middle and posterior tarsi suffused with dark fuscous at base of joints. Fore-wings bright orange-ochreous, suffused with white towards inner margin, and mixed with blackish along costa and hind-margin; a white central longitudinal streak from base to beyond $\frac{2}{3}$, but posteriorly suffused, rather indistinct and not sharply marked; two very oblique indistinct white streaks from costa, first from middle, second from $\frac{3}{4}$, extending almost to hind-margin; some white scales on hind-margin mixed with the black; cilia dark fuscous, with a white apical spot, and indistinct blacker lines round apex. Hind-wings and cilia blackish-fuscous.

Bears a close general resemblance to *E. acantistes*, but rather smaller, brighter and more suffused, with orange-ochreous head and palpi, and blackish-fuscous hind-wings. One male only, taken at Parramatta in September, amongst dry scrub.

Erech. charadrota, n. sp.

♂ ♀. 5"-6½". Head and palpi pale ochreous, face darker ochreous; labial palpi externally dark fuscous, second joint roughly scaled beneath, with two or three projecting bristles above at apex. Antennæ pale ochreous, with obsolete darker fuscous annulations. Thorax pale ochreous. Abdomen greyish-ochreous. Anterior and middle legs blackish, tarsi with slender pale ochreous rings at apex of joints; posterior legs whitish-ochreous, tarsi suffused at base of joints with dark fuscous. Fore-wings narrow, pale ochreous; a broad sharply marked ochreous-fuscous streak, suffused with blackish, along costa from base to apex, narrowest at base and dilated beyond middle; a similar more evenly broad streak along inner-margin from base to anal angle; in the costal streak are a very slender pale ochreous oblique streak from middle of costa, and an irregular streak-like pale ochreous spot before apex; cilia whitish-ochreous, with two blackish dividing-lines, and a small apical hook-like spot beyond them. Hind-wings pale fuscous-grey, cilia whitish-grey, with two blackish lines round apex.

Not nearly resembling any of its congeners; it is the narrowest-winged species of the genus. Three specimens taken amongst dry forest-scrub near Wellington and Port Lyttelton, New Zealand, in January.

Erech. chionodira, n. sp.

♂ ♀. 4½"-5½". Head white, sides of crown narrowly brownish-ochreous. Palpi white, second joint of labial palpi dark fuscous externally except at apex, both joints loosely haired. Antennæ whitish, with obsolete dark fuscous annulations. Thorax ochreous brown, with a narrow white longitudinal central stripe. Abdomen whitish-ochreous. Legs white, anterior tibiæ and tarsi obscurely suffused with dark fuscous above, middle tarsi with dark fuscous rings at base of joints. Fore-wings glossy snow-white; a broad

ochreous-brown streak along inner-margin from base to anal angle, posteriorly attenuated, containing some blackish scales on inner margin; this streak is margined above by a blackish streak, commencing at base as a slender line and dilating gradually to anal angle, where it is as broad as the inner-marginal streak in middle, thence continued along hind-margin to apex, its upper edge obtusely dilated about middle of hind-margin, produced into apical cilia as a short straight projecting bar; base of costa slenderly blackish; a small cloudy subcostal blackish spot before middle; two slender blackish oblique streaks from costa, first beyond middle, very short, nearly obsolete, second midway between first and apex, longer, its apex confluent with the hind-marginal streak; cilia whitish, with three broad cloudy blackish-fuscous lines. Hind-wings and cilia white, extreme apex and two obscure lines round it fuscous.

A very distinct and elegant species. Two specimens at Auckland New Zealand, amongst forest growth on a shady bank in January.

Erech. subpavonella, *Wkr.*, Brit. Mus. Cat. 898, (*Elachista*). = *termin*

♂. 5½". Head and palpi white, second joint of labial palpi fuscous externally, roughly scaled beneath. Antennæ ochreous-whitish, obsoletely annulated with darker. Thorax white, anterior margin sharply dark fuscous. Abdomen whitish-ochreous. Anterior legs blackish; middle and posterior legs whitish-ochreous, middle tibiæ suffused with fuscous above, middle tarsi with dark fuscous rings at base of joints. Fore-wings blackish-fuscous; a straight central longitudinal creamy-white streak from base to hind-margin below apex, becoming rather broader posteriorly, lower margin rather irregular; two oblique white streaks from costa, first from rather before middle, becoming confluent with central streak before its apex; second midway between first and apex, shorter and more suffused; cilia white, containing a blackish ovate apical spot, and with two black

dividing-lines beyond it. Hind-wings pale fuscous-grey, cilia whitish.

This appears to be the species intended by Walker's description. From *E. niphadopla*, the only other species with dark fuscous ground-colour, it is distinguished by the white basal streak being extended to hind-margin, as well as by the considerably larger size. One male from forest at Auckland, New Zealand, in January.

Erech. niphadopla, n. sp.

♀. 3½". Head white, sides of crown rather broadly blackish. Labial palpi blackish, terminal joint white at apex, second joint rather roughly scaled. Antennæ blackish, with indistinct whitish annulations. Thorax blackish-fuscous, with a narrow white central longitudinal stripe. Abdomen grey. Anterior legs blackish, middle and posterior legs glossy grey, apex of tarsal joints paler. Fore-wings blackish-fuscous; a rather narrow white central longitudinal streak from base to before middle; a slender white streak along inner-margin from base to anal angle, thence along hind-margin nearly to apex; two oblique moderately broad white costal streaks, first from about middle, second from ¾, each reaching about half across wing; cilia white, containing a roundish black apical spot, and three broad cloudy blackish-fuscous dividing-lines beyond it. Hind-wings rather pale fuscous-grey, darker posteriorly; cilia whitish-grey.

This is the smallest species of the genus, known by its black and white markings, and short basal streak. One female taken amongst dry scrub on the North Shore, Sydney, in December.

Erech. aëlophora, n. sp.

♂ ♀. 4"-4½". Head white, slightly mixed with grey. Labial palpi with appressed scales, blackish-fuscous, internally silvery-white, apex of second joint with two or three projecting bristles

above and below. Antennæ whitish, with obsolete dark fuscous annulations. Thorax white, anterior margin narrowly blackish-fuscous. Abdomen ochreous-grey. Legs whitish, anterior pair suffused with dark fuscous above, middle and posterior tarsi with faint dark fuscous rings at base of joints. Fore-wings dull grey along costa broadly suffused with blackish; a white very oblique streak from costa near base, and a white oblique streak from $\frac{1}{4}$ of inner-margin, uniting in a white spot on disc before middle, whence proceeds a rather cloudy straight central longitudinal white streak towards apex of wing, becoming obsolete a little before it; below this streak and towards apex the ground-colour is suffusedly mixed with white; three other slender very oblique white streaks from costa, first rather beyond middle, indistinctly meeting central streak; second and third close together about $\frac{3}{4}$, running out nearly to apex; an ovate blackish apical spot, with a white blotch above and another below it, mostly in cilia; cilia white, towards anal angle fuscous-grey, with a blackish line round outer edge of apical spot, a blackish dividing-line beyond it, and a short hook-like blackish spot at extreme apex. Hind-wings and cilia fuscous-grey.

Allied to *E. niphadopla*, but not capable of being confused with it or any other species; the larger number of costal streaks, and the longitudinal central streak not extended to base are reliable points. Eight specimens taken at rest on the trunk of a fibrous-barked species of *Eucalyptus* near Parramatta at the end of January; I have little doubt that the larva had fed in the bark of the tree.

NOTES AND EXHIBITS.

Dr. Cox exhibited eight Stone Axe Heads, turned up by the plough at Castlereagh on the Nepean Flats. He was of opinion, from the position in which they were found, that they had been

deposited in the grave of an aboriginal. Some time since about 30 similar axe heads were found under somewhat the same circumstances on the other side of the river. All were bevelled to the centre, and not to one side as was sometimes the case in other districts. The Chairman stated that the stones were dioritic.

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DESCRIPTIONS OF AUSTRALIAN MICRO-LEPIDOPTERA.

BY E. MEYRICK, B.A.

V. TORTRICINA.

In the present paper (together with the next instalment shortly to follow) I have endeavoured to create a substantial basis for the acquisition of knowledge of the *Tortricina* of Australia and New Zealand. I have identified, classified, and redescribed the species of the group indicated by Walker in the British Museum Catalogue of Lepidoptera, as well as the few others named by other writers; and have added descriptions of all the new species which I possess in my own collection. In the present instalment 103 species are described, of which 57 are new. The worthless character of Walker's descriptions is sufficiently well known; in this group, owing to the great similarity of marking and obscure colouring of the species, the great majority of his descriptions are in themselves absolutely unidentifiable, in the absence of trustworthy generic indication. The forty species of the *Tortricidæ* which he possessed from Australia and New Zealand are described

by him under seventy-eight different names, one species being burdened with as many as eleven synonyms, and in no single instance has a species been correctly referred to its proper genus. I have recently examined the whole of his Australian types in the British Museum collection, and have identified almost all as species of which I possess specimens; of four or five I do not possess specimens, and in these cases I have not been able to make a sufficiently thorough investigation to make the generic identification absolutely certain, but I trust I have not made any gross errors in that respect. With regard to the retaining of Walker's names, it appears to me indisputable that it would have been perfectly justifiable to reject all names followed by descriptions which did not of themselves sufficiently indicate the species referred to. If the description is not identifiable, it is no description; the existence of the type is not to the point. If an author of the present day were to publish a list of names of new species, and observe that he had omitted to add descriptions, as the types were always on view in his collection, I presume his names would not be adopted; yet in regard to most species, what Walker has done amounts to no more. Notwithstanding, in deference to general usage, I have retained his names on the strength of the types alone; but at the same time I assert distinctly that I do not consider myself bound to do so in any instance. The rule which I have adopted (suggested to me by Prof. Fernald) has been to retain all names followed by descriptions which there appears sufficient reason to believe were really intended to represent the specimen standing in the collection as type of the species, however inadequately they may do so. If, as is not unfrequently the case, the type has been lost, then I have rejected the name entirely, unless the description clearly indicated a particular species. When the form of the name errs grossly against the elementary rules of the Latin language, I have corrected it to a more seemly shape. Prof. Zeller urges me also to change the pointless and nonsensical names which often occur

for more significant titles, but though sometimes sorely tempted, I have not ventured to carry out a principle so liable to abuse.

Of other authors, Lewin, Newman, and Zeller have described one or two species each, which I have determined as far as practicable. Felder in the "Reise der Novara" has figured several species, principally from New Zealand; the figures are very poor and frequently quite unidentifiable, but all those which I have been able to determine are synonyms of species previously described by Walker. Butler has also described a few species, of which I have included those of which I have seen the types in the British Museum collection; they seem to have been invariably referred to wrong genera, after the example set by Walker, but are mostly distinct species.

The classification of the *Tortricina* has usually been regarded by European writers as a task of unusual difficulty, their knowledge being confined to the European fauna. It is true that, until the publication of the systems of Lederer and Heinemann, all schemes proposed were scientifically quite valueless. I am disposed to think, however, that the difficulty of the group has been somewhat exaggerated. The general character of the markings, colouring, and form of wing is so uniform throughout the group, and restricted within such narrow limits of variation, that the same, or an extremely similar, superficial facies often recurs in distinct genera; which has fostered an erroneous belief that the structural points of generic distinction were misleading and insufficient. Moreover the structure of the head and palpi, which in the *Tineina* affords so ready a means of classification, in the *Tortricina* presents usually but few and unimportant differences. The best generic characters are afforded by the neururation, which I have always found a very trustworthy guide; the basal pectination of the lower median vein of the hindwings, the structure of the antennæ, and the presence of a costal fold in the male, are also points on which much stress may be safely laid. In the case of the Australasian species I have found no

particular difficulty in applying these means, and they have enabled me to separate the species into genera which appear to be undoubtedly natural. I should add that in the *Tortricina* the neururation can usually be clearly traced by inspection of the lower surface of the wings without denuding them of scales; a circumstance which has enabled me to fix with certainty the position of those species of which I possess only single specimens which could not therefore be spared for dissection.* For the just classification of the present family (*Tortricidæ*) I have been compelled to form seventeen new genera, owing to the very strong specialisation of the fauna, many of these forms being very remote from anything previously known.

The *Tortricina* appear to me clearly separable into three well-defined families, by the following characters, viz :

1. *Tortricidæ*.—Lower median vein of hindwings not pectinated at base; vein 2 of forewings rising from before posterior third of cell.

2. *Grapholithidæ*.—Lower median vein of hindwings pectinated at base; vein 2 of forewings rising from before posterior third of cell.

3. *Conchylidæ*.—Lower median vein of hindwings not pectinated at base; vein 2 of forewings rising from posterior fourth of cell.

These families constitute assemblages of an undoubtedly natural character, and are capable of accurate limitation as above; but even were one or two exceptions to be discovered, I should not consider that the fact would invalidate the title of these groups to be regarded as families. In my view, these three families are independent branches of a common stock, and might be represented by three lines, diverging somewhat, from nearly the same point; and being distinctly separable at their origin, they need not be confused, even though one should, through analogous variation, perhaps occasionally develop the peculiar characteristic of the others. The true position will always be discernible by a

consideration of the sum of the characters, rather than a blind dependence on one alone. In the present paper the *Tortricidæ* alone are included; the *Grapholithidæ* and *Conchylidæ*, which even together are much less numerous, will form the subject of the next instalment.

The *Tortricidæ* are divisible by means of the neuration into well-defined and natural groups which might, if desirable, be adopted as subfamilies, viz.:

- a. *Mictoneura*—Veins 8 and 9 of forewings rising on a stalk from 7 (genus 1).
- b. *Acropolitis* group—Veins 3 and 4 of hindwings separate at origin (genera 2-10).
- c. *Dichelia* group—Veins 3 and 4 of hindwings from a point or stalked, 7 and 8 of forewings stalked (genera 11-16).
- d. *Tortrix* group—Veins 3 and 4 of hindwings from a point, 7 and 8 of forewings separate (genera 17-21).

There are also other lower-organised groups, but they are apparently not represented in Australia, and I will not therefore attempt to define them. Assuming that the origin of the family is to be found in the extreme forms of the *Gelechidæ* (*Dasystoma* and *Chimabacche*), a direct progression may be traced from such forms as *Cheimatophila* and *Exapate* through *Sciaphila* to *Tortrix* and *Cacæcia*, with a continually increasing breadth of wing; the transition from these to *Dichelia* seems at present to be incomplete, there being no distinct indication of the steps through which veins 7 and 8 of the forewings became stalked; *Capua* is a modification of *Dichelia*, and from *Capua* are formed *Acropolitis* and *Pyrgotis* by the separation of veins 3 and 4 of the hindwings; and from these latter again are developed the more extreme forms of this type, with veins 3, 4, 5 all equidistant and parallel, and the other details of structure often considerably modified. *Mictoneura* stands at present so remote from its allies, that it is

hardly possible to conjecture whence it may have originated, but perhaps from the neighbourhood of *Capua*.

The *Tortricidæ* are represented in this region at present by 103 species, two-thirds of the whole *Tortricina*, since I have altogether only about 50 native species of the other two families. In Europe, on the other hand, the *Tortricidæ* number about 145 species out of 680, little more than one-fifth of the whole. Of the 103 species hereafter described 24 are indigenous to New Zealand, and 79 to Australia, none being common to both, nor are any at present known to occur elsewhere. No European species of the family has yet been introduced, though the food-plants of many common species have been imported; amongst the *Grapholithidæ*, however, there are several introduced species.

On a general analysis of the fauna, the most striking feature appears to be the development of group *b.*, of which *Acropolitis* may be taken as the type, since this group, distinguished by a clearly-marked peculiarity of structure, is unknown elsewhere, and appears to be wholly confined to the Australian region, where it is represented at present by nine genera and nineteen species; the large proportion of distinct genera being very noticeable. Only one of these genera extends into New Zealand, where it reaches some development, being represented by at least four species, much more intimately allied to one another than to the single Australian species. Arranging the genera of this group in a natural progression by the amount of peculiarity, we find at the one end of the series forms closely approximating to *Capua*, and at the other peculiar and abnormal types, differing widely from any other group. There can be little doubt under the circumstances that the whole of this group has been developed in Australia from some original form closely resembling *Capua*, and it will probably be found to be wholly confined to this region, though it is of course possible that one or two forms may have spread outwards to other lands. A single species of this group reaching New Zealand will be sufficient to account for the

ancestry of the forms at present known thence. From the large amount of generic diversification in the group, we may infer with some probability a correspondingly long period of isolation. We shall see hereafter that the *Conchylidæ* afford a quite similar instance of a peculiar group, from the characteristics of which precisely the same inferences may be drawn. In connection with the development of this group derivable from *Capua*, the predominance of *Capua* itself and its close ally *Dichelia* in the Australian region is of considerable interest. The first of these genera is represented by twelve, and the second by thirteen species, both genera extending to New Zealand; whilst in Europe and America they are very sparsely represented; in fact, of *Capua* only three other species are known. Besides these there are four other nearly allied endemic genera, including seven species; so that in fact three-fourths of the peculiar Australian genera of the family are traceable to this source; and as out of the twenty-one genera described seventeen are endemic, this disproportion is very marked.

Of the rest, the cosmopolitan genera *Tortrix* and *Cacæcia* are represented by numerous forms of no marked peculiarity; these genera are doubtless of great antiquity. *Cacæcia* is especially predominant in New Zealand, where all the species appear to belong to a special group with more elongate palpi, suggesting a limited origin. There are also three other endemic genera of this group, all moderately nearly allied to *Tortrix*, and two of them extending to New Zealand. Finally there is the very singular genus *Mictoneura*, wholly remote from all others; so far as can be judged at present, it seems probable that we have here a last surviving relic of an extinct group, possibly indicating the transition from the *Tortricina* to the *Pyrallidina*.

All the characteristics of the fauna will therefore agree in indicating great isolation, and from the limitation of forms may be inferred the remoteness of the period at which the isolation began. New Zealand is distinguished by a much greater limi-

tation of forms, but does not show any peculiar genera, or any differing from those native to Australia, though all the species are peculiar. To sum up briefly the characteristics of the representation of the *Tortricidæ* in the Australian region, it will be seen that there are (1) two genera occurring throughout the world plentifully, (2) two genera occurring plentifully here, but very scantily elsewhere, (3) three endemic genera derivable from the first two, (4) thirteen endemic genera derivable from the second two, (5) a single abnormal endemic genus representing an extinct group.

Of genera remarkable by their absence may be noticed especially *Teras* Hb., and *Sciaphila*, Tr.; these are of very general distribution, appearing to extend over most of the rest of the globe, and contain numerous species, but are neither themselves present in Australia, nor represented by allies. It seems almost certain that these are really absent, as they are freely developed and conspicuous wherever else they occur.

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 twelve (rarely eleven) veins, vein one furcate at base (rarely one fork obsolete). Hindwings with eight or sometimes seven veins.

FAM. I. TORTRICIDÆ.

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

The indigenous genera of this family may be tabulated as follows:

- I. Veins 8 and 9 of forewings stalked . . 1. *Mictoneura*.
- II. Veins 8 and 9 of forewings separate

A. Veins 3 and 4 of hindwings remote at origin.

1. Veins 3, 4, 5 of hindwings remote and equidistant at origin.

a. Veins 7 and 8 of forewings separate 2. *Proselena*.*b.* Veins 7 and 8 of forewings stalked. . . 4. *Isochorista*.

2. Vein 5 closely approximated at base to 4.

a. Forewings with 11 separate veins. . . 5. *Atelodora*.*b.* Forewings with 12 veins.*i.* Veins 7 and 8 of forewings separate 3. *Palæotoma*.*ii.* Veins 7 and 8 of forewings stalked.

*. Thorax smooth.

†. Hindwings narrower than forewings 6. *Aristocosma*.††. Hindwings broader than forewings 7. *Adoxophyës*.

**. Thorax strongly crested.

†. Veins 6 and 7 of hindwings stalked 10. *Pyrgotis*.

††. Veins 6 and 7 of hindwings separate.

‡. Palpi arched, appressed to face 8. *Thrincophora*.‡‡. Palpi porrected 9. *Acropolit*.

B. Veins 3 and 4 of hindwings from a point or short-stalked.

1. Veins 7 and 8 of forewings stalked.

a. Costa of male with basal fold.*i.* Costal fold strong 11. *Capua*.*ii.* Costal fold very small and imperfect* Palpi arched upwards; thorax crested. 13. *Asthenoptycha*

- ** Palpi porrected; thorax smooth 12. *Acroceuthes*.
- b. Costa of male without fold.
- i. Palpi arched upwards; thorax
crested14. *Anatropia*.
- ii. Palpi porrected; thorax smooth.
- * Anal valves of male very large,
tufted15. *Anisogona*.
- ** Anal valves of male moderate 16. *Dichelia*.
2. Veins 7 and 8 of forewings separate.
- a. Hindwings with a costal tuft of
raised scales17. *Cryptoptila*.
- b. Hindwings without tuft.
- i. Costa of male more or less strongly
folded18. *Cacœcia*.
- ii. Costa of male without fold.
- *. Veins 6 and 7 of hindwings
separate:
- †. Antennæ of male filiform,
finely ciliated19. *Tortrix*.
- ††. Antennæ of male strongly
dentate, with tufts of cilia ..21. *Arotrophora*.
- **. Veins 6 and 7 of hindwings
stalked20. *Dipterina*.

1. MICTONEURA, *n. g.*

Thorax with strong erect crest. Antennæ in male thickened, joints crowded, serrate, strongly ciliated; basal joint above with a ridge-like pointed erect tooth of scales. Palpi rather long, porrected, second joint with elongate-triangular appressed scaling, terminal joint long, cylindrical, exposed. Legs moderate, inner spurs very much longer than outer. Forewings subtriangular, dilated, costa in male simple, arched at base, thence gently arched, apex obtuse, hindmargin rather oblique, rounded. Hindwings as broad as forewings, trapezoidal, hindmargin strongly sinuate

beneath apex. Forewings with veins 8 and 9 stalked, rising out of 7 near its base, vein 7 running to hindmargin, secondary cell distinct. Hindwings with veins 3 and 4 from a point, 5 approximated to 4 at base, 6 and 7 separate.

This remarkable genus is remote from all other known *Tortricina* in the type of neururation of the forewings, in which particular it resembles the typical *Pyralidina*. I think, however, that it is without doubt properly referred to its present position at the head of the *Tortricidæ*, with which family it agrees in all other structural points, though peculiar in its superficial features. It is not nearly allied to any other genus, but in general character approaches perhaps nearest to the group of which *Dichelia* is the type.

1. *Mict. flexanimana*, n. sp.

♂ ♀. 5"-6". Head and palpi whitish, irregularly mixed with fuscous. Antennæ fuscous. Thorax whitish, finely irrorated with greyish-ochreous. Abdomen ochreous-grey. Legs whitish, anterior and middle tibiæ and tarsi suffused with dark fuscous, posterior tarsi infuscated at base of joints. Forewings whitish, clearer white along costa, especially at base, rest of wing crossed by regular fine straight parallel transverse fuscous strigulæ, all the veins whitish marked with numerous blackish-fuscous spots; a small blackish-fuscous rounded-triangular spot on costa in middle, darkest on edges; before it are four small equidistant black spots on costa, and beyond it on the costa and hindmargin are more indistinct blackish-fuscous spots between the veins; the costa is also minutely strigulated with fuscous throughout; the hindmargin, especially towards anal angle, and the disc and inner margin, especially before middle, are faintly and irregularly clouded with pale fuscous-grey: cilia ochreous-whitish, barred with grey opposite the veins. Hindwings grey-whitish, with fine parallel transverse grey strigulæ; cilia grey.

The general aspect of this species is very peculiar ; the extreme regularity of the transverse strigulae between the veins produces an appearance of geometrical reticulation similar to that of the webs of some spiders.

Five specimens taken at rest on fences in Sydney, from September to December.

2. PROSELENA, *n. g.*

Thorax smooth. Antennae in male thickened, thinly and shortly ciliated. Palpi short, porrected, second joint roughly scaled above, terminal joint almost concealed. Forewings elongate, narrow, costa in male simple, gently arched, hindmargin very oblique, rounded. Hindwings elongate, broader than forewings. Forewings with veins 7 and 8 separate. Hindwings with veins 3 and 4 remote at origin and parallel, 5 equidistant from 4 and parallel, 6 and 7 long-stalked.

This genus belongs to the group in which veins 3 and 4 of the hindwings do not rise from the same point. In this group it is distinguished from all except *Isochorista* by having veins 4 and 5 of the hindwings not only widely remote at origin but parallel throughout ; from *Isochorista* it differs by the separation of veins 7 and 8 of the forewings, which in *Isochorista* rise from a common stalk.

1. *Pros. annosana, n. sp.*

♂ ♀. $4\frac{1}{4}$ "-5". Head and palpi white. Antennae greyish-ochreous. Thorax white, margins spotted with pale ochreous. Abdomen whitish-ochreous. Legs ochreous-white, anterior tarsi suffused with fuscous at base of joints. Forewings white, irregularly strewn with fine fuscous-grey scales, forming indistinct strigulae on costa ; base indistinctly spotted with ochreous ; four nearly straight transverse slender ochreous fasciae, nearly perpendicular to costa ; first at one-fourth, indistinct, clearest in disc, slightly bent below costa ; second in middle, slightly broader

and more conspicuous than the others, somewhat bent below costa, mixed with black on costa and on lower half of its anterior edge; third at three-fourths, fainter, often interrupted; fourth subapical, slender, often mixed with black; cilia white, with a slender blackish central dividing-line. Hindwings and cilia white.

This is a peculiarly delicate and fragile-looking little species, and has more the facies of some of the *Oecophoridæ* than of a veritable *Tortrix*, and its markings are equally abnormal.

Sufficiently common where it occurs, but rather local; taken near Parramatta, New South Wales, flying gently towards sunset amongst the *Eucalyptus* bushes in dry grassy places, in September and October.

3. PALÆOTOMA, *n. g.*

Thorax smooth. Antennæ in male thickened, ciliated. Palpi long, porrected, second joint somewhat arched, with rather appressed scales, terminal joint very long, naked, horizontal. Forewings elongate, narrow, surface with raised scales; costa in male simple, nearly straight, apex rather acute, hindmargin very oblique, rounded. Hindwings elongate, broader than forewings. Forewings with veins 7 and 8 separate, closely approximated towards their origin. Hindwings with veins 3 and 4 remote at origin and parallel, 5 approximated to 4 at base, 6 and 7 stalked.

Larva sixteen-legged, producing true galls, inside which it feeds.

Distinguished from the other genera with veins 3 and 4 of the hindwings remote at origin and 12 veins in the forewings (except *Proselena*) by the separation of veins 7 and 8 of the forewings; from *Proselena* it differs by the elongate palpi, and the approximation of veins 4 and 5 of hindwings at origin. In general facies it somewhat resembles a *Sciaphila*. It is remarkable as affording an instance of a true gall-producing Tortricideous larva; and it seems not improbable that some of the allied genera may be found to have a similar larval habit.

1. *Pal. styphelana*, *n. sp.*

♂ ♀. 6"-8". Head, palpi, antennæ, and thorax dark ashy-grey. Abdomen dark ochreous-grey. Anterior and middle legs dark fuscous-grey; posterior legs whitish, tarsi suffused with fuscous-grey at base of joints. Forewings ashy-grey, surface somewhat roughened, thinly and irregularly sprinkled with black scales, which tend to form short longitudinal strigulæ; costa with very short oblique blackish strigulæ; a strong irregular black streak from base to disc above anal angle, posteriorly attenuated, sometimes partially obsolete; a very slender blackish line from three-quarters of costa very obliquely outwards nearly to hind-margin, thence bent abruptly round to anal angle; beyond this is sometimes another similar line; a black spot on disc beyond middle, above the extremity of the basal streak: cilia pale ashy-grey, with a blackish line above base, and three other slender dark-grey lines. Hindwings fuscous-grey, darker on apex and hindmargin; cilia fuscous-grey.

The longitudinal black streak from base is generally a good characteristic of this insect.

The imago is sluggish in habit, and not commonly met with, but I have found two or three specimens at rest near Sydney, in September and January. I bred a number of specimens from the larvæ, which were not uncommon in some places in the bush near Sydney, and these all emerged in September, so that January specimens probably belong to a second generation.

Larva stout, cylindrical, not tapering; glossy whitish; head and second segment almost as broad as body, blackish. It feeds in galls on *Eucalyptus sp.*; the galls are formed on the extremity of young shoots by metamorphosis of the terminal tuft of unexpanded leaves; they are from one to two inches long, and about half an inch broad, irregular-shaped, resembling an inflated tuft of leaves but solid; the larvæ eat hollow galleries through them, ejecting the excrement through minute holes; there are generally

one or two, rarely more, larvæ in each gall. Pupation takes place inside the gall, without a cocoon. The larvæ were found in July about half-grown, and the imagos appeared in September.

With regard to this and other *Eucalyptus*-feeding species, I may say that it is generally very difficult to identify the species of *Eucalyptus* on which they are found; the general similarity of these plants is very great, there are usually several kinds growing near together, and the larvæ are almost invariably found on young saplings which have not yet developed their specific characteristics.

4. ISOCHORISTA, *n. g.*

Thorax smooth. Antennæ in male somewhat thickened, shortly ciliated. Palpi moderate, porrected, second joint broadly scaled, rather truncate, terminal joint very short, distinct. Forewings elongate-triangular, rather narrow, costa gently arched, in male with fold towards base, hindmargin very obliquely rounded. Hindwings elongate-trapezoidal, as broad as forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 remote at origin and parallel, 5 equidistant from 4 and parallel, 6 and 7 stalked.

Differs from all except *Proselena* in having veins 3, 4, 5 of the hindwings all equidistant and parallel; from *Proselena* it is at once known by having veins 7 and 8 of the forewings stalked, and by the costal fold of the male. In general superficies the imagos much resemble some of the smaller species of *Capua* and *Dichelia*.

There are two species, of which *I. panaeolana* may be known from *I. ranulana* by the presence of transverse leaden-metallic markings.

1. *Isoch. ranulana*, *n. sp.*

♂ ♀. 4"-5". Head, palpi, and thorax dull ochreous, thinly mixed with fuscous. Antennæ whitish-ochreous, sharply annul-

ated with dark fuscous. Abdomen greyish-ochreous, anal tuft of male ochreous-whitish. Legs ochreous-whitish, anterior and middle tibiæ with central and subapical fuscous bands, tarsi dark fuscous at base of joints. Forewings elongate, narrow, pale ochreous; costa strongly strigulated with black; basal patch represented by one or two sharply bent transverse blackish lines at one-fourth, sometimes filled up with several indistinct parallel fuscous lines; central fascia straight, moderately and evenly broad, dark fuscous-grey edged with black, running from middle of costa to anal angle, sometimes slightly dilated on lower half; a dark fuscous triangular blotch on costa before apex, connected with hindmargin above anal angle by a narrow fuscous cloudy streak, thence produced upwards along hindmargin; a short black marginal line round apex; cilia pale ochreous, clouded with greyish, and cut on middle of hindmargin by a longitudinal blackish mark. Hindwings and cilia grey.

This species is nearly allied to the succeeding, but is smaller and narrower-winged, and without the transverse leaden-metallic markings; the basal patch and central fascia are also more distinctly marked.

Rather common, though liable to be overlooked from its small size and inconspicuous colouring; it flies towards sunset in dry grassy places amongst *Eucalyptus* bushes, generally keeping near the ground. It is probably very generally distributed in New South Wales, where I have taken it at Sydney, Parramatta, Bulli, Mittagong, and Murrurundi; it occurs most commonly from August to October, but also in December and March.

2. *Isoch. panaeolana*, n. sp.

$4\frac{3}{4}$ "- $5\frac{1}{2}$ ". ♂. Head, palpi, and thorax dark fuscous mixed with ochreous. Antennæ whitish-ochreous, strongly annulated with dark fuscous. Abdomen dark fuscous, anal tuft ochreous-white beneath. Legs dark fuscous; posterior pair whitish, base of tarsal joints dark fuscous on sides. Forewings elongate,

posteriorly dilated, rather pale ochreous, irregularly mixed with numerous black scales, which tend to form irregular margins to the metallic markings, between which they also form black spots on costa; they also generally accumulate in an irregular black patch on anal angle; seven oblique transverse somewhat irregular leaden-metallic lines from costa to inner margin, indistinct towards base, the three apical lines clearest and becoming whitish on costa; between each pair as far as the sixth is an obscure leaden-metallic costal spot, only the last being distinct; between the sixth and seventh is a small round leaden-metallic spot on disc above middle; seventh line ending on hindmargin about middle; a short curved transverse leaden-metallic line immediately before apex: cilia pale ochreous at apex, becoming fuscous-grey towards anal angle, with a broad leaden-metallic basal line. Hindwings dark fuscous-grey; cilia grey, with a blackish line near base.

♀. Forewings elongate, narrower than in male, not dilated, more suffused, the leaden-metallic markings tending to coalesce in pairs, so as to leave an oblique dark basal patch, central fascia, and costal spot before apex produced to anal angle.

This species may be at once distinguished from *I. ranulana* by the leaden-metallic markings, and generally darker colouring; the male especially is also broader-winged.

Taken rather plentifully near Blackheath on the Blue Mountains, New South Wales, at a height of 3,600 feet, in October; the male flying wildly in the hot sunshine round the tops of tall *Eucalyptus* bushes, the female keeping nearer the ground. I have also a male of this species taken near Sydney nearly on the sea level, which differs only in being more suffused with smoky-fuscous, with the metallic markings broader and more obscure.

5. ATELODORA, *n. g.*

Thorax smooth. Antennæ in male serrated, shortly ciliated. Palpi moderately long, porrected, second joint triangularly scaled,

terminal joint exposed. Forewings elongate-oblong, costa rather strongly arched towards base, in male simple, apex nearly rectangular, hindmargin obliquely rounded beneath. Hindwings rounded-trapezoidal, as broad as forewings. Forewings with 11 veins, all separate; vein 6 to hindmargin, 7 to costa. Hindwings with veins 3 and 4 remote at origin, 5 approximated to 4 at base, 6 and 7 stalked.

Distinguishable by the possession of only 11 veins in the forewings, the normal veins 7 and 8 being no doubt coincident. In the American *Amorbia*, Clem., (*Hendecastema*, Wlsm.) the male also has only 11 veins (the female has 12), but that genus belongs to a different group, in which veins 3 and 4 of hindwings rise from the same point, and differs besides in other characters.

1. *Atel. pelochytana*, *n. sp.*

♂ ♀. 5"-6". Head, palpi, and thorax greyish-ochreous. Antennæ of male greyish-ochreous, of female whitish, annulated with dark fuscous. Abdomen whitish-ochreous. Legs ochreous-white, anterior tibiæ and tarsi dark fuscous. Forewings of male pale brownish-ochreous, of female darker, with a few transversely arranged scattered blackish scales; some small blackish marks on inner margin: cilia of male whitish-ochreous, of female brownish-ochreous. Hindwings and cilia whitish, faintly tinged with ochreous.

This species has a rather glossy appearance, and is almost unicolorous.

I received specimens of this species from Mr. G. H. Raynor, who took it not uncommonly at Deloraine in Tasmania, in December, and at Murrurundi and Waratah on the Hunter River, New South Wales, late in September, amongst mixed scrub.

6. *ARISTOCOSMA*, *n. g.*

Thorax smooth. Antennæ in male serrate, with a double row of long ciliations. Palpi moderate, porrected, second joint

elongate-triangularly scaled, terminal joint distinct. Forewings rather triangular, costa rather abruptly arched near base, in male broadly folded towards base, apex nearly rectangular, hindmargin rather oblique, straight. Hindwings elongate-trapezoidal, narrower than forewings, apex somewhat produced. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 remote at origin, 5 approximated to 4 at base, 6 and 7 stalked.

Differs from all the genera with veins 3 and 4 of hindwings remote at base, and 7 and 8 of forewings stalked, by the narrowness of the hindwings, which are distinctly less broad than the forewings, an unusual character in the group. The long ciliations of the antennæ in the male also afford a good characteristic.

1. *Arist. chrysophilana*, Walk.

(*Cacæcia chrysophilana*, Walk., Brit. Mus. Cat. 315.)

♂ ♀. 6"-6½". Head and palpi bright ochreous. Antennæ ochreous-whitish, annulated with dark fuscous. Thorax reddish-ochreous. Abdomen brownish-ochreous, becoming dark fuscous posteriorly. Legs ochreous-whitish. Forewings in male deep reddish-ochreous, brighter and lighter towards inner margin, in female reddish-ochreous-brown; a small semi-ovate yellowish-white blotch on middle of costa, posteriorly enclosing or cut by a small reddish-ochreous costal spot; two very irregular transverse leaden-metallic lines from costa at one-third to inner margin, sharply angulated above middle; before them are some faint metallic scales nearer base; two other brighter leaden-metallic transverse lines from the white costal blotch, very irregular, angulated, broken and interrupted beneath costa, the anterior one divided into several spots; two leaden-metallic lines from costa a little before apex, uniting shortly below costa and thence continued to hindmargin above anal angle; a leaden-metallic apical mark, sometimes separated into three spots: cilia yellowish-white, on anal angle ochreous. Hindwings yellow,

apical third blackish-fuscous, hindmargin very narrowly dark fuscous ; cilia dark fuscous.

This beautiful and richly-coloured species has some general resemblance to such species as *Teras holmiana* and *Tortrix bergmanniana*, but is very different in structure ; the yellow hindwings are a noticeable point.

I have two specimens, and have seen three others, taken near Sydney and Parramatta, New South Wales, from August to October, flying in the afternoon sunshine or beaten from mixed scrub in rocky places. Walker's specimen is also from Sydney.

7. ADOXOPHYES, *n. g.*

Thorax smooth. Antennæ in male thickened, shortly ciliated. Palpi moderate, porrected, second joint triangularly scaled, terminal joint distinct. Forewings oblong, costa rather strongly arched towards base, in male with a broad basal fold, apex rectangular, hindmargin hardly oblique, rounded. Hindwings rounded-trapezoidal, broader than forewings. Forewings with veins 7 and 8 stalked, 7 running to hindmargin, 3 rising from before lower angle of cell. Hindwings with veins 3 and 4 remote at origin, 5 approximated to 4 at base, 6 and 7 stalked.

This genus comes near the following *Acropolitis*, from which the best distinction seems to lie in the absence of the thoracic crest ; the antennæ of the male are also much less strongly ciliated, and veins 6 and 7 of the hindwings are stalked. From *Aristocosma* it is separated by the much broader hindwings.

1. *Adox. heteroidana*, *n. sp.*

♂. 6"-7". Head, palpi, antennæ, and thorax pale ochreous. Abdomen and legs whitish-ochreous. Forewings short, broad, pale whitish-ochreous, irrorated with ochreous ; costa faintly strigulated with ochreous ; basal patch indicated by several faintly darker transverse lines ; an irregular somewhat oblong fuscous or dark fuscous blotch on inner margin before middle, uniting

with the indications of a basal patch; central fascia irregular, very oblique, running from costa slightly before middle to anal angle, moderately broad, contracted below costa, ochreous-brown or reddish-ochreous, mixed with dark fuscous on inner margin, its anterior edge distinct, angulated below middle, posterior edge suffused except on costa; apex within a very oblique line from two-thirds of costa to middle of hindmargin ochreous-brown mixed with paler towards hindmargin; cilia ochreous-whitish. Hindwings whitish, tinged with ochreous posteriorly.

♀. 10"-11". Head, palpi, and thorax brownish-ochreous. Antennæ pale ochreous, obscurely annulated with fuscous. Abdomen pale ochreous. Forewings longer than in male, hindmargin rather sinuate beneath apex; pale brownish-ochreous, thickly irrorated with darker, with ochreous-brown markings similar to those of male, but almost wholly suffused and very indistinct except on costa and inner margin: cilia ochreous-brown at apex, becoming whitish-ochreous at anal angle. Hindwings whitish-yellow, becoming deeper yellow posteriorly; cilia yellow-whitish.

This species has a strong superficial resemblance to some of the typical species of *Cacæcia* and *Pandemis*, and the sexual differences are similar to those which commonly occur in those genera, but the type of neuration is wholly different.

I took four specimens (two males, two females) in the dense subtropical scrubs near Rosewood, Queensland, in September; they were beaten out of the thick vegetation characteristic of the volcanic soil in those districts.

8. THRINCOPHORA, *n. g.*

Thorax with erect erect. Antennæ in male ciliated. Palpi moderate, arched upwards, appressed to face, roughly scaled beneath. Forewings oblong, costa arched towards base, in male with broad basal fold, apex rectangular, hindmargin rather obliquely rounded. Hindwings rounded-trapezoidal, broader

than forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 remote at origin, 5 approximated to 4 at base.

Nearly allied to *Acropolitis*, from which it only differs in the palpi, which are arched upwards and appressed to the face, rising nearly to the level of the crown, whilst in *Acropolitis* they are straight and horizontally porrected. This difference is well marked and apparently sufficient for generic distinction; but I have not been able to make a thorough examination of the characters of this genus, for want of specimens.

1. *Thrine impletana*, Walk.

(*Tortrix impletana*, Walk., Brit. Mus. Cat. 331.)

♂ ♀. 12"-15". Head and thorax cinereous-grey. Forewings cinereous-grey, irrorated and strigulated with blackish-grey; outer edge of basal patch represented by a black line from one-fifth of costa to one-fourth of inner margin, somewhat angulated in middle; central fascia narrow, cloudy, dark grey, black-margined, from costa before middle, reaching half across wing, the black margins continued thence to meet inner margin (first before middle, second in middle) as slender black lines; a short cloudy grey streak from middle of costa; a cloudy grey triangular costal blotch about three-fourths, black-margined, its apex reaching more than half across wing, its margins thence confluent and produced as a black line to anal angle; a slender grey black-margined streak from costa before apex to hindmargin above anal angle. Hindwings grey, paler towards base, spotted with darker.

The above description is taken from the original types in the British Museum, and is necessarily not quite complete, but I think it is a sufficient diagnosis of the species. Walker's own description is extremely cursory, and evades describing the markings at all.

I have not taken this species, and know of no other specimens but the original types; two of these are stated to be from Tasmania, the third from "Australia," which probably means Tasmania in this case.

9. ACROPOLITIS, *n. g.*

Thorax with large double crest. Antennæ in male thickened, serrate, strongly biciliated. Palpi moderately long, straight, porrected, second joint triangularly scaled, terminal joint distinct. Forewings oblong, costa in male broadly folded and bent before middle, in female evenly arched at base, thence nearly straight, apex rectangular, hindmargin obliquely rounded. Hindwings rounded-trapezoidal, broader than forewings. Forewings with veins 7 and 8 stalked, 7 running to hindmargin. Hindwings with veins 3 and 4 rising apart, 5 closely approximated at base to 4 or rising from the same point with it, 6 and 7 separate (in *A. signigerana* stalked).

This genus forms the type of the group to which *Adoxophyes*, *Thrincophora*, *Pyrgotis*, and (less intimately) *Aristocosma* belong; characterised by veins 3 and 4 of hindwings rising apart but near together, 5 closely approximated to 4, forewings with veins 7 and 8 stalked, and broad costal fold in male. From *Adoxophyes* and *Aristocosma* it differs in the crested thorax, from *Thrincophora* in the straight porrected palpi; it is very near to *Pyrgotis*, and the only points of distinction that I have been able to define lie in the more oblong forewings, and the separation of veins 6 and 7 of hindwings, to which latter character *A. signigerana* presents an exception; but the genera are readily separated by superficial characters, and I think will be found capable of definition.

The species are mostly rather large and well-marked insects, having commonly a longitudinal black dash in the disc of forewings, and resemble some of the larger species of *Capua*, to which the genus is in fact nearly allied. In habit they are

sluggish, and they appear to be rather restricted in distribution, and not generally plentiful.

The six species known to me may be analytically arranged as follows :

- A. Thorax white2. *magnana*.
- B. Thorax whitish mixed with dark scales.
 - 1. Forewings white, transversely strigulated
with grey1. *canana*.
 - 2. Forewings whitish, densely irrorated with
grey.
 - a. Forewings elongate; veins 6 and 7 of
hindwings stalked6. *signigerana*.
 - b. Forewings short and broad4. *passalotana*.
- C. Thorax greyish-ochreous5. *lignigerana*.
- D. Thorax dark fuscous3. *dolosana*.

1. *Acrop. canana*, Walk.

(*Tortrix canana*, Walk., Brit. Mus. Cat. 331.)

♂ (?). about 11". Head and thorax whitish, irrorated with grey. Forewings white, with numerous slender irregular transverse fuscous-grey strigulæ; outer edge of basal patch represented by an oblique blackish transverse line about one-fifth rather angulated in middle, apex of angulation connected with a short longitudinal blackish line in disc below middle; central fascia represented by a grey black-margined spot on costa before middle, and a grey oblique streak on inner margin about two-thirds, not reaching half across wing; beyond these is a small grey blotch in disc above middle, margined beneath by a short black longitudinal line; a grey triangular blotch on costa towards apex, its apex expanded into a small irregular spot reaching half across wing, and black-margined; an elongate cloudy-grey streak near hindmargin above anal angle. Hindwings whitish-grey, darker at apex.

Allied to *A. magnana*, but distinguishable by the white ground-colour of the forewings, and the grey irroration of the thorax, as well as by the differences of detail in the markings, and the absence of any ochreous tinge in the hindwings.

Described from Walker's original type in the British Museum Collection, which is the only specimen that I have seen; it is stated to be from Moreton Bay, Queensland. Walker's description is wholly insufficient for identification.

2. *Acrop. magnana*, Walk.

(*Tortrix magnana*, Walk., Brit. Mus. Cat. 330.)

♂ 11"-11½", ♀ 14". Head dark fuscous, mixed with white on crown and behind. Palpi dark fuscous, internally white. Antennæ dark fuscous. Thorax white, anteriorly suffused with dark fuscous. Abdomen pale ochreous. Legs ochreous-whitish; anterior tibiæ dark fuscous with two whitish rings, tarsi dark fuscous with slender whitish rings at apex of first two joints; middle tibiæ with two oblique dark fuscous bands, tarsi dark with whitish rings at apex of joints. Forewings broad, costa moderately arched, hindmargin strongly bowed outwards; fuscous mixed with darker; costa strigulated with dark fuscous; a very irregular broad transverse whitish band about one-third, clouded with pale fuscous and coarsely sprinkled with blackish, very strongly angulated outwards a little above middle, broadly and irregularly dilated on inner margin; the enclosed basal patch is irregularly spotted with black; beyond this band is a small blackish costal spot, and in the centre of the disc is a broad (in female very narrow) linear longitudinal black mark, its base resting on the lower side of the angulation of the band, its margins gradually suffused into the ground-colour, its apical extremity concave, followed by a few whitish scales; a somewhat curved blackish line from two-thirds of costa to anal angle, preceded by a rather broad irregular band, of which the upper half is hardly paler than the ground-colour, the lower half white shading

rapidly into ground-colour except posteriorly, so as to leave an obscurely defined oval patch; an irregular narrow subapical white band from middle of hindmargin nearly to costa before apex, dilated above, rather sharply margined with dark fuscous, and containing several fuscous scales: cilia with basal third barred with dark fuscous and white, remainder greyish-ochreous. Hindwings pale greyish-ochreous, spotted obscurely with darker, hindmargin narrowly dark ochreous-grey; cilia whitish-ochreous with an ochreous-grey parting-line.

Broader-winged than the other species of the genus, and readily known by the white markings on a dark ground, and the ochreous tint of hindwings; it is a handsome and very distinct species.

I took five specimens (four males, one female) at rest on a fence during a high wind, near Sydney, in October. Walker's type is also from Sydney; his description, though incomplete, is quite recognisable.

3. *Acrop. dolosana*, Walk.

(*Tortrix dolosana*, Walk., Brit. Mus. Cat. 331).

♂. 10". Head, palpi, antennæ, and thorax dark fuscous. Abdomen greyish-ochreous. Legs greyish-ochreous, anterior tibiæ and tarsi dark fuscous. Forewings moderate, costa somewhat bent before middle; dull greyish-fuscous, costa obscurely strigulated with dark fuscous; an irregular dark fuscous blotch in middle of disc, extending to costa, becoming longitudinally blackish in the centre, anteriorly sharply margined, elsewhere suffused into ground-colour; connected with the anterior edge of this blotch below middle is a short linear, anteriorly sharply dilated, black mark; nearer base are two or three small irregular blackish spots; a dark fuscous irregular line from a little beyond middle of costa to anal angle, rather concave and distinct anteriorly, posteriorly suffused; between it and central

blotch is a short black longitudinal streak in middle of disc; beyond the oblique line are two or three obscure dark fuscous transverse lines from costa, uniting with it: cilia greyish-fuscous, barred with dark grey, and with a slender black waved basal line. Hindwings fuscous-grey, cilia rather darker, with a dark basal line.

♀. 13". Forewings rather abruptly arched near base, dull greyish-fuscous indistinctly clouded with darker; markings as in male but very suffused and indistinct, central blotch obscured, black longitudinal streaks before and beyond middle slender but clearly perceptible. Hindwings more ochreous-tinged than in male.

Recognisable in both sexes by its dark and suffused colouring. Described from my own specimens, the identity of which with Walker's species is not absolutely assured; Walker's type is a single female (one of the *Geometrina* has been subsequently added as a second example), of which the forewings appear to be somewhat roughened with raised scales, and more blackish-tinged; but in the absence of sufficient material I think it will be best to consider the specimens as forming only a single species.

I have two specimens (male and female) taken near Melbourne by Mr. G. H. Raynor. Walker's specimen is from Tasmania.

Note.—I have another female of this genus (also from Melbourne), which may either be a variety of the above, or a new species; it is smaller ($11\frac{1}{2}$ ") but similar in shape, the forewings more variegated with lighter fuscous and ochreous, the hindwings pale ochreous spotted with grey, with dark grey hindmargin.

4. *Acrop. passalotana*, n. sp.

♀. 9". Head, palpi, and thorax whitish mixed with fuscous. (Antennæ broken.) Abdomen pale ochreous, whitish on sides. Legs whitish, anterior tibiæ and tarsi banded with dark fuscous. Forewings short and broad, costa rather strongly arched towards

base; whitish, closely irrorated with greyish-fuscous, especially towards apex; costa and inner margin marked with small dark fuscous spots; an irregular outwardly curved transverse dark fuscous line near base; a subquadrate dark fuscous spot on costa before middle; a strong black longitudinal mark in middle of disc, sharply margined above and in front, beneath bordered by a small dark fuscous blotch; from its posterior extremity proceed two irregular obscure blackish lines to costa between middle and three-fourths, enclosing a suffused fuscous blotch, and a sharper black waved line to anal angle, anteriorly margined with fuscous: cilia fuscous mixed with whitish. Hindwings grey, darker towards apex, and indistinctly mottled with darker; cilia grey, with a darker basal line.

This insect appears so distinct, that it is worth describing even in the absence of the male, which has doubtless special differences. It differs from the female of all other species in the genus by the comparative shortness and breadth of the forewings, and the strength and conspicuousness of the longitudinal black discal streak.

I took one specimen in the bush-clad ranges near Toowoomba, Queensland, about 2,000 feet above the sea, in September.

5. *Acrop. lignigerana*, Walk.

(*Pædisca lignigerana*, Walk., Brit. Mus. Cat. 380.)

♂. $10\frac{1}{2}$ "- $12\frac{1}{2}$ ". Head, palpi, and thorax greyish-ochreous, irrorated with darker. Antennæ ochreous-fuscous. Abdomen ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi broadly banded with dark fuscous. Forewings moderate, costa somewhat bent about middle; whitish-ochreous irrorated with fuscous, becoming whitish at apex and above anal angle; costa and inner margin very shortly strigulated with blackish; a small erect whitish tuft on inner margin at one-fourth; a small oblique dark fuscous blotch on costa at one-fourth; a slender

irregular, more or less interrupted, blackish longitudinal line from centre of disc to hindmargin above middle, beneath posterior part of which is a slenderer parallel similar line; a subquadrate dark fuscous blotch below middle of disc, its upper edge parallel to the blackish line, lower edge suffused; connected with its anterior edge is a short irregular longitudinal dark fuscous mark, and the basal portion of wing is obscurely spotted with fuscous; a suffused triangular dark fuscous blotch on costa at three-fourths, its apex connected with a roundish dark fuscous blotch before middle of hindmargin; a small elongate dark fuscous blotch on hindmargin above middle: cilia ochreous-whitish, barred with dark fuscous. Hindwings fuscous-grey, cilia whitish with a grey basal line.

Nearly allied to the succeeding *A. signigerana*, but larger and more ochreous-grey, and without the distinct ochreous discal patch of that species in the male. Walker's type is poor, but appears to be really this species; his description is inadequate.

I have two specimens (males) sent by Mr. G. Barnard from Coomooboolaroo, near Duaringa, Northern Queensland; Walker's specimen is from Moreton Bay, Queensland.

6. *Acrop. signigerana*, Walk.

(*Tortrix signigerana*, Walk., Brit. Mus. Cat. 332; *Sciaphilarudisana*,
ibid. 349; *Penthina indecretana*, ibid. 377.)

♂. 8"-10½". Head, palpi, and thorax whitish mixed with ashy-grey and black scales, shoulders tinged with ochreous. Antennæ dark fuscous. Abdomen ochreous-grey. Legs whitish, anterior and middle tibiæ and tarsi banded with blackish. Forewings rather elongate, costa somewhat bent before middle; whitish, thickly strewn with ashy-grey and dark fuscous scales; costa indistinctly strigulated with dark fuscous; a small ochreous basal spot beneath costal fold, and an ochreous spot on inner margin near base; some irregular fuscous spots about one-third;

a strong sharply-defined black longitudinal mark in middle of disc, its anterior extremity connected with an oblique dark fuscous streak running to costa at one-third, and also produced a little beneath towards inner margin; above the black mark is a suffused ochreous patch; below it is a fuscous-grey cloud, suffusedly continued to anal angle; a cloudy fuscous-grey triangular blotch on apical third of costa, from apex of which proceeds a very irregularly waved cloudy-grey streak to hindmargin above anal angle; a small elongate cloudy-grey blotch on middle of hindmargin: cilia whitish, basal third separated by an interrupted dark fuscous line and barred with dark fuscous. Hindwings fuscous grey; cilia fuscous-grey, extreme tips and base whitish.

♀. $11\frac{1}{2}$ ". Forewings with costa moderately arched near base; markings as in male, but the ochreous tints generally replaced by grey, central black mark extremely slender, basal patch more distinctly but very irregularly indicated. Hindwings slightly paler than in male, spotted with darker.

The narrowest-winged species of the genus, distinguished by its ashy-grey tints and the ochreous discal patch of the male; it also has veins 6 and 7 of hindwings stalked, and therefore approximates to *Pyrgotis*, but is too intimately allied to the preceding species to be separated from it.

Tolerably common and generally distributed; I have usually found it at rest on tree-trunks. It occurs at Sydney and Parramatta, at Melbourne, and at Helidon in Queensland; from September to November.

The types of Walker's descriptions quoted above are all referable to this species; that of *Sciaph. rudisana* is much worn, the others are normal.

10. PYRGOTIS, *n. g.*

Thorax with large broad erect crest. Antennæ in male thickened, strongly ciliated. Palpi moderate, porrected, second

joint shortly triangular-scaled, terminal joint distinct. Forewings triangular, posteriorly much dilated, costa in male with broad basal fold, hardly arched, not bent, apex rather produced, hindmargin sinuate. Hindwings rounded-trapezoidal, broader than forewings. Forewings with veins 7 and 8 stalked, 7 running to hindmargin. Hindwings with veins 3 and 4 separate at origin but very near together, 5 closely approximated to 4 at base, 6 and 7 stalked.

Nearly allied to *Acropolitis*, but veins 6 and 7 of hindwings are always stalked, the costa of forewings is hardly bent in the male, the apex is always more or less produced and the hindmargin sinuate beneath it, whilst in *Acropolitis* the apex is rectangular.

The species are rather brightly coloured with ochreous or ferruginous tints.

I am acquainted with one Australian species, and four from New Zealand, which may be thus tabulated :

- A. Forewings reddish-ochreous, with two dark
ferruginous dorsal spots 1. *insignana*.
- B. Forewings pale ochreous with dark fuscous
fascia and markings.
 - 1. An inwardly oblique streak from costa at
three-fourths, meeting central fascia ..2. *plagiatana*.
 - 2. A small sharply defined dark spot on costa
at three-fourths.
 - a. Cilia of forewings ochreous 4. *conditana*.
 - b. Cilia of forewings dark fuscous3. *gavisana*.
- C. Forewings greyish-ochreous, shading into dark
reddish-brown posteriorly 5. *porphyreana*.

1. *Pyrg. insignana*, n. sp.

♂ ♀. 6". Head, palpi, and antennæ reddish-ochreous. Thorax deep reddish-ochreous, crest large, dark ferruginous. Abdomen ochreous. Legs ochreous-whitish, anterior and middle tibiæ and

tarsi broadly banded with dark fuscous. Forewings triangular, costa very slightly arched, apex somewhat produced, hindmargin sinuate, slightly oblique; dark reddish-ochreous, somewhat deeper towards base and inner margin; two small sharply-defined dark ferruginous spots on inner margin, first rather near base, semiovate, second in middle, acute-triangular, erect, reaching nearly half across wing, slenderly margined with pale yellowish; cilia dark reddish-ochreous, with a blackish apical line. Hindwings in male grey-whitish, tinged with pale reddish-ochreous, except at base, in female light ochreous-grey; cilia whitish, with a grey basal line.

This, the only Australian representative of the genus, is very distinct in markings, and could not be confused with any other known species of the group.

I have three specimens (two males, one female) taken at Blackheath in the Blue Mountains, New South Wales, at an elevation of 3,600 feet, and near Brisbane; I have also seen a specimen from near Melbourne. These were taken in September and October, and (probably a second generation) in March, flying in the afternoon sunshine amongst *Eucalyptus* scrub.

2. *Pyrg. plagiatana*, Walk.

(*Conchylis plagiatana*, Walk., Brit. Mus. Cat. 370; *Conchylis recusana* ibid. 371; *Grapholitha punana*, Feld., Reis. Nov., pl. cxxxvii, 43; ? *G. xylinana*, ibid. 44.)

♂. 7"-8½". Head, palpi, and antennæ ochreous-grey-whitish, palpi beneath mixed with dark fuscous. Thorax grey-whitish, irregularly suffused with ochreous; crest large, dark brownish-ochreous, in front mixed with black. Abdomen whitish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi suffused with dark smoky-fuscous. Forewings triangular, costa hardly arched until just before apex, apex rather strongly produced, hindmargin oblique; whitish, more or less (sometimes wholly) suffused with

pale ochreous, becoming darker towards inner margin; an ochreous-fuscous or dark fuscous angulated fascia close to base, starting obliquely from one-sixth of costa, sharply angulated in middle, ending at one-fifth of inner margin, the upper portion often partially obsolete; costal fold ochreous; costa irregularly strigulated with dark fuscous; inner margin often obscurely suffused with dark fuscous, especially towards base; a straight oblique rather narrow ochreous-fuscous or dark fuscous fascia from one-third of costa to inner margin a little before apex, dilated and enclosing a small pale spot on costa, thence straight and uniting with the other fascia below middle of wing, so as to enclose a large pale costal triangle; a broad irregularly oval fuscous blotch almost on hindmargin above anal angle, darkest above, sometimes uniting with extremity of second oblique fascia; a short dark fuscous irregular streak from apex close to hindmargin: cilia rather pale ochreous, with two slender grey-fuscous lines near base. Hindwings whitish, faintly tinged with ochreous at apex, spotted with grey, especially towards base and inner margin; cilia whitish.

A variable species, differing much in the intensity of colouring, but generally to be known by the tolerably well-defined pale costal triangle enclosed by the fuscous fasciæ; it has also a more variegated appearance than the two following species, to which it is nearly allied.

The species appears to be common and generally distributed in New Zealand; I took it plentifully near Dunedin in January, and also at Christchurch and Wellington; and one of Walker's types is from Auckland; it occurs amongst ordinary bush. All my specimens are however males, and I have not met with the female; the types described by Walker are ordinary varieties.

3. *Pyrg. gavisana*, Walk.

(*Pandemis gavisana*, Walk., Brit. Mus. Cat. 312; *Conchylis marginana*, ibid. 371.)

♀. 6"-8". Head and thorax pale ochreous. Abdomen ochreous-whitish. Forewings moderate, costa rather arched towards base, somewhat sinuate beyond middle, apex somewhat produced, hindmargin rather oblique; pale ochreous; central fascia oblique, dark ochreous-brown, starting from costa before middle, reaching half across wing, its anterior edge thence obscurely produced to inner margin before anal angle; a small triangular dark ochreous-fuscous blotch on costa about three-fourths; cilia dark fuscous, extremities pale. Hindwings whitish.

Described from Walker's types, which are the only specimens I have seen. The species appears to be really distinct; it may be at once known from the preceding and following by the conspicuously contrasted dark fuscous cilia of the forewings. The locality of the two specimens is merely given as New Zealand.

4. *Pyrg. conditana*, *Walk.*

(*Teras conditana*, Walk., Brit. Mus. Cat. 306.)

♂. 10". Head and thorax pale ochreous. Abdomen grey-whitish. Forewings moderate, apex somewhat produced, hindmargin rather oblique; light brownish-ochreous; central fascia rather broad, irregular, oblique, dark fuscous, upper half clearly marked, lower half suffused and indistinct; a small flattened semi-oval blotch on costa about three-fourths; cilia light ochreous. Hindwings whitish, faintly ochreous-tinged, scantily spotted with grey.

I have only seen Walker's type; it is possible that it may be the male of the preceding species, but the ochreous cilia and differently shaped costal spot seem to afford sufficient grounds for distinction. The type is stated to be from Auckland, New Zealand, and is in very poor condition.

5. *Pyrg. porphyreana*, *n. sp.*

♂. 7". Head and antennæ whitish-ochreous. Palpi rather long, purple-fuscous, internally whitish. Thorax pale ochreous,

irrorated with fuscous on margins. Abdomen pale ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused with dark fuscous except at apex of joints. Forewings triangular, costa slightly bent before middle, apex very slightly produced, hindmargin oblique; light greyish-ochreous at base, becoming ochreous in middle, shading into dark reddish-ochreous-brown along hindmargin, where it appears to form a broad suffused band; the whole surface of the wing is strewn with numerous small obscure spots of pale leaden scales; costal fold dark fuscous; costal edge very narrowly white from extremity of fold to a little before apex: cilia reddish-ochreous-brown, at anal angle fuscous-grey, extremities white. Hindwings whitish-grey, spotted with darker grey, apex darker; cilia whitish-grey, with a darker basal line.

A very distinct species; I took one specimen amongst scrub near Wellington, New Zealand, in January.

11. CAPUA, Steph.

Thorax smooth, or slightly crested. Antennæ in male thickened, somewhat dentate, strongly ciliated. Palpi moderate or rather long, straight, porrected, second joint triangularly scaled. Forewings short, subtriangular, costa in male with broad basal fold, bent before middle, thence nearly straight, hindmargin oblique, hardly rounded; in male often with an expansible tuft of hairs beneath costal fold. Hindwings rather elongate, broader than forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 from a point or short-stalked, 5 moderately approximated to 4 at base, 6 and 7 stalked.

This genus forms the type of a group characterised by veins 3 and 4 of hindwings rising from the same point, 7 and 8 of forewings springing from the same stalk, and the presence of the costal fold in the male. It differs from the other Australian members of the group, *Asthenoptycha* and *Acroceuthes*, in the

breadth and completeness of the costal fold, which in those genera is very short and imperfect; from the North American *Platynota* in the absence of tufts of raised scales on the forewings; from the South American *Cerorhineta* in the shorter palpi and absence of scaly dilation of the antennæ.

The species are mostly rather small insects, and usually of sombre colouring; some are very plentiful and of general occurrence. In superficial features they bear a close analogy to *Dichelia*, which genus only differs by the absence of the costal fold in male.

There is only one European species; two have been described from North America, and I have ten Australian and two New Zealand species, which are hereafter described. These latter may be thus distinguished:

- A. Forewings yellow, with two perpendicular blackish fasciæ 12. *plathanana*.
- B. Forewings pale whitish-ochreous.
 - 1. Head whitish-ochreous.
 - a. Forewings with a dark fuscous longitudinal streak above fold 4. *hemicosmana*.
 - b. Forewings without a dark fuscous longitudinal streak 2. *decolorana*.
 - 2. Head blackish-fuscous 3. *vacuana*.
- C. Forewings white 11. *scutiferana*.
- D. Forewings grey-whitish, irrorated with darker.
 - 1. Markings dark fuscous, black-margined 5. *melanrocana*.
 - 2. Markings suffused fuscous-grey 1. *aoristana*.
- E. Forewings grey-whitish coarsely irrorated with ochreous-reddish 6. *montanana*.
- F. Forewings brownish.
 - 1. With pale greyish-ochreous space beneath costal fold 10. *obfuscata*.

2. Without pale greyish-ochreous space beneath costal fold.

a. Basal patch darker than ground-colour 9. *sordidatana*.

b. Basal patch not darker, only outer edge indicated.

i. Face dark fuscous 7. *chimerinana*.

ii. Face pale ochreous 8. *semiferana*.

1. Cap. *aoristana*, *n. sp.*

♂. $6\frac{1}{4}$ "- $6\frac{1}{2}$ ". Head, palpi, and thorax ochreous-grey-whitish, mixed with darker. Palpi elongate, more than twice as long as head, irrorated on sides with dark fuscous. Antennæ grey-whitish, slenderly annulated with dark fuscous. Abdomen greyish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi suffused with dark fuscous-grey above. Forewings posteriorly dilated, rather broad, costa moderately arched, somewhat bent before middle, hindmargin nearly straight, rather oblique: ochreous-whitish, thinly irrorated with whitish-grey; costa and inner margin obscurely strigulated with fuscous-grey; basal patch represented by an obscure ochreous-grey or fuscous-grey outwardly oblique streak from one-third of inner margin, reaching more than half across wing; central fascia suffused, obscure fuscous-grey, only distinct on costa, moderately narrow, straight, running from middle of costa to inner margin before anal angle; an irregular obscure brownish-grey cloud on costa at three-fourths, suffusedly produced nearly to anal angle; cilia ochreous-whitish, with a slender dark grey line near base. Hindwings grey, faintly spotted with darker, apex darker; cilia whitish-grey, with a darker basal line.

This species has an indistinct and faded appearance, from the faintness of its markings, but does not approach very nearly to any other, being further distinguished by the elongation of its palpi; in form of wing it is very similar to *Pyrg. porphyreana*.

I took two males at Wellington, New Zealand, amongst forest growth in January; and later another at Auckland.

2. *Cap. decolorana*, *Walk.*

(*Grapholita decolorana*, *Walk.*, *Brit. Mus. Cat.* 392.)

♂ ♀. 6"-6½". Head, palpi, antennæ, thorax and abdomen pale whitish-ochreous. Legs ochreous-whitish, anterior and middle tarsi dark fuscous towards base of joints. Forewings moderate, costa gently arched, slightly bent before middle, hind-margin almost straight, oblique; pale whitish-ochreous, sometimes irregularly suffused with darker ochreous; costa and inner margin irregularly strigulated with dark fuscous; a small oblique ochreous-fuscous spot below middle at one-third from base, posteriorly blackish-edged, representing angle of an obsolete basal patch; central fascia very oblique, from before middle of costa to anal angle, ochreous-fuscous mixed posteriorly with dark fuscous, narrow on costa, lower two-thirds much dilated but anteriorly suffused; a subquadrate ochreous-fuscous spot on costa before apex, its angle towards middle of disc somewhat produced; an irregular obscure dark fuscous line from apex along hind-margin: cilia whitish-ochreous, extremities mixed with dark fuscous, especially towards anal angle; costal fold of male with an expansible tuft of whitish hairs. Hindwings and cilia whitish or pale grey.

Distinguished from the other pale ochreous species by its much lighter markings; it is also proportionately rather broader-winged and the central fascia is conspicuously dilated on its lower two-thirds.

I have six specimens, taken at Sydney, Bulli, and Murrurundi, New South Wales, in October and April, amongst dry scrub; and have also seen others from Launceston, in Tasmania, and from Melbourne. Walker's type is from Sydney.

3. *Cap. vacuana*, *Walk.*

(*Conchylis vacuana*, Walk., Brit. Mus. Cat., 367; *Grapholita mutataka*, *ibid.* 393.)

♂ ♀. 5"-7". Head blackish-fuscous, becoming greyish-ochreous behind, especially in female. Palpi blackish-fuscous. Antennæ whitish-ochreous, in female annulated with dark fuscous. Thorax whitish-ochreous, sometimes anteriorly greyish-fuscous. Abdomen whitish-ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffused with dark fuscous. Forewings rather elongate, costa in male moderately arched, in female rather straighter, hindmargin straight, very oblique; pale whitish-ochreous, irregularly mixed with ochreous, costa and inner margin irregularly strigulated with dark fuscous; basal patch represented only by five or six irregularly scattered blackish dots; central fascia very oblique, from before middle of costa to inner margin before anal angle, dark fuscous, narrow, not dilated, clearly defined and black-margined; costa in male narrowly dark fuscous towards base; a small dark fuscous black-margined triangular spot on costa at two-thirds, from apex of which proceeds a slender blackish line to anal angle; another slender blackish line crosses the wing between this and apex; a sharply-marked blackish hindmarginal streak from beneath apex to a little above anal angle: cilia pale ochreous, with a dark grey apical spot, and dark fuscous basal line becoming obsolete towards anal angle. Hindwings and cilia whitish-grey, somewhat darker posteriorly.

Immediately recognisable from the allied species by the blackish-fuscous head; it is a rather neatly marked insect, somewhat resembling *Dich. clara*.

Common and generally distributed; it occurs near Sydney, Parramatta, and Bulli, in New South Wales; near Melbourne; at Launceston in Tasmania; and at Brisbane, Helidon, and

Toowoomba, in Queensland ; during October, and from December to February, amongst thin bush.

4. *Cap. hemicosmana*, *n. sp.*

♂ ♀, $5\frac{3}{4}$ ". Head, palpi, and thorax whitish-ochreous, somewhat mixed with darker. Antennæ whitish-ochreous, annulated with dark fuscous. Abdomen pale greyish-ochreous. Legs whitish, anterior pair suffused with dark fuscous, middle tarsi banded with dark fuscous. Forewings rather elongate, costal edge gently arched, in male somewhat bent before middle, hindmargin straight, oblique ; very pale whitish-ochreous, costa obscurely strigulated with dark fuscous, costal edge in male suffusedly dark fuscous towards base ; a blackish suffused somewhat interrupted longitudinal streak above the submedian fold from near base to about middle ; outer edge of basal patch obscurely indicated in female by a dark fuscous outwardly oblique line from costa at one-fourth, ending in the longitudinal streak ; central fascia dark fuscous mixed with blackish, rather narrow, very oblique, from before middle of costa, reaching only half across wing, beneath truncate and margined by a longitudinal black line, of which the posterior extremity is somewhat produced and bent downwards ; a moderately large triangular dark fuscous costal blotch, mixed with blackish, extending on costa from middle to a little before apex, sharply defined, apex blackish and reaching half across wing ; anal angle and lower part of hindmargin obscurely clouded with faint grey ; a short linear blackish streak from apex along upper part of hindmargin : cilia pale whitish-ochreous, with a blackish-grey line near base. Hindwings whitish-grey ; cilia whitish, with a faint grey line near base.

Closely allied to *C. vacuana*, but apart from the whitish-ochreous head, easily known by the markings extending only across the costal half of the forewings, and by the blackish longitudinal discal streak.

Mr. G. H. Raynor took two specimens (male and female) at Warragul in Gippsland, Victoria, in December.

5. *Cap. melancrocana*, *n. sp.*

♂ ♀. 7"-8". Head and palpi dark fuscous, in female mixed with pale grey. Antennæ dark fuscous, slenderly annulated with whitish. Thorax pale grey, anterior margin broadly dark fuscous. Abdomen pale ochreous-grey. Legs whitish, anterior and middle tibiæ dark fuscous, all tarsi dark fuscous with whitish rings at apex of joints. Forewings moderate, somewhat dilated, especially in male, costa in male rather strongly arched, somewhat bent in middle, in female moderately arched towards base, hindmargin oblique; pale whitish-grey, with very faint transverse lines of pale purplish-grey and sometimes of blackish scales; costa and inner margin strongly strigulated with blackish; basal patch represented in male by a broad blackish outwardly oblique streak from one fourth of inner margin, reaching half across wing, in female obsolete; central fascia oblique, from before middle of costa to inner margin at two-thirds, dark fuscous, sharply margined with blackish, in male obsolete on costa, in female distinct throughout, upper half narrow, lower half abruptly and broadly dilated, the posterior margin being suddenly bent out in middle; a semicircular dark fuscous-grey blackish-margined patch on costa at two-thirds; a small irregular dark fuscous blotch near hindmargin above anal angle, connected with hindmargin by a blackish line; a strong black line along hindmargin: cilia pale whitish-grey, suffused with reddish-ochreous along hindmargin, with a blackish line near base. Hindwings pale grey, spotted with darker; cilia pale grey, with a darker basal line.

Distinguished from all other species of the genus by the character of the sharply-defined dark fuscous-grey black-margined markings on a pale grey ground; a very similar type of colouring is found in *Cacæcia lythrodana*.

Taken at Sydney and Parramatta, in September and October, amongst dry bush in sheltered places, generally flying near the ground; it is restricted in locality and not common.

6. *Cap. montanana*, *n. sp.*

♂. 7½". Head brownish-grey. Palpi brownish-grey, internally whitish, beneath mixed with dark fuscous. Antennæ greyish-ochreous. Thorax ochreous-brown, dark fuscous in middle. Abdomen silvery-grey, anal tuft whitish-ochreous. Legs ochreous-whitish, anterior and middle tibiae and tarsi suffusedly banded with dark fuscous. Forewings elongate, somewhat dilated, costa gently arched, not bent, hindmargin very oblique, an expansible tuft of whitish hairs beneath costal fold; grey-whitish, coarsely and irregularly strewn with ochreous-reddish scales, especially in centre of disc and towards apex; costa and inner margin irregularly strigulated with blackish, costa marked with four larger blackish spots between middle and apex; basal patch indicated by a transverse dark fuscous line from before one-fourth of costa to one-fourth of inner margin, angulated above middle; a small triangular dark fuscous spot on inner margin before middle; central fascia indistinct, irregular, from before middle of costa to inner margin before anal angle, brownish-red, suffused with blackish above and below middle, and on costa and inner margin; a triangular dark fuscous blotch on anal angle, its apex connected with a small irregular dark fuscous blotch in disc above middle at two-thirds from base; a blackish elongate streak along hindmargin; cilia pale ochreous, reddish-tinged at apex, becoming whitish at anal angle, with a blackish line near base along hindmargin. Hindwings light grey, indistinctly spotted with darker; cilia whitish-grey, with an indistinct darker grey basal line.

Readily distinguished by the ochreous-reddish irroration on a grey-whitish ground, and the definiteness of the markings.

One male, taken at Blackheath in the Blue Mountains, New South Wales, about 3,600 feet above the sea, in March, amongst low heathy scrub.

7. *Cap. chimerinana*, *n. sp.*

♂. $5\frac{1}{2}''$ - $7\frac{1}{2}''$. Head ochreous-brown, face dark fuscous. Palpi dark fuscous, internally whitish. Antennæ whitish-ochreous, annulated with dark fuscous. Thorax ochreous-brown, mixed with dark fuscous. Abdomen greyish-ochreous, anal tuft whitish-ochreous. Legs whitish-ochreous, anterior and middle pair suffused above with dark fuscous. Forewings rather elongate, somewhat dilated, costa moderately arched, hardly bent, hind-margin nearly straight, oblique, costal fold enclosing an expansible tuft of pale grey hairs; brownish-ochreous or ochreous-brown, thinly or sometimes densely sprinkled with dark fuscous: costa and inner margin obscurely strigulated with dark fuscous, sometimes suffused; basal patch obsolete, sometimes represented by one or two faint transverse lines or scattered blackish dots; a small obscure dark fuscous subquadrate spot on inner margin before middle; central fascia oblique, from middle of costa to inner margin just before anal angle, dark fuscous, moderately narrow, broadest below middle, its anterior edge nearly straight, posterior edge with a short abrupt semicircular excavation slightly above middle; a broadly triangular dark fuscous patch on costa hardly before apex; an obscure elongate dark fuscous streak on middle of hindmargin, sometimes suffused: cilia ochreous or whitish-ochreous, with a blackish or dark grey line near base. Hindwings grey, indistinctly spotted with darker; cilia grey, with a darker basal line.

This and the three following species form a closely allied group, the members of which are very similar and obscure in colouring, and often difficult to separate, especially as they all present some range of variation. This species comes nearest to the New Zealand *C. semifera*, from which it can only be distinguished

with certainty by the dark fuscous face; from *C. sordidatana* it is also separated by the same character, as well as by the slightly narrower forewings, and the obsolescence of the basal patch; *C. obfuscatana* is smaller, shorter, and broader-winged, usually with a distinct pale ochreous space beneath the costal fold, and the darker markings almost wholly suffused and obliterated.

Tolerably common near Sydney and Parramatta amongst dry bush, in June, and from October to December.

8. *Cap. semiferana*, Walk.

(*Teras semiferana*, Walk., Brit. Mus. Cat. 306; *Sciaphila detritana*, ibid. 356; *Tinea admotella*, ibid. 485; *Grapholita abnegatana*, ibid. 991.)

♂ ♀. $5\frac{1}{4}$ "-7". Head ochreous-grey or ochreous-brown, face pale ochreous. Palpi pale ochreous, dark fuscous on sides. Antennæ pale ochreous, annulated with dark fuscous. Thorax dark greyish-ochreous or fuscous. Abdomen greyish-ochreous, anal tuft of male pale ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi dark fuscous ringed with pale ochreous. Forewings moderate, in male dilated, costa moderately arched, hardly bent, hindmargin nearly straight, oblique; in female more elongate, not dilated, costa arched towards base, hindmargin more rounded; brownish-ochreous or ochreous-brown, often irregularly transversely strigulated with dark fuscous; costa and inner margin coarsely strigulated with blackish; basal patch distinctly indicated in male by a blackish spot at base of costa and a blackish inwardly oblique streak from disc near base to inner margin, in female obsolete; central fascia oblique, from before middle of costa to inner margin before anal angle, dark fuscous, containing a blackish longitudinal mark above middle, lower half often obsolete, anterior edge distinct, waved, posterior edge generally uniting with a dark fuscous triangular patch on costa before apex so as to form a larger triangular blotch; an elongate dark fuscous cloud near middle of hindmargin, often

connected with the costal patch, in female obliterated; a blackish interrupted hindmarginal line: cilia pale ochreous, paler towards anal angle, with a darker basal line.

This species shows a good deal of variability in size, and in distinctness of marking; some of the forms approach very closely to *C. chimerinana*, but always differ in the pale ochreous face, and in the possession of a distinct blackish longitudinal mark in the middle of the central fascia. From *C. sordidatana* it is distinguished by the narrower forewings, the incomplete indications of a basal patch, and the generally lighter and less suffused ground-colour.

I took the species commonly amongst scrub near Dunedin and Christchurch, New Zealand, in January; and later in the same month three specimens of a small and more variegated form in the swampy forest near Hamilton, on the Waikato River; these latter were probably a second generation.

Walker's types of *Sciaphila detritana* and *Tinea admotella* are exceedingly poor in condition, but appear to be correctly referred.

♀. *Cap. sordidatana*, n. sp.

♂ ♀. 6"-8½". Head greyish-brown, face paler. Palpi dark fuscous, internally whitish. Antennæ whitish-ochreous, annulated with dark fuscous. Thorax greyish-brown, suffused with dark fuscous. Abdomen ochreous-grey, anal tuft of male dull whitish mixed with grey. Legs ochreous-whitish, anterior tibiae suffused with dark fuscous, anterior and middle tarsi banded with dark fuscous. Forewings moderately broad, in male short, dilated, costa rather strongly arched and bent before middle, hindmargin straight, oblique, in female more elongate, costa strongly but evenly arched towards base; dull reddish-grey-brown, irregularly mixed with pale greyish-ochereous scales; costa and inner margin coarsely and obscurely strigulated with blackish, often partially suffused; basal patch small, obscure

dark fuscous, its outer edge distinct, obtusely angulated outwards, in male forming a black oblique spot below the angle; central fascia distinct on costa before middle, obscure dark fuscous, extending to a blackish longitudinal mark in middle of disc (in female obsolete), thence obliterated on the inner edge faintly traceable (especially in female); an indistinct broadly triangular dark fuscous blotch on costa towards apex; a roundish dark fuscous blotch on anal angle, anteriorly indistinct and suffused, posteriorly distinct, often connected above with the costal triangular blotch; a small triangular elongate dark fuscous blotch on middle of hindmargin; all these markings are very obscure and often suffused: cilia grey-whitish mixed with ochreous, with two suffused blackish-grey lines, often more or less distinctly chequered. Hindwings grey, faintly spotted with darker; cilia pale grey, with a dark grey basal line.

A very dull and obscure-looking species; broader-winged and rather larger than either *C. chimerinana* or *C. semiferana*, with darker ground-colour, more suffused markings, and a distinct darker basal patch. It resembles *C. obfuscatana* in breadth of wing, but is generally considerably larger, with distinct darker markings, and without the pale patch beneath costa near base.

Mr. G. H. Raynor found this species very abundant in gardens round Melbourne, flying in great numbers round roses and other shrubs in the evening; and I have taken it occasionally near Sydney, in August and September.

10. *Cap. obfuscatana*, *n. sp.*

♂. 5"-6½". Head and thorax ochreous-fuscous mixed with blackish. Palpi brownish-ochreous, internally white. Antennæ brownish-ochreous. Abdomen greyish-ochreous, anal tuft whitish. Legs whitish, anterior tibiæ and tarsi suffused with dark fuscous. Forewings short, rather broad, costa rather strongly bent in middle, hindmargin oblique, an expansible tuft of whitish hairs beneath fold; greyish-ochreous, irregularly suffused throughout

with dark fuscous mixed with blackish, so that no distinct markings are discernible, except that the costal fold and a semi-ovate space below it are generally paler greyish-ochreous or clear ochreous, and not suffused: cilia dark fuscous-grey mixed with ochreous, with a black interrupted line near base. Hindwings whitish-grey, darker towards apex, and spotted with darker ochreous-grey; cilia whitish, with a darker grey basal line.

Distinguished by its small size, short broad forewings, and general dark fuscous suffusion, without distinct markings except (usually) the pale subcostal space near base. The female is still unknown to me, and may probably differ in these respects.

Occasionally taken, especially at light, by which it is strongly attracted; it occurs at Sydney, Bulli, and Kiama, in New South Wales, from September to February.

11. *Cap. scutiferana*, *n. sp.*

♂ ♀. 5"-6". Head, palpi, antennæ, and thorax ochreous-white; palpi in male rather directed upwards, but oblique and not appressed to face, in female straight, horizontally porrected. Abdomen pale ochreous. Legs whitish, anterior tibiæ and tarsi suffused with dark fuscous. Forewings rather short, somewhat dilated, more strongly in male, costa in male strongly arched, slightly bent before middle, in female strongly arched at base, thence nearly straight, hindmargin nearly straight, very oblique; white, faintly suffused with pale ochreous; costa and inner margin with a few irregular blackish strigulations towards base; basal patch indicated by a rather oblique blackish streak from inner margin at one-fourth, reaching half across wing, in female uniting there with a slender black line from one-sixth of costa; central fascia rather oblique, from costa before middle to inner margin beyond middle, blackish mixed with ochreous-fuscous, upper half rather narrow, lower half abruptly and strongly dilated, the posterior edge being suddenly bent outwards in middle; a blackish triangular patch on costa at two-thirds, its

apex almost or quite confluent with the angle of the dilated portion of central fascia ; a small blackish spot on costa between triangular patch and apex : cilia pale ochreous, becoming more whitish at anal angle, obscurely barred with blackish. Hindwings in male ochreous-whitish, greyish-whitish at apex, cilia ochreous-white ; in female pale ochreous-grey, posteriorly darker, cilia pale ochreous-grey with a darker basal line.

A small but conspicuously distinct species, at once known by the well-contrasted blackish markings on a white ground.

I took one specimen on the forest-clad hills between Kangaroo Valley and Moss Vale, New South Wales, in January ; and subsequently six others in dense scrub near Rosewood, Queensland, in September.

12. *Cap. plathanana*, *n. sp.*

♂ ♀. $5\frac{1}{2}$ "-6". Head, palpi, and antennæ blackish-fuscous. Thorax pale yellow, anterior margin narrowly blackish-fuscous. Abdomen whitish-ochreous, anal tuft of male whitish-yellow, of female blackish-fuscous. Forewings moderate, costa gently arched, hardly bent, hindmargin rounded ; pale golden-yellow, with two direct transverse blackish-fuscous fasciæ suffused with bluish-grey-metallic scales except on their margins ; first at one-third, nearly straight, rather narrow, irregularly margined, sending a slender dark fuscous streak along extreme costal edge to base ; second much broader, parallel, from about four-fifths of costa to anal angle, somewhat contracted in middle, broadest on costa : cilia ochreous-yellow, beneath the second fascia blackish. Hindwings pale grey ; cilia whitish, with a grey basal line.

This peculiarly marked and beautiful species differs widely from all others in the yellow ground-colour, and the position of the two direct parallel fasciæ.

I took two specimens (male and female) in the bush near Sydney in December and February ; and have seen a third from the same locality.

12. ACROCEUTHES, *n. g.*

Thorax smooth or crested. Antennæ short, in male thickened, ciliated. Palpi moderate, straight, porrected, in male clothed above with very long dense erect spreading hairs, in female with dense rather appressed scales, terminal joint almost concealed. Abdomen in male with very large tufted anal valves. Forewings short, broadly oblong, costa in male with a short imperfect basal fold, arched before middle, apex nearly rectangular, hindmargin obliquely rounded. Hindwings rounded, elongate, hardly as broad as forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 from a point, 5 approximated to 4 at base, 6 and 7 stalked.

Distinguished from its nearest allies by the imperfect costal fold, the erect spreading tuft of hairs on the upper side of the palpi, and the large tufted abdominal valves of the male; the female is hardly distinguishable from *Capua*. I have included *A. oxygrammana* in the genus on account of the evident close alliance between the female and the corresponding sex of *A. metaxanthana*; but the male is still unknown to me.

A. metaxanthana may be known from *A. oxygrammana* by the pale yellow hindwings.

1. *Acroc. metaxanthana*, Walk.

(*Cacæcia metaxanthana*, Walk., Brit. Mus. Cat. 315; *Sciaphila projectana*, ibid. 352; *Carpocapsa trajectana*, ibid. 992.

♂. $5\frac{1}{2}$ "-6". Head dark grey-brown, face white. Palpi white with long fine erect white hairs above. Antennæ greyish-ochreous. Thorax brownish-ochreous, dark fuscous on back. Abdomen dark ochreous-grey, anal tuft whitish-ochreous. Legs white, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings short, broad, costa rather strongly bent before middle, hindmargin obliquely rounded; basal third within a suffused outwardly angulated line white, more or less broadly

strigulated towards inner margin with brownish-ochreous and dark fuscous, and with a stronger oblique dark fuscous streak from inner margin at one-fifth, reaching half across wing; a blackish line along basal third of costa, ending posteriorly in a black spot; remainder of wing ochreous-brown, irregularly mixed with dark fuscous and blackish, and with a few whitish scales; costa strigulated with blackish-fuscous; a very oblique silvery-whitish indistinct line from beyond middle of costa in an irregular curve to hindmargin below middle, thence continued to anal angle; another similar line from costa a little before apex to hindmargin below apex: cilia brownish-ochreous, towards anal angle whitish-ochreous, irregularly barred with dark fuscous. Hindwings whitish-yellow, hindmargin suffused or spotted with grey; cilia whitish-grey, with a darker grey basal line.

♀. $6\frac{1}{4}''$ - $7\frac{1}{2}''$. Head, palpi, antennæ, thorax, and abdomen ochreous-brown. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused above with dark fuscous. Forewings broad, costa rather strongly arched, becoming straight towards apex, hindmargin more oblique than in male; light ochreous-brown, costa and inner margin strigulated with dark fuscous; a very large dark fuscous or reddish-fuscous rounded-triangular blotch, mixed with blackish, on posterior half of inner margin, its apex nearly reaching costa beyond middle, its anterior edge nearly straight, its posterior edge rounded, ending on hindmargin just above anal angle; a fuscous obliquely curved streak from three-fourths of costa to middle of inner margin, irregularly margined on both sides with silvery-metallic scales; apex dark fuscous: cilia dark reddish-fuscous or blackish-fuscous. Hindwings pale yellow, spotted with grey towards margins, apex and hindmargin grey; cilia grey.

The sexes are at first sight very different in appearance, but the markings are really nearly identical in position, the differences being chiefly in intensity of colouring. Both sexes may be separated from *A. oxygrammana* by the pale yellow hindwings.

Taken not uncommonly at rest on fences in Sydney, from September to February; it also occurs at Waratah on the Hunter River, and at Brisbane.

Walker's descriptions are in this case tolerably accurate; the type of *Carpocapsa trajectoryna* is lost, but the description is certainly referable to this species.

2. *Acroc. oxygrammana*, n. sp.

♀. $7\frac{1}{4}$ ". Head, palpi, and thorax ochreous-brown; thorax with strong crest. Antennæ ochreous-fuscous. Abdomen ochreous-grey, darker posteriorly, anal tuft broad, truncate. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings posteriorly dilated, rather broad, costa strongly arched, becoming straight towards apex, hindmargin nearly straight, very oblique; whitish, with clearly-defined rather dark ochreous-grey markings; costa and inner margin obscurely strigulated with darker fuscous-grey; basal patch dark ochreous-grey, its outer edge starting from one-third of costa, thence curved gently and obliquely inwards to one-fifth of inner margin; central fascia broad, oblique, starting from middle of costa and gradually dilated, its anterior edge running to inner margin at two-thirds, its posterior edge to hindmargin at one-third above anal angle, enclosing a small elongate transverse suffused whitish spot before anal angle; the space between basal patch and central fascia obscurely strigulated with ochreous-grey, most broadly on inner margin; a dark fuscous sharply-defined triangular patch on apical third of costa, its anterior margin parallel to edge of central fascia and only separated by a narrow whitish line; within the patch are three short white strigulæ in the costal cilia; the space between costal patch and hindmargin whitish, irregularly clouded with ochreous-grey: cilia ochreous-white, with a dark fuscous line towards base. Hindwings fuscous-grey; cilia ochreous-white, with the basal half fuscous-grey.

The male being unknown, it is uncertain whether this species is correctly referred to its present position; but in general characters it strongly resembles the female of the preceding species, though the thoracic crest is a discordant point.

Mr. G. H. Raynor took three specimens near Hobartown and Evandale, Tasmania, in January.

13. ASTHENOPTYCHA. *n. g.*

Thorax with erect crest. Antennæ in male rather thickened, somewhat dentate, moderately ciliated. Palpi moderate, arched upwards and appressed to face (especially in male), thickly rough-scaled beneath on second joint, terminal joint erect, distinct. Forewings rather short, subtriangular, costa arched, in male with very short narrow fold at base, hindmargin obliquely rounded. Hindwings rounded-trapezoidal, broader than forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 from a point, 5 approximated to 4 at base, 6 and 7 stalked.

Distinguished from the group of *Capua*, to which it is allied, by the upward-arched palpi, in conjunction with the very small and imperfect costal fold. The species are dull-coloured insects, with a general resemblance to *Capua*.

A. conjunctana may be separated from *A. hemicyptana* by the clearly-defined white markings.

1. *Asth. hemicyptana*, *n. sp.*

♂ ♀. 6"-7". Head, palpi, antennæ, and thorax dark fuscous. Abdomen greyish-ochreous. Legs whitish. anterior tibiæ and tarsi strongly banded with dark fuscous, middle pair suffused. Forewings moderately broad, dilated, costa rather strongly arched, hindmargin obliquely rounded; ochreous-whitish, coarsely irrorated with greyish-ochreous; costa and inner margin shortly strigulated with dark fuscous; basal patch blackish-fuscous, its outer edge angulated in middle; central fascia broad, oblique, its

base resting on the whole posterior half of inner margin, dark fuscous mixed with blackish, its anterior edge concavely angulated, its posterior edge straight, so that it appears to dilate strongly from the middle downwards; a narrow dark fuscous black-margined fascia from two-thirds of costa (where it encloses a small whitish costal spot) to hindmargin above anal angle, attenuated beneath; a blackish elongate streak from apex along upper half of hindmargin: cilia greyish-ochreous, mixed with whitish towards anal angle, suffused with blackish towards apex, along hindmargin obscurely barred with blackish. Hindwings in male pale fuscous-grey, in female rather darker, cilia pale grey with a darker basal line.

An obscure-looking species, readily distinguished from the following by the absence of the clear white markings; it is also rather broader-winged, and has nearly the form of *Cap. sordidatana*.

I have as yet only met with this species in Queensland; I took seven specimens at Brisbane, Rosewood, and Toowoomba, (in the latter case at an elevation of 2,000 feet,) in September, amongst subtropical thickets.

2. *Asth. conjunctana*, Walk.

(*Sciaphila conjunctana*, Walk., Brit. Mus. Cat. 348.)

♂. $5\frac{1}{2}$ "-6". Head, palpi, and thorax greyish-fuscous mixed with dark fuscous, thorax with a pale spot on back. Antennæ greyish-fuscous. Abdomen dark grey. Legs whitish, suffused above with dark fuscous, all tarsi dark fuscous with white rings at apex of joints. Forewings dilated, costa slightly arched, hindmargin oblique; light greyish-fuscous, mixed with paler scales towards anal angle, irrorated with dark fuscous; costa and inner margin coarsely marked with blackish; a distinct narrow whitish transverse rather oblique fascia from one-third of costa to inner margin before middle, angulated outwards above middle, suffusedly margined with brownish-ochreous mixed with black in middle; a short transverse white streak from costa at two-

thirds, abruptly terminated before reaching middle, slightly oblique, margined by two suffused brownish-ochreous lines mixed with black on disc and continued to inner margin before anal angle; two short white strigulae on costa before apex, from between which a suffused brownish-ochreous line runs to meet that preceding it in middle of disc; a brownish-ochreous line along hindmargin, mixed with black: cilia whitish-grey or whitish, above apex blackish-grey, beneath it barred indistinctly with dark grey, sometimes suffused with brownish-grey. Hindwings grey, darker at apex; cilia whitish-grey, with a dark grey line near base.

This is a neatly marked insect; the short clear white streak from the costa beyond middle is a noticeable characteristic.

Mr. G. H. Raynor took this species commonly (but without noticing the female) near Deloraine in Tasmania, in January; Walker's type is from the same island.

14. *ANATROPIA*, *n. g.*

Thorax strongly crested. Antennae in male biserrated, ciliated. Palpi moderate, arched upwards, tolerably appressed to face, second joint rough-scaled beneath. Forewings subtriangular, costa in male simple, regularly arched, hindmargin oblique. Hindwings rounded-trapezoidal, broader than forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 rising from a point, 5 approximated to 4 at base, 6 and 7 stalked.

This genus is nearly allied to the preceding *Asthenoptycha*, from which it only differs in the entire absence of the costal fold. From the other allied genera it is removed by the upward-arched palpi, the apex of which rises as high as the crown.

The single representative has nearly the facies of *Asth. hemi-cryptana*.

1. *Anatr. craterana*, n. sp.

♂. 6". Head, palpi, and thorax dark fuscous mixed with ochreous. Antennæ ochreous-fuscous. Abdomen dark ochreous-grey, anal tuft whitish-ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings dilated, costa evenly arched; whitish, with an irregular transverse greyish suffusion between the dark fuscous markings; costa and inner margin coarsely strigulated with black; basal patch dark fuscous mixed with black, its outer edge running from one-fifth of costa to one-fourth of inner margin, strongly angulated outwards in middle; central fascia broad, oblique, dark fuscous mixed with black, starting from costa somewhat before middle, very strongly dilated below middle, its posterior edge being abruptly bent outwards, its base resting on whole posterior half of inner margin; between basal patch and central fascia are two or three small irregular dark fuscous spots; within the base of central fascia is a transverse pale mark before anal angle; a fuscous triangular patch on apical third of costa, containing two short whitish costal strigulæ, its apex blackish and produced narrowly to meet hindmargin; cilia brownish-grey, with a blackish suffused line towards base, extremities ochreous-whitish. Hindwings fuscous-grey spotted with darker; cilia pale grey, darker towards base.

Apart from the absence of the costal fold, this species may be known from *Asth. hemicryptana* by its smaller size, and the different shape of the central fascia, of which the posterior edge is strongly bent outwards in the middle, whilst in *Asth. hemicryptana* it is straight.

One specimen taken at light at Mount Victoria in the Blue Mountains, New South Wales, 3,300 feet above the sea, in January.

15. *ANISOGONA*, n. g.

Thorax smooth. Antennæ in male slightly thickened, finely ciliated. Palpi rather short, somewhat ascending, slender, with

smooth appressed scales, terminal joint distinct. Abdomen of male with very large tufted anal valves. Forewings broad, unevenly dilated, costa in male simple, arched near base, in female more or less concave beyond middle, apex in male obtuse, in female produced, hindmargin hardly oblique, rounded beneath. Hindwings rounded-trapezoidal, hardly broader than forewings, costa convex, apex in female very bluntly rounded. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 rising from a point, 5 approximated to 4 at base, 6 and 7 stalked.

Allied to *Dichelia*; differing by the short smoothly-scaled palpi, and especially by the large tufted abdominal valves of the male, and the peculiar distorted form of the wings in the female. In form and in the difference between the sexes, the species approach *Cacæcia*, between which genus and *Dichelia* they are in some sense intermediate. The venation of the genus is however identical with that of *Dichelia*.

The sexes of the two species may be distinguished as follows:

A. Forewings nearly rectangular at apex.

1. Forewings suffused with dark fuscous

towards base.. .. 1. *simana*, male.

2. Forewings not suffused 2. *similana*, male.

B. Apex of forewings produced.

1. Hindwings grey 1. *simana*, female.

2. Hindwings posteriorly yellow .. 2. *similana*, female.

1. *Anis. simana*, *n. sp.*

♂ $7\frac{1}{2}$ ", ♀ $8\frac{1}{2}$ ". Head, antennæ, and thorax whitish-grey; palpi pale greyish-fuscous, apex darker. Abdomen pale ochreous grey. Legs ochreous-whitish, anterior and middle tibiæ and tarsi banded with dark fuscous above. Forewings broad, oblong; in male costa strongly arched towards base, apex nearly rectangular, hindmargin perpendicular; in female costa very strongly arched near base, posteriorly sinuate, apex strongly

produced, hindmargin sharply excavated beneath apex, strongly bowed outwards below middle; whitish-grey, with a few irregular blackish-fuscous transverse strigulae, basal portion in male suffused with dark fuscous; costa and inner margin finely strigulated with dark fuscous; outer edge of basal patch indicated by an irregular blackish line from one-fifth of costa to before one-third of inner margin; a small grey-fuscous spot on costa at one-third; a large subquadrate dark grey-fuscous blotch on posterior half of inner margin, anteriorly and posteriorly somewhat rounded and blackish margined, above straight but less distinct; a dark grey-fuscous black-margined triangular blotch on costa at two-thirds, its apex slenderly connected with posterior angle of blotch; a small dark fuscous costal spot before apex; a dark grey-fuscous black-margined evenly broad streak along hindmargin from apex nearly to anal angle; cilia whitish-grey. Hindwings light fuscous-grey, spotted with darker, and becoming darker posteriorly; cilia whitish-grey, dark grey round apex, and with a dark grey basal line.

Probably the species may be subject to variation analogous to that of *A. similana*, for which allowance should be made. The male is larger and broader-winged than *A. similana*, without the ochreous-brown ground-colour of that species, and also strongly suffused with dark fuscous towards base; the female is also rather larger than the corresponding sex in *A. similana*, with the peculiarities of form all exaggerated, and especially the hindmargin deeply excavated beneath the apex, whilst the hindwings are entirely without any yellow colouring.

Mr. G. H. Raynor took three specimens (one male and two females) in a garden at Waratah on the Hunter River, New South Wales, in September.

2. *Anis. similana*, Walk.

(*Teras similana*, Walk., Brit. Mus. Cat. 300; *Pandemis mediana*, ibid. 311).

♂ $5\frac{1}{2}$ - $6\frac{1}{2}$ ", ♀ $7\frac{1}{2}$ "-8". Head, palpi, antennæ, and thorax in male ochreous-brown, in female whitish-grey. Abdomen light ochreous-grey, anal tuft of male whitish-ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffused with dark fuscous. Forewings broad, oblong; in male, costa rather strongly arched towards base, apex nearly rectangular, hind-margin somewhat oblique; in female costa rather strongly arched near base, somewhat sinuate posteriorly, apex rather produced, hindmargin somewhat sinuate below apex, slightly bent outwards below middle; in male ochreous-brown strigulated with darker, in female whitish-grey faintly tinged with brown, sometimes strongly suffused with brown in irregular cloudy blotches towards inner margin; outer edge of basal patch faintly indicated in female, running from one-fifth of costa to one-third of inner margin; a small cloudy fuscous spot on costa at one-third, in male obsolete; a small dark fuscous triangular blotch on costa at one-third, in male obsolete; a small dark fuscous triangular blotch on costa at two-thirds, in male often rather obscure, in female blackish and much more distinct; sometimes there is a large dark fuscous blotch on posterior half of inner margin, uniting with costal triangular blotch, but generally this is obsolete or quite imperceptible: cilia in male ochreous-brown, paler towards anal angle, in female dark fuscous, becoming whitish at anal angle. Hindwings in male fuscous-grey spotted with darker, cilia light grey with a darker basal line; in female whitish-yellow, becoming deeper yellow at apex and pale grey along inner margin, and generally spotted with pale grey; cilia whitish with a dark grey basal line.

A very variable species, the markings differing much in size, position, and intensity.

Generally distributed and very common in gardens, as well as in dry bush; it occurs at Sydney, Parramatta, Morpeth, and Bulli, New South Wales; at Toowoomba in Queensland; and

round Melbourne; in August and October, and from January to March, apparently in a succession of generations.

The type of *Pandemis mediana*, Walk., is from Tasmania; it is a female, larger and more brightly coloured than usual, but apparently not essentially different.

16. DICHELIA, Gn.

Thorax smooth (or rarely crested). Antennæ in male thickened, more or less serrate, ciliated. Palpi rather short, porrected, densely rough-scaled above and generally also beneath, the hairs often forming a rough tuft beneath, in which the terminal joint is nearly concealed. Forewings elongate-oblong or rather short, costa in male simple, evenly arched towards base, hindmargin oblique, rounded. Hindwings rather elongate, hardly or not broader than forewings. Forewings with veins 7 and 8 stalked, vein 7 running to hindmargin. Hindwings with veins 3 and 4 rising from a point or short-stalked, 5 approximated to 4 at base, 6 and 7 stalked.

This genus forms the type of a group distinguished by veins 3 and 4 of hindwings rising from the same point, 7 and 8 of forewings rising from a common stalk, and the absence of a costal fold in male; the latter character separating it from *Capua*, to which it is otherwise intimately allied. The distinguishing points of *Anatropia* and *Anisogona*, its nearest Australian allies, have been already pointed out. Other genera of the group are *Oenectra*, Gn., (Europe and America,) separated by the very long palpi; *Amphisa*, Curt., (Europe,) by the pectinated antennæ of male; *Amorbia*, Clem., (North America,) by the coincidence of veins 7 and 8 of forewings in male; *Cenopsis*, Z., (North America), by the deeply excavated forehead of male.

The species are generally small and rather neatly marked. There are eight European species, and at least two have been described from North America; other North American species have been referred to this genus, as well as one (probably correctly)

from West Africa, but in the case of these latter the generic identification is not yet assured. I have ten Australian species and one from New Zealand ; and there are two Australian species in the British Museum which appear to belong to the genus and are included below. These may be arranged as follows :

- I. Forewings with white or pale triangular costal blotch.
 - A. Anterior dark margin of blotch produced to anal angle 2. *isoscelana*.
 - B. Anterior dark margin not produced .. 1. *luci plagana*.
- II. Forewings without pale blotch.
 - A. Forewings with numerous leaden-metallic spots 13. *panoplana*.
 - B. Forewings without metallic markings.
 - 1. Forewings pale ochreous.
 - a. Without markings 12. *argillosana*.
 - b. With dark fuscous markings.
 - i. A dark fuscous streak along basal third of costa 5. *humerana*.
 - ii. Without costal streak.
 - †. Central fascia entire.
 - *. Basal patch entire 7. *clarana*.
 - **. Basal patch represented by a dorsal streak 4. *fusciceps*.
 - ††. Central fascia represented by a small costal spot 6. *retractana*.
 - 2. Forewings light reddish-fuscous, towards costa whitish 3. *disputana*.
 - 3. Forewings brownish.
 - a. With a crescentic black discal streak 10. *atristrigana*.
 - b. Without crescentic black discal streak.
 - i. Forewings very elongate ; basal patch absent 9. *montivagana*.

ii. Forewings moderate ; basal patch indicated.

†. Hindwings of male yellowish,
base black 8. *solana*.

††. Hindwings of male wholly
dark grey 11. *hyperetana*.

1. *Dich. luci plagana*, *Walk.*

(*Pædisca luci plagana*, *Walk.*, *Brit. Mus. Cat.* 381).

♂ ♀. $8\frac{1}{2}$ "-9". Head, palpi, antennæ, thorax, and abdomen whitish-ochreous. Legs ochreous-whitish, anterior tibiæ dark fuscous, anterior and middle tarsi dark fuscous towards base of joints. Forewings elongate, moderately broad, posteriorly dilated, costa arched at base, apex rather produced, hindmargin sinuate, oblique; whitish-ochreous, finely strigulated and sometimes suffused with darker; inner margin narrowly suffused with dark fuscous; a moderately broad dark fuscous or dark reddish-fuscous outwardly oblique streak from costa at one-third, and a similar inwardly oblique streak from costa at two-thirds, uniting on disc below middle so as to form a triangle which encloses a semi-oval white or pale ochreous patch; a cloudy suffused semi-oval fuscous blotch along hindmargin from apex to anal angle; all these markings are sometimes very faint: cilia dark fuscous. Hindwings whitish, towards apex faintly tinged with ochreous, and strongly spotted with grey towards inner margin; cilia whitish.

A distinct and peculiar species, apparently allied to *D. isoscelana*; it varies much in depth of colouring.

I took three specimens (one male, and two females) amongst forest growth near Dunedin, New Zealand, in January. Walker's type is from Auckland.

2. *Dich. isoscelana*, *n. sp.*

♂. $8''$ - $8\frac{1}{2}''$. Head, palpi, and thorax brownish-ochreous; thorax crested. Antennæ brownish-ochreous, annulated with dark

fuscous. Abdomen pale greyish-ochreous, anal tuft whitish-ochreous. Legs ochreous-whitish, anterior and middle tibiae and tarsi suffused with dark fuscous except at apex of joints. Forewings rather broad, posteriorly dilated, costa moderately arched, hindmargin sinuate beneath apex; whitish-ochreous, obscurely suffused with reddish-ochreous, especially towards fold and above anal angle; an irregular cloudy dark reddish-fuscous spot above submedian fold near base; a straight narrow dark reddish-fuscous oblique fascia from before middle of costa to anal angle, its lower extremity suddenly attenuated and often obsolete; an inwardly oblique dark reddish-fuscous streak from costa at three-fourths, its extremity almost uniting with the oblique fascia in middle of wing but not quite reaching it, enclosing with it a white equilateral triangular space, the apex of which is shortly produced towards anal angle; a slender dark reddish-fuscous streak along hindmargin from apex nearly to anal angle: cilia reddish-ochreous, dark fuscous below anal angle, and with a dark fuscous line near base along hindmargin. Hindwings whitish-grey, indistinctly spotted with darker; cilia whitish with two grey lines.

♀. $7\frac{1}{2}$ "-8". Head, etcætera, as in male; abdomen grey. Forewings rather less dilated than in male, costa less strongly arched; whitish-ochreous, coarsely irrorated with dark reddish-ochreous, costa and inner margin strongly strigulated with dark fuscous; an indistinct straight slender dark fuscous oblique fascia from one-sixth of costa to before middle of inner margin; a broader oblique dark fuscous fascia from before middle of costa to anal angle, rather dilated beneath, posterior margin rather irregular; a dark fuscous inwardly oblique triangular spot on costa at two-thirds, its apex almost meeting middle of central fascia, the space enclosed between them narrower than in male, white irrorated with dark reddish-ochreous, its apex shortly produced towards anal angle; an irregular dark fuscous spot on hindmargin below middle, connected with a dark fuscous streak from apex along upper half of hindmargin: cilia reddish-

ochreous, barred with dark fuscous. Hindwings pale grey, faintly spotted with darker; cilia whitish with two grey lines.

This handsome and distinctly coloured species differs much in the sexes, the female being more variegated and more darkly marked. The male makes some approximation to *D. luci-plagana*, but the white costal patch is triangular instead of semi-oval, its anterior dark margin is produced as an oblique fascia towards anal angle, and the forewings are more triangular.

Tolerably common in dry bush above the Bulli Pass (2,000 feet), and at Blackheath in the Blue Mountains (3,600 feet), in October and November; it also occurs near Melbourne.

3. *Dich. disputana*, Walk.

(*Sciaphila disputana*, Walk., Brit. Mus. Cat. 349; rect. *disputatana*).

♂. $4\frac{1}{4}$ "- $6\frac{1}{4}$ ". Head, palpi, antennæ, and thorax dark fuscous. Abdomen light ochreous-grey. Legs whitish, anterior tibiæ and tarsi dark fuscous, middle tarsi fuscous-grey towards base of joints. Forewings elongate, moderate, costa moderately arched, hindmargin hardly sinuate; light reddish-fuscous, becoming white towards costa; basal patch dark reddish-fuscous mixed with blackish, its posterior edge somewhat sinuate, running from one-fourth of costa to one-third of inner margin; central fascia moderately broad, oblique, dark reddish-fuscous margined with blackish, running from slightly before middle of costa to inner margin before anal angle, its anterior edge somewhat sinuate, posterior edge emitting a sharp tooth below middle obliquely upwards, generally connected with the succeeding fascia; a dark reddish-fuscous blackish-margined fascia from costa at two-thirds to hindmargin hardly above anal angle, broad on costa and attenuated gradually throughout, containing two small whitish spots on costa; hindmargin beneath apex mixed with dark fuscous: cilia ochreous-fuscous, tinged with reddish at base, and with a broad dark fuscous line, darkest at apex. Hindwings

whitish, tinged with reddish at apex and spotted with grey; cilia whitish with two grey lines.

Not closely allied to any other species; distinguished by its peculiar tint and by the additional oblique fascia beyond middle; the female is still unknown to me.

I have four males, taken in rocky bush near Sydney in September, and in February and March. Walker's type is also from Sydney; it is very poor in condition, but recognisable, which his description is not.

4. *Dich. fusciceps*, Walk.

(*Conchylis fuscicepsana*, Walk., Brit. Mus. Cat. 364; *Conchylis cepsana*, ibid. 366; *Conchylis mundulana*, ibid. 368).

♂. $4\frac{1}{2}''$ - $5\frac{1}{2}''$, ♀. $5\frac{1}{2}''$ - $6\frac{1}{2}''$. Head dark smoky-fuscous, face and palpi whitish-ochreous. Antennæ dark fuscous. Thorax whitish-ochreous, anterior margin narrowly dark fuscous. Abdomen pale ochreous. Legs ochreous-whitish, anterior and middle tibiae and tarsi suffused with dark fuscous above. Forewings moderate, in female rather narrow, costa moderately arched, hindmargin obliquely rounded; whitish-ochreous, with sharply defined dark fuscous markings; a narrow transverse slightly oblique streak from inner margin near base, reaching half across wing; a slender oblique transverse fascia (in female somewhat broader) from costa before middle to inner margin at two-thirds, its lower extremity in male partially obsolete; a wedge-shaped inwardly oblique spot on costa before apex, larger in female and its extremity connected with a streak from hindmargin below middle which is obsolete in male; cilia whitish-ochreous, in female more ochreous-tinged. Hindwings in male whitish tinged with ochreous towards apex, cilia whitish; in female grey, rather darker posteriorly, cilia whitish grey with a darker line near base.

Distinguished from all except *D. humerana* by the slender sharply-marked dark fuscous markings on a clear whitish-ochre-

ous ground; from *D. humerana* it differs widely in the absence of the streak along costa, and in the presence of the oblique streak from inner margin near base. It is allied to *D. clarana*, but larger, broader-winged, and more clearly marked. The female has a somewhat deeper tinge than the male, and the markings are slightly broader.

Occurs rather plentifully near Sydney, Parramatta, and Bulli, New South Wales; and at Brisbane and Toowoomba, Queensland; in low scrub, from September to November, and in January and March. I have thought it necessary to alter Walker's barbarously formed name to an admissible shape.

5. Dich. (?) *humerana*, *Walk.*

(*Conchylis humerana*, Brit. Mus. Cat. 366.)

7". Thorax pale yellowish. Forewings in form nearly as *D. fusciceps*; pale clear ochreous-yellow; a dark fuscous line along costa from base to one-third; a slender dark fuscous rather oblique transverse streak from costa beyond middle nearly to inner margin before anal angle. Hindwings pale grey; cilia pale yellowish.

Walker's type, from which the above diagnosis is taken, has no head, and is otherwise in poor condition; I could not determine its generic characters, and can only conjecture that it may be referable to this genus; but it is such a distinct species that it could not well be passed over without notice. It may belong to a quite different group.

The locality is given as South Australia.

6. Dich. (?) *retractana*, *Walk.*

(*Dichelia retractana*, Walk., Brit. Mus. Cat. 322).

7". Head and thorax pale ochreous. Forewings moderately broad, costa rather strongly arched towards base; pale ochreous, somewhat brownish-tinged; two small dark fuscous costal spots,

first in middle, second before apex; an indistinct dark fuscous line near hindmargin. Hindwings pale grey.

The diagnosis is taken from Walker's type, which appears to be a true *Dichelia*, agreeing in neuration. I have thought it necessary to include the species here; but unless Walker was even more erratic than usual, it is difficult to understand how his description can have been taken from this specimen; the two costal spots are mentioned, but the first is said to be "near the base," and a central fascia and submarginal black points are added, which I failed to perceive. If I had been acquainted with the species in Australia, I should have rejected Walker's name on the ground of the inconsistency of the description with the type; but I am inclined to doubt whether the species is Australian at all.

7. *Dich. clarana*, n. sp.

♂ ♀. $4\frac{3}{4}$ "-5". Head, palpi, and antennæ dark smoky-fuscous. Thorax in male whitish-ochreous, anterior margin and a spot behind blackish-fuscous; in female suffused with dark fuscous. Abdomen ochreous-grey. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings elongate, rather narrow, costa arched near base, posteriorly nearly straight, hindmargin very obliquely rounded; whitish-ochreous, somewhat suffused with brownish-ochreous towards margins; costa and inner margin shortly strigulated with dark fuscous; basal patch in male blackish-fuscous, in female only indicated by a dark fuscous line representing its outer edge, extending from one-fifth of costa to one-fourth of inner margin, slightly angulated outwards in middle; central fascia rather narrow, oblique, dark fuscous edged with blackish, from middle of costa to anal angle, somewhat broader beneath, posterior margin with a short semi-circular excavation in middle; a broadly triangular dark fuscous spot on costa at three-fourths; a triangular dark fuscous spot on middle of hindmargin, connected with a slender dark fuscous

streak from apex along hindmargin: cilia whitish-ochreous, anal angle dark fuscous, indistinctly barred with dark fuscous towards base. Hindwings fuscous-grey; cilia whitish-grey, with a suffused dark grey line near base.

Distinguished amongst the pale ochreous species by its small size, narrow forewings, and the completely indicated basal patch. In general appearance it strongly resembles *Isoch. ranulana*, the markings being almost identical; the structural differences are the only safe means of separation, but this species is usually distinctly the larger.

Rather common near Sydney and Parramatta; also at Melbourne, and at Brighton in Tasmania; it occurs in February and March, in dry bush, but there may probably be also an earlier generation.

8. *Dich. solana*, Walk.

(*Teras solana*, Walk., Brit. Mus. Cat. 300).

♂ ♀. 5"-6½". Head, palpi, antennæ, and thorax ochreous-brown. Abdomen brownish-grey. Legs ochreous-whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings oblong, moderately broad, costa arched towards base, hindmargin oblique; greyish-brown, in male more ochreous-tinged, and paler towards hindmargin, with dark fuscous markings, which are most distinct in male, in female not much darker than groundcolour; basal patch indistinct, its outer edge running from one-fourth of costa to one-fourth of inner margin, angulated outwards and in male blackish in middle, lower portion often obsolete; central fascia moderate, oblique, from before middle of costa to inner margin before anal angle, lower extremity in male obsolete, posterior edge with a short semicircular excavation in middle; a broadly triangular patch on costa at three-fourths; a cloudy elongate transverse mark before middle of hindmargin: cilia in male ochreous-fuscous, in female greyish-fuscous. Hind-

wings in male ochreous-yellowish, posteriorly suffusedly spotted with grey, and with a large irregular black blotch at base, cilia whitish, becoming grey at apex, with a darker grey basal line: in female light grey, darker posteriorly and spotted with darker, cilia light grey.

The male is immediately distinguished by the peculiarly coloured hindwings, which are unique in their way; the female is more difficult of definition, but may be known from *D. montivagana* by the broader forewings, more arched costa, and distinct basal patch; from *D. atristrigana* by the rather lighter colouring and the absence of the black markings; it approaches very nearly *D. hyperetana*, but is larger, rather broader-winged, with the costa slightly more arched, and the markings less obscure,

Common, and often taken at rest on fences near gardens; it occurs at Sydney, Bulli, and Parramatta, in New South Wales; at Melbourne; and at Brisbane and Rosewood, in Queensland; from August to October, and in December and April.

9. *Dich. montivagana*, *n. sp.*

♂ ♀. $6\frac{1}{2}$ "-9". Head, palpi, and thorax ochreous-brown. Antennæ pale ochreous, annulated with dark fuscous. Abdomen brownish-grey. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings elongate, narrow, hardly at all dilated, costa gently arched at base, hindmargin very oblique; ochreous-brown, more or less irrorated with dark fuscous; costa and inner margin finely strigulated with dark fuscous; a small cloudy fuscous spot on inner margin before middle; an oblique rather narrow dark fuscous fascia from before middle of costa, reaching only half across wing, rarely obscurely produced to inner margin before anal angle, in which case its outer edge is semicircularly excavated in middle; an indistinct triangular dark fuscous patch on costa at three-fourths; an obscure triangular dark fuscous blotch on middle of hindmargin; all these markings vary in intensity and are often obsolete: cilia

ochreous, with a dark fuscous line near base. Hindwings pale grey spotted with darker; cilia pale grey, darker towards base.

Variable in size, as well as in intensity of colouring; but well characterised by the remarkably elongate and narrow forewings, with costa hardly arched, and the ochreous-brown tint of the ground-colour is also a constant point of distinction.

Taken commonly at Blackheath in the Blue Mountains (3,600 feet), and also occurs at Nowra, on the Shoalhaven River, and occasionally near Sydney; it is plentiful near Melbourne; in low heathy scrub, from January to March.

10. *Dich. atristrigana*, *n. sp.*

♂ ♀. $5\frac{1}{2}''$ - $6\frac{1}{2}''$. Head, palpi, antennæ, and thorax dark fuscous. Abdomen fuscous-grey. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffused above with dark fuscous. Forewings moderately elongate, somewhat dilated, costa moderately arched, hindmargin very oblique; greyish-fuscous or dark fuscous; costa and inner margin coarsely strigulated with black; an oblique black streak from one-fourth of inner margin, reaching half across wing; a short black longitudinal streak in middle of disc, both extremities generally somewhat turned upwards so as to appear somewhat crescentic in form, sometimes connected with oblique dark shades from costa; a blackish elongate oblique mark above anal angle: a slender black streak along hindmargin from apex: cilia light ochreous-brown, paler towards anal angle, indistinctly barred with blackish, and with a black line near base along hindmargin. Hindwings light grey spotted with darker; cilia pale grey with a darker line near base.

Nearest to *D. solana* in form of wing, but costa more evenly arched, and hindmargin more oblique; distinguished by the dark colouring and black marks, especially the longitudinal discal streak, which is however variable.

I took four specimens flying in the evening amongst open scrub near Parramatta, New South Wales, in March.

11. *Dich. hyperetana*, *n. sp.*

♂. $5\frac{1}{2}$ ". Head, palpi, and thorax greyish-fuscous mixed with darker. Antennæ grey-whitish, annulated with dark fuscous. Abdomen dark fuscous-grey. Legs ochreous-whitish, anterior and middle tibiæ suffused with dark fuscous, all tarsi dark fuscous with whitish rings at apex of joints. Forewings rather elongate, moderate, somewhat dilated, costa moderately arched at base, hindmargin very oblique; greyish-fuscous, with irregular scattered transverse dark fuscous strigulæ; costa and inner margin coarsely strigulated with dark fuscous; outer edge of basal patch indicated by a transverse dark fuscous line from one-fifth of costa to one-fourth of inner margin, angulated outwards in middle; central fascia moderate, oblique, dark fuscous, from middle of costa to inner margin before anal angle, anterior edge slightly sinuate, distinct, posterior edge with a short deep semicircular excavation in middle; an obscure dark fuscous triangular patch on costa at three-fourths; an elongate transverse dark fuscous mark near hindmargin above anal angle; hindmargin dark fuscous beneath apex: cilia whitish-grey, with a broad blackish-fuscous partially interrupted line near base. Hindwings fuscous-grey; cilia dark grey, towards extremities whitish-grey.

An obscure-looking species, resembling *D. solana*, but smaller, duller and more obscure, separated by the uniform grey hindwings of the male.

Mr. G. H. Raynor took two specimens of this easily overlooked species (both males), one at Deloraine in Tasmania, the other at Warragul in Gippsland, Victoria, both in December.

12. *Dich. argillosana*, *n. sp.*

♂. $7\frac{1}{2}$ ". Head, palpi, and thorax light brownish-ochreous. Antennæ ochreous-whitish, broadly annulated with dark fuscous. Abdomen dark fuscous-grey. Legs whitish-ochreous, anterior and middle tibiæ suffused with dark fuscous above, all tarsi dark fuscous with pale rings at apex of joints. Forewings elongate,

rather narrow, 'slightly dilated, costa gently arched at base, hindmargin very oblique; light yellowish-ochreous, with a few scattered fuscous scales near inner and hindmargins, and a dark fuscous dot on disc at three-fourths: cilia pale yellowish-ochreous. Hindwings fuscous-grey, posteriorly darker; cilia ochreous-whitish, with an indistinct dark grey line near base.

In form of wing approaching *D. montisagana*, but hardly as elongate; distinguished by the unicolorous light ochreous forewings, contrasting with the rather dark grey hindwings.

I have only one male, taken by Mr. G. H. Raynor near Melbourne.

13. *Dich. panoplana*, *n. sp.*

♂ ♀. $4\frac{1}{2}$ "- $6\frac{1}{2}$ ". Head, palpi, and thorax brownish-ochreous mixed with black, thorax black on back. Antennæ ochreous-white, sharply annulated with black. Abdomen dark fuscous. Legs pale ochreous, anterior and middle tibiæ dark fuscous, all tarsi dark fuscous with ochreous-white rings at apex of joints. Forewings elongate, rather narrow, posteriorly somewhat contracted, costa gently arched towards base, hindmargin very obliquely rounded; pale dull ochreous, more or less mixed with dark reddish-brown in irregular spots and streaks, which coalesce so as to form an oblique fascia from before middle of costa to inner margin at two-thirds, and an irregular patch on costa at three-fourths; whole surface of wing irregularly strewn with numerous bright leaden-metallic spots, tending to form six or eight curved transverse lines; hindmargin with a row of similar spots: cilia light ochreous towards apex, dark grey towards anal angle. Hindwings dark fuscous; cilia dark grey with a blackish line near base, extremities whitish towards apex.

This species appears to vary greatly in size, and in the character and position of the leaden-metallic markings; but is always recognisable by the presence of these markings, and the slight posterior narrowing of the forewings.

Mr. G. H. Raynor took the species commonly on the dry bush-clad hills round Murrurundi, in October; and I have also a specimen taken in a heathy swamp near Appin, New South Wales, which appears to belong to the same species.

17. CRYPTOPTILA, *n. g.*

Thorax smooth. Antennæ in male ?— Palpi moderate, porrected, second joint triangularly clothed with appressed scales, terminal joint short, distinct. Forewings long, dilated, costa in male ?—regularly arched, apex obtuse-angled, hind-margin rounded, bowed outwards. Hindwings broader than forewings, rounded, costa convex, surface with a large costal tuft of raised scales beyond middle. Forewings with veins 7 and 8 separate, vein 7 running to hindmargin. Hindwings with veins 3 and 4 rising from a point, 5 approximated to 4 at base, 6 and 7 stalked.

Nearly allied to *Tortrix*, from which, as well as all other genera of the family, it is distinguished by the large costal tuft of scales on the hindwings; superficially it has more the appearance of some of the larger species of *Cacœcia*.

1. *Crypt. immersana*, *Walk.*

(*Teras immersana*, Walk., Brit. Mus. Cat. 302).

♀. 14"-15". Head, palpi, and antennæ whitish-ochreous, sometimes suffused with brownish. Thorax whitish-ochreous, with a fuscous spot on back, sometimes suffused with brownish. Abdomen whitish-ochreous-grey. Legs whitish-ochreous, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings broadly oblong, costa evenly and rather strongly arched towards base, hindmargin rather strongly bowed outwards below middle; whitish-ochreous, sometimes suffused with brownish; costa and inner margin very shortly and finely strigulated with dark fuscous; a short very oblique narrow fuscous dark-margined streak from costa at one-fourth, reaching one-third across wing; a similar

fuscous irregularly dark-margined streak from before middle of costa very obliquely to beneath apex of wing, where it is more or less distinctly connected with the apex of an irregular three-branched fuscous dark-margined mark near hindmargin somewhat above middle; four small semi-oval dark fuscous spots on apical half of costa; the narrow space between these and the oblique costal streak is suffused with brownish; a narrow irregularly sinuous fuscous dark-margined streak from inner margin near base very obliquely outwards to middle of wing, semicircularly concave below middle, its apex dilated into an irregular spot; below this streak and the three-branched spot the inner and hindmargins are suffused with brownish; an irregular fuscous dark-margined spot above anal angle; a fuscous dark-margined streak along hindmargin: cilia greyish-brown or ochreous-brown, with an indistinct dark grey interrupted line. Hindwings light fuscous-grey, more whitish towards base, thickly spotted with darker grey, costal tuft ochreous-fuscous; cilia whitish-grey, with a dark grey line near base.

The largest Australian species of *Tortricina*, and peculiarly marked with a rather fantastic irregularity.

I took six specimens at light in Sydney during November, December, and February; and also one amongst thick scrub at Rosewood, Queensland, in September. (Vid. addenda).

18. CACOECIA, Hb.

Thorax smooth. Antennæ in male thickened or dentate, strongly ciliated. Palpi moderately long, porrected, second joint triangularly scaled, terminal joint distinct. Forewings rather broad, costa in male with a more or less perfect fold towards base, arched before middle, in female more abruptly arched, often rather sinuate, apex sometimes produced, hindmargin sinuate or rounded. Hindwings rounded-trapezoidal, broader than forewings. Forewings with veins 7 and 8 separate, 7 running to

hindmargin. Hindwings with veins 3 and 4 from a point, 5 approximated to 4 at base, 6 and 7 separate.

This genus only differs from *Tortrix* by the presence of a costal fold in the male; in conjunction with *Tortrix*, it constitutes the type of the principal and most universally distributed group of the family. In this group the only other genus of which the male possesses a costal fold is *Ptycholoma*, Stph., characterised by the very short palpi. *Loxotania*, HS., is generally maintained by European writers as a distinct genus from *Cacæcia*, the separation being based on the character of the costal fold of the male, which is defined as being strong and membranous in *Cacæcia* and imperfect and hairy in *Loxotania*, but I do not think myself that this distinction is worthy of being maintained; the form of the fold differs so much in different species, that every gradation can be found between a very slight upward curving and roughening of the extreme costal edge near base, and a broad strong membranous fold extending over basal half of costa. I have consequently included all these species in *Cacæcia*, employing the shape of the fold only as a means of grouping them into natural sections. The length of the palpi also varies considerably; all the New Zealand species have elongate palpi, but are otherwise not generically separable. *Idiographis*, Ld., which has elongate palpi and is referred by Heinemann to this group, has been shown to belong in reality to the *Conchylidæ*.

The species are mostly rather large, with ample wings but dull colouring. The genus contains about twenty European species, and is represented, probably to a considerable extent, in North and South America; it is probably cosmopolitan in distribution. I am acquainted with twelve Australian species, and eleven from New Zealand; in the latter country the genus appears to be represented by an unduly large proportion of species, in comparison with the entire fauna. The following is a tabulation of those described:

I. Costal fold of male extending to base of wing.

A. Palpi long.

1. Hindmargin of forewings not sinuate. . 16. *miserana*.
2. Hindmargin of forewings sinuate beneath apex.
 - a. Forewings whitish.
 - i. Central fascia obsolete below middle 9. *characterana*.
 - ii. Central fascia distinct 11. *amplexana*.
 - b. Forewings whitish-ochreous, with two small dark costal spots .. 10. *flavescens*.
 - c. Forewings ochreous or grey.
 - i. Markings not darker, indistinctly outlined.
 - *. A whitish spot in disc at one-third from base 6. *biguttana*.
 - **. No whitish spot 7. *excessana*.
 - ii. Markings distinctly darker than groundcolour.
 - *. A sinuate black streak in disc towards base 3. *jactatana*.
 - **. No black discal streak.
 - †. A blackish oblique streak from inner margin near base .. 2. *spurcatana*.
 - ††. No blackish dorsal streak.
 - ‡. A narrow, oblique, dark, streak from costa before middle 8. *obliquana*.
 - ††. A broad similar streak, confluent with a spot beyond middle 4. *oblongana*.
 - †††. A sharply-defined large dark triangular costal blotch 5. *cuneigera*.
 - d. Forewings unicolorous dark brassy-fuscous 12. *ænea*.

B. Palpi moderate or rather short.

1. Hindmargin of forewings strongly bowed outwards below middle .. 1. *australana*.
2. Hindmargin of forewings obliquely rounded.
 - a. Central fascia abbreviated, not reaching inner margin.
 - i. Hindwings light grey; edge of basal patch angulated13. *polygraphana*.
 - ii. Hindwings dark grey; edge of basal patch nearly straight ..14. *pyrosemana*.
 - b. Central fascia entire15. *lythrodana*.

II. Costal fold of male not continued to base, short or rudimentary.

- A. Forewings unicolorous light grey ..21. *liquidana*.
- B. Forewings white with dark fuscous markings.
 1. Hindwings grey22. *tessulatana*.
 2. Hindwings yellowish23. *desmotana*.
- C. Forewings ochreous or fuscous.
 1. Hindmargin distinctly sinuate beneath apex17. *jugicolana*.
 2. Hindmargin obliquely rounded.
 - a. Head and thorax greyish-brown ..20. *mnemosynana*.
 - b. Head and thorax whitish-ochreous or brownish-ochreous.
 - i. Central fascia moderately broad on costa18. *responsana*.
 - ii. Central fascia slender, attenuated on costa19. *postvittana*.

1. *Cac. australana*, *Lewin*.

(*Tortrix australana*, *Lewin*, *Insects of N.S. Wales*, 11, plate 17)

♂. 12". Head, palpi, and antennæ whitish-ochreous. Thorax whitish-ochreous, shoulders brownish, on back mixed with dark fuscous. Abdomen greyish-ochreous. Legs whitish-ochreous, anterior and middle pair suffused above with dark fuscous, posterior tarsi dark fuscous at base of joints. Forewings broad, dilated, costa much rounded, slightly indented at apex of fold, which is large, hindmargin hardly at all sinuate, strongly bowed outwards below middle; grey-whitish, suffused towards margins with pale grey-fuscous, and irrorated with fine transverse dark fuscous strigulæ; costa and inner margin strigulated with dark fuscous; fold dark greyish-brown, with long pale ochreous hairs; a slender dark fuscous black-margined rather oblique streak from inner margin at one-fifth, reaching half across wing; between this streak and base the groundcolour is clear pale ochreous, emitting a narrow suffused pale ochreous streak beneath the costal fold to its extremity; a dark fuscous fascia-like spot on middle of costa, rather oblique, reaching half across wing, connected by a slender dark fuscous blackish-margined line with a narrow sharply triangular dark fuscous spot on middle of inner margin; the ground-colour between the pale ochreous basal patch and a straight line from middle of costa to anal angle suffused with greyish-fuscous mixed with ochreous, most deeply along inner margin; three small dark fuscous spots on costa between middle and apex, irregularly connected with two sinuate dark fuscous blackish-margined partially interrupted transverse streaks directed towards anal angle, but confluent and obsolete below middle; a suffused ochreous spot beneath costa at three-fourths; a narrow fuscous black-margined streak along hindmargin: cilia grey-whitish mixed with ochreous, with two fuscous-grey lines, and indistinctly barred with dark grey. Hindwings light fuscous-grey strigulated with darker; cilia whitish-grey with two dark grey lines.

A large and rather elegant species, differing from all other Australian species known to me in the strongly-bowed hindmargin

of the forewings; it is not closely allied to any other. Lewin's figure is a tolerable representation of my specimens, and is, I think, undoubtedly identifiable with them.

The larva is represented by Lewin as blackish-green, with the spots pale yellow, and is stated to feed on *Embothrium speciosissimum* (*Proteaceæ*), living gregariously in webs until nearly full-grown, in swampy places near Sydney. I have not been able to verify these facts; the food-plant given does not now grow within several miles of Sydney, and the original localities have been probably built over.

I took two males on gas-lamps near Sydney, in December; and have seen another taken at Parramatta in October. (Vid. addenda.)

2. *Cac. spurcatana*, Walk.

(*Teras spurcatana*, Walk., Brit. Mus. Cat. 305; ? *Teras congestana*, ibid. 308; *Sciaphila transtrigana*, ibid. 354; *Sciaphila turbulentana*, ibid. 355; *Grapholitha ropeana*, Feld., Reise der Novara, Pl. cxxxvii., 45.

♂. 8"-8½". Head, palpi, antennæ, and thorax whitish-ochreous or brownish-ochreous; palpi rather long. Abdomen whitish-ochreous or ochreous-grey. Legs whitish-ochreous, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings moderately broad, not dilated posteriorly, costa gently arched, somewhat bent near middle, fold reaching from base to middle, hindmargin slightly sinuate, hardly oblique, rounded beneath; whitish-ochreous, more or less entirely suffused with pale brownish-ochreous, and irregularly strewn with short dark fuscous strigulæ; costa and inner margin shortly strigulated with blackish; a strong blackish-fuscous rather oblique straight streak from inner margin before one-fourth, reaching two-thirds across wing, nearly meeting the costal fold; an irregular blackish-fuscous spot on middle of costa, reaching half across wing, narrow on

costa and irregularly dilated beneath; three small cloudy dark fuscous spots on costa between middle and apex, the posterior one emitting a cloudy inwardly oblique dark fuscous streak, reaching half across wing; a cloudy dark fuscous spot on hind-margin beneath apex; a cloudy dark fuscous spot on inner margin before anal angle, sometimes obscurely connected with the central costal spot; sometimes the whole wing is suffused with fuscous, so that all the markings are obliterated except the oblique streak from inner margin near base, and the central costal spot: cilia whitish-ochreous or brownish-ochreous, with an obscure dark fuscous line. Hindwings light-grey, faintly spotted with darker, in dark specimens entirely dark grey; cilia whitish-grey, with a dark grey line near base.

The markings of this species are very dull and ill-defined, and subject to variation from the suffusion of the ground-colour; but it may apparently be always recognised amongst its immediate allies by the strongly-marked oblique dark streak from inner margin near base.

I took four specimens (all males) in virgin forest near Hamilton and Cambridge, on the Waikato, New Zealand, in January; and there are altogether four others in the British Museum, from Auckland, under the various names quoted above.

The type of *Teras congestana*, Walk., is very poor, and cannot be given with certainty as referable to this species; the other synonyms certainly belong here.

3. *Cac. jactatana*, Walk.

(*Batodes jactatana*, Walk., Brit. Mus. Cat. 317; *Sciaphila flexivittana*, ibid. 353; *Pædisca privatana*, ibid. 382; *Grapholitha voluta*, Feld., Reise der Novara, Pl. cxxxvii., 39).

8". Head and thorax fuscous; palpi elongate. Forewings rather narrow, posteriorly dilated; ochreous-fuscous; costa marked with small black spots; a small ochreous space towards

base of costa, beneath which is a sharply-defined sinuate thick black longitudinal streak in disc, extending from near base to before middle. Hindwings grey, spotted with darker.

This diagnosis is taken from Walker's types; I have not seen any other specimens. The species appears to be a *Cacæcia*, belonging to the same group as the other New Zealand species; it is rather narrower-winged than its congeners, and immediately distinguishable by the sinuate black discal streak.

The British Museum specimens are from Auckland, New Zealand.

4. *Cac. oblongana*, Walk.

(*Teras oblongana*, Walk., Brit. Mus. Cat. 303; *Teras inaptana*, ibid., 304).

♂ ♀. $7\frac{1}{2}$ "-9". Head, palpi, and thorax greyish-fuscous; palpi rather long. Antennæ fuscous-grey. Abdomen ochreous-grey. Legs whitish-ochreous, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings moderately broad, in male somewhat dilated posteriorly, costa gently arched, fold extending from base to one-third, hindmargin somewhat sinuate, not oblique, rounded beneath; generally ochreous-whitish, suffused with brownish-ochreous and fuscous-grey along margins, sometimes entirely brownish-grey; costa and inner margin very shortly strigulated with dark fuscous; basal patch distinct, dark fuscous-grey, often mixed with ochreous, posterior edge most distinct towards costa, angulated outwards above middle, sinuate beneath angulation, extending from one-fourth of costa to before one-fourth of inner margin; a blackish-fuscous oblique blotch on middle of costa, reaching half across wing, and a broad ill-defined triangular dark fuscous patch on costa extending nearly to apex, the two coalescing in form a large triangular blotch, mixed with reddish-fuscous (in female with reddish-ochreous) beneath its middle; a cloudy dark fuscous mark above anal angle, con-

nected with the triangular costal patch by a slender cloudy streak ; an obscure dark fuscous mark on hindmargin above middle : cilia light brownish-ochreous or fuscous-grey, with a dark fuscous line. Hindwings whitish-grey tinged with ochreous, thickly spotted with dark grey, apex dark grey ; cilia grey-whitish, with a dark grey line near base.

Nearly allied to *C. spurcatana*, but the forewings are not posteriorly dilated in the male, the groundcolour is more greyish and less ochreous, there is no conspicuous dark oblique streak from inner margin near base, and the dark markings from costa are mixed with reddish towards disc. The female is rather lighter and less strongly marked than the male.

I have four specimens (three males, one female) taken amongst forest growth near Dunedin, New Zealand, in January. Walker's types are from Auckland.

5. *Cac. cuneigera*, *Butler*.

(*Teras cuneigera*, *Butler*.)

10". Head and thorax light grey ; palpi rather elongate. Forewings moderately broad, somewhat dilated posteriorly, costa gently arched, hindmargin sinuate, not oblique ; whitish-grey, clouded with darker along inner margin and more strongly along hindmargin ; a large sharply-defined blackish-grey costal triangular blotch, extending on costa from one-fourth nearly to apex, and reaching more than half across wing. Hindwings grey spotted with darker.

A very distinct species, separable from all by the large clearly-marked dark triangular blotch on costa.

I am only acquainted with *Butler's* type, which seems to be referable to this genus, as far as I can judge without complete investigation ; the above diagnosis is drawn from it.

* 6. *Cac. biguttana*, *Walk*.

(*Teras biguttana*, *Walk.*, *Brit. Mus. Cat.* 305).

♂ ♀. Size, form, and colouring quite as in *C. excessana*; but forewings with a small roundish sharply-defined whitish spot in disc at one-third from base.

Very closely allied to *C. excessana*, yet conspicuously distinguished by the small whitish spot in disc.

Five specimens in the British Museum collection; the locality is given as Auckland, New Zealand.

7. *Cac. excessana*, *Walk.*

(*Teras excessana*, *Walk.*, *Brit. Mus. Cat.* 303).

♂ ♀. 10"-10½". Head, palpi, and thorax greyish-fuscous (in one female bright ochreous); palpi rather long. Antennæ whitish-ochreous, in female distinctly annulated with dark fuscous. Abdomen whitish-ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi banded above with dark fuscous. Forewings moderately broad, somewhat dilated posteriorly in both sexes, costa gently arched, fold extending from base to one-third, hindmargin sinuate, not oblique, rounded beneath; greyish-fuscous or ochreous-fuscous finely irrorated with dark fuscous, (in one female bright ochreous); markings only indicated by cloudy outlines hardly darker than the groundcolour; these consist of a basal patch, with outer edge strongly angulated above middle; a central fascia from middle of costa to inner margin at three-fourths, narrow and very oblique on upper half, strongly dilated on lower half; a broad triangular patch on costa before apex; an irregular cloudy spot on hindmargin above middle: cilia rather paler than groundcolour, with a darker line. Hindwings whitish-grey spotted with darker grey, cilia whitish with two dark grey lines; in the ochreous specimen hindwings white tinged with ochreous towards apex and hindmargin, spotted with grey towards inner margin, cilia ochreous-whitish with two grey lines.

Very variable in groundcolour; the only clear point of distinction appears to be in the faintness of the markings, which

are merely outlined in a tint hardly darker than the ground-colour, and the absence of those definite characteristics which are presented by the other species.

I took four specimens (two males, and two females) amongst bushes near Wellington, New Zealand, at the end of December. Walker's types are from Auckland.

8. *Cac. obliquana*, *Walk.*

(*Teras obliquana*, Walk., Brit. Mus. Cat. 302; *Teras cuneiferana*, ibid. Suppl. 1780).

♀. 12". Head and thorax pale brownish-ochreous; palpi elongate. Forewings moderately broad, hardly dilated, hindmargin sinuate beneath apex, not oblique, rounded beneath; pale brownish-ochreous; outer edge of basal patch indicated by a slender fuscous line about one-fourth, angulated above middle; a rather narrow oblique dark fuscous streak from costa before middle, reaching one-third across wing; several very irregular dark fuscous marks along inner margin from near base, and towards lower two-thirds of hindmargin: cilia pale brownish-ochreous. Hindwings whitish, thickly mottled with grey.

Distinguished from the allied species, except *C. charactana*, by the slender distinct dark oblique streak from costa before middle; from *C. charactana* by the pale brownish-ochreous groundcolour.

I have only seen Walker's types, which are from New Zealand.

9. *Cac. charactana*, *n. sp.*

♀. 8 $\frac{3}{4}$ ". Head, palpi, antennæ, and thorax creamy-white; palpi long, irrorated on sides with dark fuscous. Abdomen light grey. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous-grey. Forewings moderately broad, hardly dilated, costa moderately arched, hindmargin sinuate below apex, not oblique, rounded beneath; creamy-white, costa and inner margin very shortly strigulated with blackish; outer edge of

basal patch indicated by a slender line strongly angulated above middle, blackish and distinct above angulation, below it grey and nearly obsolete; a short straight slender oblique black streak from middle of costa, apex somewhat dilated, not reaching half across wing; a cloudy fuscous-grey triangular patch on costa towards apex, emitting from its apex a slender cloudy inwardly oblique streak, connecting with a faint cloudy grey oval patch above anal angle; a small faint grey spot on hindmargin above middle, containing two black dots; a few blackish scales are also scattered in the grey markings: cilia creamy-white, with some scattered black scales at base. Hindwings whitish-grey spotted with darker; cilia whitish, with a dark grey line near base.

This species is very similar in markings to *C. obliquana*, and might possibly be an extreme form, a question which can only be settled by the examination of additional specimens; at present the white groundcolour seems to afford a sufficient specific distinction, in the absence of the male.

I took one specimen on a fence near Auckland, New Zealand, in January.

10. *Cac. flavescens*, *Butler*.

(*Teras flavescens*, *Butler*).

♀. $8\frac{1}{2}$ ". Head and thorax pale whitish-ochreous. Forewings somewhat dilated posteriorly, costa moderately arched, somewhat bent about one-third, hindmargin sinuate beneath apex; very pale whitish-ochreous; two very small dark fuscous costal spots, one in middle, second at three-fourths; cilia beneath apex dark fuscous. Hindwings whitish.

This distinctly marked species is only known to me from *Butler's* type; it appears to be referable to this genus, but I cannot speak with certainty, though it is undoubtedly not a *Teras*.

11. *Cac. amplexana*, Z.

(*Idiographis* (?) *amplexana*, Z., z. b. V. 1875, 222; *Cacæcia vilis*, Butler).

♂ ♀. 7"-9". Head white. Palpi long, white, mixed with dark fuscous on sides. Antennæ dark fuscous, indistinctly annulated with whitish. Thorax whitish, anterior margin somewhat suffused anteriorly with dark fuscous. Abdomen ochreous-grey. Legs whitish, anterior and middle tibiæ and tarsi banded above with dark fuscous. Forewings moderate, rather elongate, hardly at all dilated, costa moderately arched towards base, somewhat sinuate beyond middle, costal fold of male extending from base hardly as far as one-third, apex somewhat produced, hindmargin rather sharply excavated beneath apex, not oblique, bowed below middle; whitish, thinly strewn with scattered dark fuscous scales in irregular transverse strigulæ; costa and inner margin strigulated with dark fuscous; basal patch represented in male by a sharply-defined blackish-fuscous streak starting from base beneath costa directly outwards, at one-fifth from base rectangularly bent upwards and proceeding straight to costa at one-third, in female by an internally suffused dark fuscous streak starting as in male, but bent rather obliquely outwards at the angulation, and again bent obliquely inwards before reaching costa, ending on costa before one-fourth; central fascia oblique, from costa before middle to inner margin beyond middle, dark fuscous, rather narrow, in male obsolete towards costa, in female distinct throughout, anterior edge well-defined and dark-margined, posterior edge suffused; a triangular dark fuscous rather ill-defined costal patch, extending from middle of costa nearly to apex, from lower extremity of which proceed two cloudy fuscous streaks, one obliquely inwards, meeting central fascia below middle, the other to anal angle, outwardly curved near its extremity; a cloudy fuscous spot on hindmargin above middle, marked on its anterior edge with two blackish dots: cilia grey-whitish, becoming dark fuscous towards base on hindmargin,

especially near apex. Hindwings whitish, faintly tinged with yellow, and thinly spotted with grey, especially towards inner margin: cilia whitish, with a fuscous-grey line near base.

Differing from all other Australian and New Zealand species in the produced apex and excavated hindmargin of the forewings as well as the angulated dark streak beneath basal portion of costa. The palpi are not more elongate than in the other allied New Zealand species, and the species has no relation to *Idiographis*, which differs in venation. In form of wing the species is analogous to the European *C. podana* and its allies.

I have five specimens (three males, and two females) taken at Wellington, Christchurch, and Dunedin, New Zealand, in January. Zeller was only acquainted with the male, from which the female differs markedly, but his description is very accurate.

12. *Cac. (?) ænea*, *Butler*.

(*Teras ænea*, *Butler*).

11". Head and thorax brassy-fuscous; palpi elongate. Forewings oblong, moderately broad, not dilated; entirely brassy-fuscous; somewhat lighter on disc. Hindwings blackish-fuscous, along costa yellowish.

This species is very distinct from any other, and I can only conjecture that it may belong here, in the absence of a complete knowledge of its structure.

Described from *Butler*'s type in the British Museum, which is from New Zealand.

13. *Cac. polygraphana*, *Walk.*

(*Tortrix polygraphana*, *Walk.*, *Brit. Mus. Cat.* 330).

♂ ♀. 8"-8½". Head, palpi, antennæ, and thorax light fuscous-grey. Abdomen whitish-ochreous suffused with grey. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings moderately broad, slightly dilated posteriorly;

costa strongly arched near base, costal fold extending from base to about one-third, hindmargin slightly oblique, hardly sinuate; varying from ochreous-grey to reddish-ochreous, with numerous very small pale dark-centred circular spots, arranged in irregular curved transverse rows; basal patch indicated by two rows of black dots, angulated in middle of wing; a fuscous-grey oblique streak from costa before middle, margined with black dots, reaching half across wing but indistinct at extremity; a small dark fuscous spot on costa at two-thirds: cilia whitish at extremities, fuscous-grey towards base, with a broad dark fuscous-grey line suffused with dark reddish-ochreous on upper two-thirds of hindmargin. Hindwings light fuscous-grey, spotted with darker; cilia whitish with two dark grey lines.

Generally distinguishable by the transverse rows of faint ocellated spots. It is nearly allied to *C. pyrosemana*, but differs from it also through the lighter and more ochreous-tinged groundcolour, the angulated edge of basal patch, and the paler hindwings.

I took four specimens amongst dry bush at Blackheath on the Blue Mountains, New South Wales, 3,600 feet above the sea, in February, and also met it at Mittagong; Mr. G. H. Raynor took it at Melbourne, and rather commonly near Launceston, Tasmania, in January. The locality of Walker's type is given as Moreton Bay, Queensland.

14. *Cac. pyrosemana*, *n. sp.*

♀. 9". Head, palpi, antennæ, and thorax dark fuscous-grey mixed with paler. Abdomen dark ochreous-grey. Legs grey-whitish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings moderately broad, slightly dilated posteriorly, costa strongly arched near base, hindmargin oblique, not sinuate; dark fuscous-grey irrorated with pale cinereous-grey, tinged with ochreous on disc and towards anal angle, with transverse rows of very small faint blackish spots; costa shortly

strigulated with blackish; basal patch represented by a slender sinuate, not angulated, transverse blackish line at one-fifth; a sharply-defined oblique rather narrow blackish streak from costa before middle, reaching half across wing, sinuate and attenuated at extremity; a small triangular blackish-fuscous spot on costa at two-thirds; cilia dark grey mixed with ochreous, with a blackish line. Hindwings dark fuscous-grey, indistinctly spotted; cilia dark grey, more whitish towards anal angle, with a darker line near base.

Closely allied to *C. polygraphana*, but much darker in ground-colour and markings, without ocellated spots, and the edge of basal patch is not angulated.

One female specimen taken by Mr. G. H. Raynor, near Parramatta, New South Wales.

15. *Cac. lythrodana*, *n. sp.*

♂ ♀. 8"-9½". Head, palpi, and thorax dark fuscous-grey, mixed with paler; palpi in male with an expansible tuft of white hairs on upper surface of second joint. Antennæ dark fuscous-grey. Abdomen ochreous-grey, anal tuft in male pale ochreous. Legs ochreous-whitish, anterior and middle tibiæ and all tarsi suffusedly banded with dark fuscous-grey. Forewings rather broad, posteriorly somewhat dilated, costa moderately arched, especially towards base, costal fold narrow, extending from base only to one-fourth, hindmargin somewhat oblique, slightly sinuate beneath apex; light cinereous-grey, mixed with darker scales tending to form transverse lines or strigulæ; costa and inner margin strongly strigulated with blackish: outer edge of basal patch represented by a nearly straight black line from one-fifth of costa to one-fourth of inner margin; two dark fuscous-grey sharply black-margined fasciæ, first rather narrow, oblique, from costa before middle to inner margin beyond middle, second broader on costa and rapidly attenuated, running from costa at two-thirds to inner margin before anal angle, both fasciæ

attenuated in middle almost or quite to a black line, beneath the attenuated portions becoming suddenly confluent into a large subquadrate black-margined patch; a somewhat sinuate blackish line from costa a little before apex to hindmargin above anal angle; a blackish line from costa a little before apex to hindmargin above anal angle; a blackish line along hindmargin: cilia cinereous-grey, extremities beyond a blackish line white. Hindwings fuscous-grey spotted with darker; cilia whitish-grey, with two dark fuscous-grey lines.

A conspicuously distinct species, characterised by the two dark grey black-margined fasciæ on a pale grey ground, with their lower portions confluent in a large blotch; the white expansible tuft of the palpi in male is also a peculiar character, to which an analogy is found in the genus *Acroceuthes*.

I took six specimens in the bush at Blackheath in the Blue Mountains, New South Wales, (3,600 feet,) in February.

16. *Cac. miserana*, Walk.

(*Teras miserana*, Walk., Brit. Mus. Cat. 301; *Teras canigerana*, ibid., 301; *Sciaphila debiliana*, ibid. 351; *Teras absumptana*, ibid. Suppl. 1780).

♂ 7"-8½", ♀ 8½"-9½". Head, palpi, and thorax grey-whitish mixed with dark grey. Antennæ grey-whitish. Abdomen whitish-grey. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings moderate, posteriorly somewhat contracted, costa moderately arched towards base, in male bent before middle, costal fold broad, extending from base to middle of costa, hindmargin obliquely rounded; whitish, transversely irrorated with grey; costa and inner margin strigulated in male with dark fuscous, in female with cinereous-grey; a small dark grey black-margined spot on costa at one-fourth in male, in female represented by a smaller grey mark; a cloudy grey spot on inner margin at one-third, in some specimens of male larger and blackish-grey, sometimes suffused at apex into

central fascia ; central fascia narrow, oblique, from before middle of costa to beyond middle of inner margin, in male blackish, in female cinereous-grey, partially obsolete above middle, margins rather irregular ; a small cloudy triangular patch on costa at two-thirds, in male blackish-grey, in female cinereous-grey ; two or three small transverse streaks of cinereous or blackish scales near hindmargin and above anal angle : cilia whitish, with a faint dark grey line. Hindwings whitish-grey, darker posteriorly ; cilia whitish, with a grey line near base.

In form of wing this species approximates to *C. responsana* and *C. postvittana*, but differs structurally from them in the character of the costal fold, which is strong and extends from the base fully to the middle of costa. The whitish-grey groundcolour distinguishes it from all its nearest allies ; *C. lythrodana* is also a purely grey insect, but has totally different and more sharply defined markings. The female is very different in appearance from the male, and has more the superficial features of a *Teras*.

Very common at Sydney, of sluggish habit and usually taken at rest on fences ; it occurs from August continuously to May, being absent only during the two winter months of June and July ; I also took a specimen near Wollongong, New South Wales, and one of Walker's types is said to be from Moreton Bay, Queensland, but at Sydney it appears to be a garden insect.

17. *Cac. jugicolana*, *n. sp.*

♀. $8\frac{1}{4}$ "- $8\frac{1}{2}$ ". Head, palpi, and thorax brownish-ochreous. Antennæ light ochreous, annulated with dark fuscous. Abdomen ochreous-grey. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused above with dark fuscous. Forewings moderate, oblong, not dilated, costa moderately arched near base, hindmargin slightly sinuate below apex, rather oblique ; brownish-ochreous, costa and inner margin shortly strigulated with obscure dark fuscous ; outer edge of basal patch indistinctly indicated by a fuscous line, sharply angulated above middle ; a cloudy dark

fuscous spot on inner margin at one-third, sometimes obsolete; central fascia oblique, from costa before middle to inner margin at two-thirds, ochreous-fuscous, darker fuscous on costa and inner margin, narrow on costa, gradually but not strongly dilated, margins rather irregular; an obscure fuscous triangular spot on costa at two-thirds, from apex of which proceeds a slender cloudy fuscous line to anal angle: cilia pale brownish-ochreous, with a dark fuscous-grey basal line. Hindwings whitish-grey, towards apex suffused with ochreous, spotted with darker grey; cilia ochreous-white, with a dark grey line near base.

In the absence of the male, it cannot be affirmed with certainty to which section of the genus this species is most nearly related; in shape of wing it resembles *C. polygraphana*, in markings *C. mnemosynana*; the sinuation of the hindmargin distinguishes it from the species which follow. The specimens obtained show no variation.

Mr. G. H. Raynor bred six specimens (all females) of this species from larvæ (undescribed) which he found feeding on a plant of the *Compositæ* "resembling *Senecio*" in pasture-fields on the hills near Murrurundi, New South Wales, in September; the imagos emerged in October.

18. *Cac. responsana*, *Walk.*

(*Teras responsana*, Walk., Brit. Mus. Cat. 297.)

♂. 9"-10". Head, palpi, and antennæ whitish-ochreous. Thorax pale ochreous, with a suffused dark fuscous central transverse line. Abdomen greyish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings oblong, costa moderately arched at base, bent before middle, costal fold short and narrow, not reaching base, hindmargin obliquely rounded; pale whitish-ochreous, thinly sprinkled with greyish-fuscous; costal fold strigulated with dark fuscous, somewhat suffused with ferruginous; outer edge of basal patch

indicated by a transverse oblique rather curved line of four or five blackish dots from costa at one-fifth to inner margin at one-third; central fascia moderate, oblique, from costa before middle to inner margin before anal angle, dark fuscous, mixed with ferruginous and irregularly edged with blackish, somewhat dilated on lower half, anterior edge nearly straight, posterior edge irregular and suffused below middle, with a round projection near inner margin, edged by an outwardly oblique streak from inner margin; a small elongate dark fuscous spot along costa about three-fourths, posteriorly suffused; a small irregular, sometimes obsolete, dark fuscous spot near middle of hindmargin containing two or more black dots, which are sometimes alone distinct; a short slender interrupted blackish streak near hindmargin from apex: cilia whitish, at base ochreous, with a faint dark grey line: sometimes the whole wing is more or less suffused with reddish-fuscous. Hindwings fuscous-grey, darker posteriorly, faintly spotted with darker; cilia whitish, with a dark grey line near base.

♀. 11"-12". Head, palpi, antennæ, thorax and forewings ochreous-brown; forewings more elongate than in male; markings as in male but generally obsolete, or distinct on costa and inner margin only, sometimes dark smoky-fuscous but suffused; outer edge of basal patch often forming a small dark spot on inner margin. Hindwings rather darker grey than in male.

Allied to *C. postvittana*, but usually larger and less variable; easily distinguished from it in the male by the greyish-fuscous irroration of the groundcolour, the darker and more ferruginous-tinged markings, the greater breadth of the central fascia towards the costa, and the darker hindwings. The female is very similar to *C. postvittana* female, but always darker and more fuscous, with a much less ochreous tinge.

Taken, not very commonly, at Sydney and Parramatta, usually amongst *Acacia decurrens*; very common at Melbourne, and occurs

also at Hobartown, Tasmania; it occurs from September to November, and is sluggish in habit. I bred one specimen from *Acacia decurrens*, having brought in a branch as food for other species, without noticing the larva.

The description of *Tortrix ashworthana*, Newman, (Trans. Ent. Soc. Lond. N.S. 3, 286) seems rather to point to this species, but is insufficient for determination.

19. *Cac. postvittana*, Walk.

(*Teras postvittana*, Walk., Brit. Mus. Cat. 297; ? *Teras retractana* ibid. 288; *Teras dotatana*, ibid. 298; *Teras scitulana*, ibid. 298; *Teras basialbana*, ibid. 299; *Teras secretana*, ibid. 300; *Pandemis secundana*, ibid. 310; *Pandemis consociana*, ibid. 311; *Dichelia reversana*, ibid. 321; *Dichelia fœdana*, ibid. 321; *Dichelia sobriana*, ibid. 322; *Pædisca immersana*, ibid. 380).

♂. $6\frac{3}{4}$ "- $9\frac{1}{2}$ ". Head, palpi, antennæ and thorax whitish-ochreous, more or less suffused with brownish-ochreous. Abdomen whitish-ochreous. Legs whitish, anterior and middle tibiæ and all tarsi suffusedly banded with dark fuscous-grey. Forewings broad, short, costa gently arched, strongly bent before middle, costal fold short, narrow, fringed with hairs, not reaching base, hindmargin obliquely rounded; pale ochreous or whitish-ochreous, sometimes irrorated with fuscous; costa and inner margin more or less distinctly strigulated with ochreous or fuscous; markings variable in intensity, reddish-ochreous, fuscous, or dark reddish-fuscous; basal patch faintly indicated or quite obsolete, outer edge angulated, often represented only by a small costal spot at one-fifth; central fascia oblique, from before middle of costa to inner margin before anal angle, slender on costa, often widely interrupted in middle, anterior edge generally distinct, sometimes dark-margined, nearly straight, posterior edge distinct towards costa, dilated and suffused beneath; sometimes a narrow streak or cloud along inner margin from base to fascia, often produced also along hindmargin and attenuated to apex, or the hindmarginal

portion is represented by two or three elongate streaks or rows of dots; an elongate narrow blotch along costa about three-fourths; sometimes there are faint hindmarginal dots, or the veins are posteriorly lined with darker, or the entire apical half of wing beyond central fascia is suffused with reddish-ochreous: cilia whitish-ochreous or ochreous, with a dark fuscous line, and a dark spot at anal angle. Hindwings whitish-grey, towards costa whitish, more grey towards inner margin, spotted with darker grey: cilia whitish, faintly ochreous-tinged towards apex, with a dark grey line.

♀. 9"-11½". Head, thorax, and forewings more suffused with brownish-ochreous; forewings more elongate, often irrorated with darker; markings as in male but more indistinct and suffused; outer edge of basal patch generally forming a small subquadrate dark fuscous spot on inner margin: cilia pale ochreous, becoming reddish-ochreous towards apex, with a dark fuscous line suffused at apex and anal angle. Hindwings hardly darker than in male, somewhat ochreous-tinged at apex.

This species is very variable both in size and markings, so that it is difficult to include all the forms under one description, but there can be no doubt that all the varieties belong to the same species. In form of wing it is similar to *C. responsana* and *C. mnemosynana*, but the costal fold of the male is less strong than in the former, and stronger than in the latter of those species; from both the male is generally distinguishable by the clear pale ochreous groundcolour, and more or less ochreous-tinged markings; most of the varieties are also peculiar to this species, and in the normal form the slenderness of the central fascia towards costa is a good distinguishing characteristic. The female may be known by its uniform brownish-ochreous hue. Small pale specimens of the male are very similar to *Tortrix glaphyrana*, but the presence of the costal fold affords a ready test.

Larva moderately elongate, cylindrical, rather attenuated posteriorly, active; dull yellowish-green, spots hardly lighter;

dorsal and subdorsal lines indistinctly darker green, often obsolete; head greenish-ochreous. Feeds between joined leaves, or rolled leaves or amongst spun-together flowers or fruits of *Correa speciosa*, *Boronia ledifolia* (*Rutaceæ*), *Persoonia lanceolata*, *Grevillea robusta* (*Proteaceæ*), and a marsh-growing species of *Polygonum*, in August, September, and January; it is probably almost indiscriminately polyphagous. Pupa free amongst joined leaves.

Generally distributed and abundant; it occurs at Sydney, Bathurst, Orange, Morpeth, and Kiama in New South Wales, and also at Melbourne, and in Tasmania; from August to October, and in January, March, and April.

From the formidable array of synonyms prefixed, it will be seen that Walker described the twelve specimens in the British Museum as twelve different species, locating them in four distinct genera. The type of *Teras retractana*, quoted as a doubtful synonym, is a specimen of this species and is labelled Australia, but the description does not at all agree with the type, and as it professes to be taken from an American insect, the specimens have probably been interchanged; the name therefore cannot stand. The other types are all more or less ordinary varieties.

20. *Cac. mnemosynana*, *n. sp.*

♂. $7\frac{3}{4}$ "-8". Head, palpi, and thorax greyish-fuscous; palpi elongate. Antennæ greyish-fuscous, annulated with blackish. Abdomen whitish-grey. Legs whitish, anterior pair dark fuscous, middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings moderate, oblong. costa gently arched, bent before middle, costal fold rudimentary and very short, not extending to base, hindmargin obliquely rounded; greyish-fuscous, indistinctly transversely strigulated with darker; basal patch faintly darker, outer edge angulated above middle; central fascia oblique, from before middle of costa to inner margin before anal angle, rather narrow towards costa, lower two-thirds moderately dilated, anterior margin slightly curved, posterior margin irregularly

waved, distinct; an outwardly curved dark fuscous line from costa at two-thirds to hindmargin above anal angle, beyond which the apical portion of the wing is suffusedly dark fuscous, less strongly towards apex itself: cilia greyish-ochreous, with a strong black line near base, suffused at anal angle. Hindwings whitish spotted with grey; cilia whitish, with a dark grey line near base.

Nearly allied to the two preceding, but readily separated by the rudimentary costal fold, the greyish-fuscous groundcolour, and whitish hindwings. The female is not known to me.

Five males taken at Bulli, New South Wales, and at Melbourne, and Warragul, Gippsland, in October and December.

21. *Cac. liquidana*, n. sp.

♂ ♀. $8\frac{1}{2}''$ - $9\frac{1}{2}''$. Head, palpi, antennæ, and thorax light ashy-grey, with a few black scales; palpi rather short. Abdomen whitish-grey, anal tuft ochreous-white. Legs ochreous-white, anterior and middle tibiæ and tarsi suffused with dark fuscous-grey. Forewings moderate, in female narrow, costa moderately arched towards base, costal fold extremely short and rudimentary, not reaching base, hindmargin oblique, especially in female; light ashy-grey, faintly mixed with ferruginous, and posteriorly with a few scattered black scales; costal edge suffused with dark grey towards base in male: cilia whitish mixed with light grey. Hindwings whitish-grey or light grey; cilia white, with a faint grey line near base.

A distinct species, characterised by its unicolorous light grey forewings; it has a superficial resemblance to *Tortrix concordana* and *T. indigestana*, but apart from the costal fold, which is very slight and imperfect, it may be recognised by its much larger size.

Five specimens taken in the dry bush at Blackheath in the Blue Mountains (3,600 feet) and two at Mittagong; I have also seen a specimen from Melbourne; it is on the wing in March.

22. *Cac. tessulatana*, n. sp.

♂. 8". Head and palpi whitish, mixed irregularly with dark fuscous; palpi rather short. Antennæ black. Thorax dark fuscous, mixed posteriorly with white. Abdomen light greyish-ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings moderate, rather elongate, costa moderately arched, costal fold very short and rudimentary, fringed with hairs, hindmargin obliquely rounded; white, coarsely irrorated with dark fuscous, and with dark fuscous markings; costal fold and extreme base of wing dark fuscous; an oblique slender fascia from costa at one-fourth, reaching to fold, angulated above middle; an irregular oblique streak from middle of costa, not reaching half across wing, its extremity bent outwards; beneath this is a small double spot below middle of wing; a small spot on middle of inner margin; between middle and apex are five or six small subquadrate spots on costa; between the extremity of the oblique streak from middle of costa and the apex of wing is an elongate cloudy streak, suffusedly connected with each; a cloudy spot on anal angle, and a roundish smaller spot directly above it; veins near hindmargin lined with dark fuscous; a dark fuscous line along hindmargin: cilia white, basal half barred with dark fuscous. Hindwings light fuscous-grey; cilia white, with a dark grey line near base.

Also very distinct from any other; in form of wing resembling the preceding, distinguished by the white groundcolour and reticulated dark markings, which are quite different from those of *C. desmotana*.

Mr. G. H. Raynor took one specimen at Melbourne in December.

23. *Cac. desmotana*, n. sp.

♂ ♀. $8\frac{1}{2}$ "- $9\frac{1}{2}$ ". Head black behind, face and crown white. Palpi rather short, black, terminal joint and apex of second joint white. Antennæ black, very slenderly annulated with white. Thorax white, anterior margin black; in male a black spot on

back. Abdomen pale dull yellow. Legs yellowish-white, anterior and middle tibiæ and tarsi suffused with dark fuscous. Forewings rather broad, costa rounded especially towards base, costal fold very short and quite rudimentary, hindmargin rather oblique, rounded; clear white, with sharply-defined blackish-fuscous, almost black, markings; a small triangular spot on inner margin at base, extending nearly to costa; a slender nearly straight fascia from costa at one-fourth to inner margin at one-third, its posterior margin with a very short tooth on submedian fold; between this fascia and base the extreme costal edge is blackish; a second narrow fascia from middle of costa, becoming bifurcate in middle of wing, where its anterior edge is more or less sharply excavated, the first branch running to inner margin beyond middle, the second to inner margin just before anal angle; a third narrow fascia from costa at three-fourths to hindmargin above anal angle, connected with the second by a slender streak from middle of second to third near costa; a narrow streak from apex, connecting with third fascia below middle; sometimes a small dot on costa before apex; cilia dull whitish-ochreous. Hindwings pale dull yellowish, often deeper and more greyish-tinged posteriorly; cilia whitish-yellow, with a faint yellowish-grey line.

This handsome and conspicuous insect is very similar in type to *Tortrix amænana*, but the markings will be found on comparison to be very different in position, and I am not sure that the resemblance indicates anything more than an analogy.

I took five specimens amongst low heathy scrub at Blackheath on the Blue Mountains, at an elevation of 3,600 feet, in February.

19. TORTRIX, Tr.

Thorax smooth. Antennæ in male shortly ciliated. Palpi moderate, porrected, second joint triangularly scaled, terminal joint distinct. Forewings moderately elongate, costa in male simple, tolerably evenly arched, hindmargin obliquely rounded.

Hindwings broader than forewings, rounded-trapezoidal. Forewings with veins 7 and 8 separate, vein 7 running to hindmargin. Hindwings with veins 3 and 4 rising from a point, 5 approximated to 4 at base, 6 and 7 separate.

This is the typical genus of the largest and most simply-organised group of the family, characterised by the separation of veins 7 and 8 of forewings, the origin of veins 3 and 4 of hindwings from a point, and the approximation of 5 to 4 at base. Of the other Australian genera belonging to the group, *Cacæcia* is distinguished from *Tortrix* by the costal fold of male, *Cryptoptila* by the tuft of scales on the costa of hindwings, *Arotrophora* by the elongate palpi, and the deeply dentate antennæ of male, having cilia arranged in tufts, *Dipterina* by the origin of veins 6 and 7 of hindwings from the same stalk, and by the antennæ of male having long fine cilia arranged in two rows. Other genera of the group (not Australian) are *Teras*, having vein 7 of forewings running to costa, (Europe and America); *Pandemis*, having an excavated notch in the antennæ of male above basal joint (Europe and America); *Auchoteles*, (South America) having very short minute palpi; and probably other genera not yet sufficiently defined, whose distinctness it is not here necessary to examine.

There is a considerable number of European and American species, and the genus is probably of universal distribution. I have twelve Australian species, and four from New Zealand, of which the following is a tabulation:

- I. Forewings white, with five black fasciæ.. 1. *amœnana*.
- II. Forewings dark fuscous, with three
whitish fasciæ 2. *subfurcatana*.
- III. Forewings pale greyish-ochreous or
whitish, with dark longitudinal markings 4. *aulacana*.
- IV. Forewings with distinct transverse central fasciæ.
- A. Forewings light reddish-fuscous .. 3. *ceramicana*.

B. Forewings whitish-ochreous.

1. Dorsal half clouded with fuscous-grey 5. *peloxythana*.

2. Dorsal half not clouded.

a. Hindwings fuscous-grey 6. *trygodana*.*b.* Hindwings whitish or pale grey.

i. Central fascia dilated on lower

half 7. *philopoana*.ii. Central fascia slender throughout 8. *glaphyrana*.C. Forewings grey 13. *aërodana*, (part)

V. Forewings without transverse fascia.

A. Forewings pale ochreous or yellow.

1. With a purple-fuscous hindmarginal

band 16. *standishana*.

2. Without marginal band.

a. Hindwings dark smoky-grey .. 15. *concolorana*.*b.* Hindwings whitish-grey.

i. Dorsal half of forewings

clouded with grey 10. *centurionana*.ii. Dorsal half of forewings not
clouded.

*. Forewings with a few scat-

tered black scales .. 9. *leucaniana*.

**. Forewings without scattered

black scales 8. *glaphyrana*, ♀.

B. Forewings grey.

1. Forewings rather broad 11. *concordana*.

2. Forewings elongate.

a. Hindwings dark grey 13. *aërodana*, male.*b.* Hindwings whitish-grey.

i. Forewings with numerous scat-

tered black scales 12. *indigestana*.ii. Forewings without black scales 13. *aërodana*, female.

C. Forewings deep brownish or reddish-

ochreous 14. *siriana*.

1. *Tort. amænana*, Walk.

(*Conchylis amænana*, Walk., Brit. Mus. Cat. 366; *Conchylis semi-rectana*, ibid. 987; *Conchylis galbana*, Feld., Reise der Novara, Pl. cxl., 29.

♂ ♀. $7\frac{1}{2}$ "- $10\frac{1}{2}$ ". Head deep yellow. Palpi black, apex of second joint yellow above. Antennæ dark fuscous. Thorax black, with a white spot on each side, generally confluent posteriorly. Abdomen deep golden-yellow. Legs yellow, anterior and middle pair suffused with dark fuscous. Forewings moderate, somewhat dilated posteriorly, costa moderately arched, hindmargin obliquely rounded; clear white, with sharply-defined black markings, forming five transverse fasciæ, rather variable in form and intensity; first narrow, rather oblique, close to base; second narrow, nearly straight, from costa at one-fourth to inner margin at one-third; third from before middle of costa to middle of inner margin, variable, often irregular, margins sometimes toothed, sometimes enclosing a small white spot on inner margin; fourth rather irregular, from costa at three-fourths to inner margin just before anal angle, dilated towards inner margin, and generally enclosing a small white spot there; between third and fourth fasciæ is a small spot on costa, sometimes confluent at its extremity with fourth fascia beneath costa; fifth from costa before apex to hindmargin above anal angle, connected below costa by a short transverse bar with fourth; an irregular black streak along hindmargin from apex, reaching to extremity of fifth fascia, attenuated beneath; cilia dull whitish-ochreous, suffused with grey towards base. Hindwings golden-yellow, posteriorly rather deeper, apex with a small double suffused dark fuscous spot; cilia whitish-yellow, with an indistinct fuscous-grey line near base.

This strikingly handsome species bears some general resemblance to *Cacæcia desmotana*, but the markings are quite differently placed, and the hindwings are deeper yellow; the forewings are also rather narrower.

Larva stout, cylindrical, with scattered whitish hairs; rather dull green, spots slightly paler, dorsal vessel indigo-green; head reddish-ochreous, more reddish on crown, face greenish; second segment greenish-ochreous, with a darker green square patch above on posterior margin. It feeds amongst spun-together shoots, or along twigs amongst the leaves, on *Monotoca scoparia* (a low heath-like shrub belonging to the *Epacrideæ*), usually three or four together in a good deal of dense web: and pupates in a rough silken cocoon in the same situation. These larvæ were found in October, and the imagos emerged in November.

Very common amongst its food-plant at Blackheath on the Blue Mountains, 3,600 feet above the sea; and occurs also more sparingly (and of a smaller size) in places near Sydney; it is on the wing in November, January, and March.

2. Tort. subfurcatana, *Walk.*

(*Conchylis subfurcatana*, Walk., Brit. Mus. Cat. 368).

♂ ♀. $7\frac{1}{2}''$ - $8\frac{1}{2}''$. Head, palpi, and thorax dark reddish-ochreous brown. Antennæ dark fuscous. Abdomen fuscous-grey, on sides ochreous. Legs pale yellowish, anterior and middle pair suffused above with dark fuscous. Forewings moderately broad, costa moderately arched towards base, hindmargin slightly oblique; rounded; white, sometimes suffused with pale ashy-grey, with sharply-defined markings, varying from reddish-ochreous-brown to dark fuscous; basal patch somewhat paler at base, its outer edge nearly straight, extending from one-fourth of costa to one-third of inner margin; central fascia rather oblique, from before middle of costa to middle of inner margin, moderately broad, slightly curved, sometimes slightly dilated towards inner margin; a second fascia, nearly equally broad, from costa at two-thirds to anal angle, rather sinuate, generally enclosing a white dot on costa, and connected with central fascia on inner margin by a slender streak; a rather broad streak from apex along upper two-thirds of hindmargin, rapidly attenuated beneath: cilia

ochreous-grey, with an indistinct dark fuscous line near base. Hindwings dark fuscous-grey, sometimes becoming golden-yellow towards base; cilia whitish-ochreous, with an indistinct dark fuscous line near base.

A distinct species, appearing to have three straight white or grey-whitish fasciæ on a dark ground. The tendency of the hindwings (in both sexes) to sometimes become yellow at the base is a curious form of variation.

Rather common in marshy places amongst thickets of swamp-vegetation; it occurs at Sydney, Bulli, and on the Richmond River, in New South Wales; near Melbourne; and at Brighton in Tasmania; from September to November, and in January and March.

3. *Tort. ceramicana*, *n. sp.*

♂. $8\frac{1}{2}$ ". Head, palpi, antennæ and thorax reddish-fuscous; thorax crested. Abdomen pale greyish-ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused above with dark fuscous. Forewings moderate, costa moderately arched, hindmargin sinuate below apex, oblique; light reddish-fuscous, with white and dark reddish-fuscous markings; costal edge slenderly dark fuscous towards base; an indistinct reddish-fuscous streak beneath costa from near base to one-third, interrupted by a whitish spot before its extremity; a sharply-defined triangular dark reddish-fuscous spot, edged with ochreous-white, below middle towards base, its anterior angle very acute, nearly reaching middle of base of wing, upper posterior angle in middle of wing at one-third from base, lower posterior angle almost reaching middle of inner margin; a rather narrow dark reddish-fuscous streak from somewhat above centre of wing to anal angle, margined with ochreous-whitish, posteriorly sinuate; between its upper extremity and the upper posterior angle of the triangular spot is a small oblong white spot; a large triangular dark reddish-fuscous blotch towards apex, whitish-margined beneath,

its apex below costa slightly beyond middle, somewhat suffused into apex of central streak, its base extending along hindmargin from beneath apex to middle, its upper side parallel with costa, its lower side somewhat curved; this blotch is cut by a narrow white streak running from immediately beneath costa beyond middle obliquely outwards to middle of disc at two-thirds from base, and a second narrow white streak from apex of wing obliquely inwards, nearly reaching extremity of first white streak: cilia reddish-fuscous. Hindwings pale fuscous-grey; cilia whitish-grey, with a dark grey line near base.

This species departs somewhat from the usual generic characters of *Tortrix* in the distinctly crested thorax, which does not however appear to me to afford a sufficient basis for generic distinction. Its markings are very eccentric and irregular, but the normal type can still be clearly traced in them.

I have only one male, taken by Mr. Miskin near Brisbane.

4. *Tort. aulacana*, *n. sp.*

♂. $7\frac{1}{2}$ ". Head and palpi light grey or whitish, mixed with fuscous-grey. Antennæ light grey. Thorax greyish-fuscous. Abdomen light ochreous-grey, whitish on sides. Legs whitish, anterior and middle tibiæ and tarsi suffusedly banded with grey. Forewings moderate, costa moderately arched, hindmargin obliquely rounded; pale greyish-ochreous, or white coarsely irrorated with dark fuscous-grey; costa very narrowly and inner margin more broadly suffused with dark grey, costa mixed with reddish; a straight slender dark fuscous line from base beneath costa to apex, well-defined beneath, cloudy above, posteriorly rather indistinct; some irregular dark greyish-fuscous or blackish-fuscous cloudy markings, consisting of a streak from base above fold to middle, an oblique streak from centre to above anal angle, and an oblique streak from disc at two-thirds to apex, suffused together with fuscous-grey clouds so as to form a cloudy gradually dilated streak from base to hindmargin, between which and the

line from base to apex is a clear rather broad longitudinal space of groundcolour, containing a short cloudy longitudinal fuscous-grey line in middle of disc: cilia pale ochreous or light reddish-fuscous towards base, whitish towards extremities, with a dark fuscous-grey line along base. Hindwings fuscous-grey; cilia whitish, with a fuscous-grey line near base.

Characterised by the cloudy but distinct longitudinal markings, the colour and intensity of which appear subject to considerable variation.

Three males taken at Mount Macedon, Victoria, and at Parramatta, New South Wales, in September.

5. *Tort. peloxythana*, *n. sp.*

♂. $6\frac{3}{4}$ ". Head, palpi, and thorax brownish-ochreous, irrorated with dark fuscous. Antennæ dark fuscous. Abdomen dark fuscous mixed with ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings rather narrow, costa slightly arched, hindmargin obliquely rounded; ochreous-white, dorsal half below a line from middle of base to apex wholly suffused with dark grey mixed with ochreous, the groundcolour above this is irrorated with dark grey and ochreous except towards costa; markings dark grey mixed with ochreous, on dorsal half obsolete through the suffusion; basal patch indistinct, outer edge starting from one-fourth of costa, somewhat angulated above middle; central fascia oblique, moderately narrow, starting from costa before middle; a wedge-shaped elongate blotch along costa from beyond middle nearly to apex: cilia ochreous-white, near anal angle grey, with a blackish line near base. Hindwings rather dark fuscous-grey; cilia ochreous-whitish, with a dark fuscous line near base.

Distinguished amongst the fasciated species by the dark grey suffusion of the dorsal half of forewings, and the general darker colouring.

I took one specimen on the hills near Murrurundi, New South Wales. in November.

6. *Tort. trygodana*, *n. sp.*

♂. $6\frac{3}{4}$ ". Head, palpi, and thorax pale ochreous. Antennæ ochreous-grey. Abdomen grey. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused with dark fuscous. Forewings moderate, posteriorly somewhat narrowed, costa moderately arched, hindmargin obliquely rounded; pale ochreous, with a few scattered dark fuscous strigulæ, especially towards hindmargin; inner margin regularly strigulated with dark fuscous; a dark fuscous spot on disc at one-fourth from base, representing angle of basal patch; central fascia irregular, oblique, dark fuscous, starting from beneath costa in middle, at first very slender, lower two-thirds rather broader but margins very irregular, posterior margin indistinct; a dark fuscous line from costa before apex to hindmargin above anal angle; cilia whitish-ochreous. Hindwings fuscous-grey; cilia whitish-grey, with a fuscous-grey line near base.

Closely allied to *T. philopoana* and *T. glaphyrana*, but differing from both in the darker hindwings, the scattered dark strigulæ on forewings, and the character of the central fascia, which is very irregularly margined and does not reach the costa.

One male taken amongst bush at Parramatta, New South Wales, in October.

7. *Tort. philopoana*, *n. sp.*

♂ ♀. $6\frac{1}{2}$ "-8". Head, palpi, antennæ, and thorax pale ochreous. Abdomen whitish-ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused with fuscous-grey. Forewings moderate, in female more elongate and narrower, costa moderately arched towards base, hindmargin obliquely rounded, more obliquely in female; pale ochreous, generally with a few scattered fuscous scales; inner margin faintly strigulated with fuscous;

basal patch ochreous-fuscos, generally indistinct, sometimes well-marked, outer edge running from costa at one-fifth to inner margin at one-fourth, angulated above middle; central fascia ochreous-fuscos, oblique, running from before middle of costa to anal angle, narrow towards costa, lower two-thirds somewhat dilated, margins slightly irregular, generally with a black dot on posterior margin below middle; a small somewhat triangular, ochreous-fuscos spot on costa midway between central fascia and apex; sometimes a small cloudy spot on middle of inner margin, tending to unite with costal spot or base of central fascia; in female these markings are often more reddish-ochreous and less distinct: cilia whitish-ochreous. Hindwings whitish-grey, in female often whitish, somewhat tinged with ochreous towards apex; cilia whitish, with a faint grey line near base.

Distinguished from *T. glaphyrana* especially by the dilation of the lower portion of the central fascia, and the usually perceptible basal patch; the female does not differ in markings from the male, and is therefore very different from *T. glaphyrana*, female, which is entirely without markings, except occasionally a small dorsal spot.

I found this species abundant amongst the long grass in swampy forest near Hamilton, New Zealand, in January.

8. *Tort. glaphyrana*, *n. sp.*

♂. 6"-8". Head, palpi, antennæ, and thorax pale ochreous. Abdomen whitish-ochreous, rarely greyish-ochreous. Legs whitish-ochreous, anterior and middle tibiæ and tarsi suffused with fuscos-grey. Forewings moderate, costa moderately arched, hindmargin obliquely rounded; pale ochreous; basal patch obsolete, its outer edge sometimes indicated by a row of five or six dark fuscos dots, angulated in middle; central fascia very slender throughout, oblique, running from before middle of costa to inner margin at three-fourths, brownish-ochreous, generally

becoming dark fuscous on costa and inner margin, sometimes darker throughout, posterior margin always indistinct; generally there is a black dot a little beyond posterior margin of central fascia below middle; a very small somewhat triangular fuscous spot on costa at three-fourths; sometimes a faint brownish cloud, or two or three dark fuscous dots, near middle of hindmargin: cilia whitish-ochreous. Hindwings whitish-grey or pale grey, slightly ochreous-tinged posteriorly; cilia whitish, with a faint grey line near base.

♀. 7"-8". Forewings rather narrower and more elongate than in male, costa less arched; unicolorous pale ochreous; usually a minute blackish dot in disc beyond middle; sometimes a small cloudy dark fuscous spot on inner margin at three-fourths: cilia whitish-ochreous. Hindwings whitish-grey, cilia whitish.

Differs from *T. trygodana* by the entire, slender, and evenly margined central fascia, and the whitish-grey hindwings; from *T. philopoana* in the male by the slenderness and absence of dilation in the central fascia, the darker fuscous markings, and the absence of the basal patch, in the female by the absence of any transverse markings.

A common species, occurring both in dry bush and in swampy places, at Sydney, Parramatta, Morpeth, and Shoalhaven, New South Wales; near Melbourne; and at Toowoomba (2,000 feet) Queensland; from October to March.

9. *Tort. leucaniana*, Walk.

(*Conchylis leucaniana*, Walk., Brit. Mus. Cat. 370; *Gelechia intactella*, ibid. 652; *Teras pauculana*, ibid. Suppl. 1781).

♂ ♀. 6½"-8". Head, palpi, antennæ, and thorax pale ochreous. Abdomen whitish-ochreous. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffused with smoky-fuscous. Forewings moderate, in female narrower and more elongate, costa moderately arched, hindmargin oblique, more so in female,

straight beneath apex; pale ochreous, in female sometimes pale reddish-ochreous, often slightly darker between the veins posteriorly; a few irregularly strewn black scales; generally a rather more conspicuous black dot on disc beyond middle, usually preceded by a short longitudinal cloudy-grey streak above middle: cilia pale ochreous, extremities whitish. Hindwings whitish, posteriorly greyish-tinged; cilia whitish.

Distinguishable from all its allies except *T. glaphyrana* female, by the unicolorous pale ochreous forewings; the male is much broader-winged than *T. glaphyrana* female, and even in the female the forewings are comparatively less elongate, but the females of the two species are in some cases hardly separable, except by the presence of a few scattered blackish scales in *T. leucaniana*; the males are widely different.

Appears to be generally common in New Zealand, in grassy places; I found it abundantly near Hamilton and Cambridge, on the Waikato, and also at Auckland and Wellington, in December and January.

10. *Tort. centurionana*, *n. sp.*

♂ 11", ♀ 12½"-18". Head, palpi, and thorax whitish-grey, densely irrorated with dark grey. Antennæ dark fuscous, in male strongly ciliated. Abdomen pale grey or ochreous-grey. Legs grey-whitish, anterior and middle tibiæ and tarsi suffused with fuscous-grey. Forewings elongate, in female very elongate, costa rather strongly arched, hindmargin very obliquely rounded; pale reddish-ochreous, darker and with rows of scattered black scales between the veins; dorsal half of wing, a narrow cloudy streak from base to two-thirds of disc above middle, and a slender streak along costa from one-third to apex suffused with fuscous-grey; cilia white, mixed with grey, with a grey line near base. Hindwings whitish-grey, slightly darker posteriorly; cilia whitish with a faint grey line near base.

Easily known by its large size, very elongate forewings (of which the costa is still strongly arched) and cloudy longitudinal suffusion.

I took four specimens (two males, and two females) amongst dry bush at Sydney and Parramatta in the very early spring months, July and August; they appeared very sluggish and inactive.

11. *Tort. concordana*, *n. sp.*

♂ ♀. $6\frac{1}{2}$ "-8". Head, palpi, and thorax whitish-grey. Antennæ whitish, slenderly annulated with dark fuscous. Abdomen whitish-grey, sides and anal tuft whitish-ochreous. Legs whitish, anterior and middle tarsi and tibiæ suffused with dark fuscous above. Forewings moderate, in female rather more elongate, costa rather strongly arched, hindmargin obliquely rounded; whitish-grey, very faintly ochreous-tinged, in one female with small scattered ochreous spots towards inner margin; sometimes a few scattered blackish scales towards hindmargin: cilia whitish-ochreous, extremities paler. Hindwings whitish or whitish-grey, slightly darker posteriorly; cilia whitish, faintly ochreous-tinged round apex.

Characterised by the unicolorous whitish-grey forewings; very closely allied to *T. indigestana*, but the forewings are shorter and broader (especially in male), the groundcolour is lighter, glossier, and slightly ochreous-tinged, especially in cilia, there are at most only a few scattered black scales posteriorly, and there is no reddish discal suffusion.

Larva rather stout, posteriorly somewhat attenuated, with a few whitish hairs; dull grey-green, slightly brownish tinged, spots hardly paler; head and second segment black, very glossy; anal segment ochreous. Feeds in spun-up shoots, or amongst several cylindrically-united leaves of *Hibbertia linearis* and *H. fasciculata* (*Dilleniaceæ*); these larvæ were found in July, and the imagos emerged in August.

Common in open bush amongst its food-plant near Sydney and Parramatta, and at Melbourne, in the spring, August and September, and again in March.

12. *Tort. indigestana*, *n. sp.*

♂ ♀. $5\frac{3}{4}$ "- $7\frac{1}{4}$ ". Head, palpi, and thorax whitish-grey or whitish, mixed with darker. Antennæ whitish, annulated with dark fuscous, in female somewhat suffused. Abdomen pale grey, sides and anal tuft whitish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi suffused with dark fuscous. Forewings elongate, rather narrow, in female more elongate, costa moderately arched, hindmargin very obliquely rounded; pale ashy-grey, mixed with darker, and irregularly irrorated with black scales; a more or less distinct reddish suffusion on disc beyond middle: cilia whitish, with a faint grey line near base.

Near *T. concordana*, but rather smaller, the forewings narrower and more elongate, with the hindmargin more oblique, the groundcolour darker and coarsely irrorated with black, with a mixture of reddish in disc.

Larva undistinguished from that of *T. concordana*; feeding in spun-up shoots or amongst joined leaves of *Hibbertia linearis*, in July.

Less common than the preceding; occurring in similar localities near Sydney, in August and September.

13. *Tort. aërodana*, *n. sp.*

♂. $4\frac{3}{4}$ "- $5\frac{1}{4}$ ". Head, palpi, and thorax whitish-grey mixed with dark grey. Antennæ dark fuscous-grey, sometimes with whitish annulations. Abdomen light grey, anal tuft whitish. Legs grey-whitish, anterior and middle tibiæ and tarsi suffused with dark fuscous. Forewings narrow, costa slightly arched, hindmargin very obliquely rounded; dark grey, irrorated with ashy-whitish and black scales; sometimes there is a distinct ochreous slender oblique fascia from middle of costa to inner margin before anal

angle, and costal spot at three-fourths, but these are often imperceptible; cilia whitish-grey mixed with darker. Hindwings dark grey; cilia paler, with a dark grey line near base.

♀. $6\frac{1}{2}$ "-7". Head, etcætera, as in male. Abdomen whitish-ochreous. Forewings with costa somewhat more arched towards base, hindmargin very oblique; paler than in male, without trace of fascia: cilia whitish. Hindwings whitish, posteriorly whitish-grey; cilia white, with a faint grey line near base.

Allied to *T. indigestana*, but the male is much smaller and narrower-winged, the forewings much darker, often with a distinct ochreous fascia and costal spot, and the hindwings dark grey; the female, being paler, and with whitish hindwings, is hardly separable from *T. indigestana* female, but appears more uniform pale grey, with less distinct blackish irroration, and without any reddish tinge in disc.

I took eight specimens (six males, and two females) amongst dry low heathy scrub near Hamilton, on the Waikato, New Zealand, in January.

14. *Tort. siriana*, n. sp.

♂. $4\frac{3}{4}$ "-5 $\frac{1}{2}$ ". Head, palpi, and thorax deep brownish-ochreous. Antennæ ochreous, annulated with dark fuscous. Abdomen blackish-fuscous. Legs pale greyish-ochreous, anterior and middle tibiæ and all tarsi suffusedly banded with dark fuscous. Forewings narrow, costa gently arched, hindmargin very obliquely rounded; deep brownish-ochreous, generally mixed with dark fuscous posteriorly, sometimes throughout; usually a distinct blackish dot on disc beyond middle: cilia brownish-ochreous, at anal angle mixed with dark fuscous. Hindwings blackish; cilia blackish, extremities ochreous round apex.

♀. $6\frac{1}{2}$ ". Head, et cætera, as in male. Abdomen whitish-ochreous. Forewings rather more elongate, apex more acute, hindmargin very oblique; unicolorous reddish-ochreous; cilia

ochreous, reddish-tinged towards apex, extremities whitish towards anal angle. Hindwings whitish, apex faintly greyish; cilia whitish.

A very distinct species, in form resembling *T. aërodana*; characterised by its small size, and the uniform deep brownish-ochreous or reddish-ochreous forewings; the hindwings are blackish in male, whitish in female.

I found the male abundant (and took one female), in the hot sunshine amongst long grass in a very restricted locality on the skirts of virgin forest near Hamilton, New Zealand; they appeared to fly amongst the tops of the grass, but were difficult to see.

15. *Tort. concolorana*, *n. sp.*

♂. $5\frac{1}{2}$ ". Head, palpi, and antennæ smoky-grey. Thorax ochreous-yellow. Abdomen dark grey. Legs whitish, anterior and middle tibiæ and all tarsi suffused with dark grey. Forewings moderate, costa moderately arched, hindmargin obliquely rounded; unicolorous ochreous-yellow; cilia slightly paler, extremities whitish. Hindwings smoky-grey, posteriorly darker; cilia smoky-grey, with a dark grey line near base.

In form of wing resembling the following; recognisable by the unicolorous yellow forewings, and the sharply contrasted dark grey head.

One specimen, taken in dry bush near Sydney in September.

16. *Tort. standishana*, *Newman*.

(*Tortrix standishana*, Newman, Trans. Ent. Soc. Lond., N.S. III., 286).

♂ ♀. $5\frac{1}{4}$ "- $7\frac{1}{2}$ ". Head ochreous-yellow. Palpi dark fuscous. Antennæ dark fuscous. Thorax dark purplish-fuscous. Abdomen ochreous-grey. Legs whitish-ochreous, anterior and middle tibiæ and all tarsi suffused with dark fuscous. Forewings

moderate, costa gently arched, hindmargin obliquely rounded; ochreous-yellow, with a fuscous-purple band along hindmargin, moderately broad towards costa, gradually attenuated to anal angle: cilia yellowish mixed with grey, extremities paler. Hindwings fuscous-grey; cilia grey, with a dark fuscous line near base.

A small species, but conspicuously distinct through the purplish hindmarginal band on the yellow forewings. Newman's description appears certainly referable to this species.

Rather common in low dry bush near Sydney, flying near the ground towards sunset; also at Blackheath (3,600 feet) on the Blue Mountains, and I have received specimens from Coomoolaroo, near Duaringa, Northern Queensland; Newman's type was from the ranges near Melbourne. It is on the wing from August to October, and again in March.

20. DIPTERINA, *n. g.*

Thorax generally with a very small crest. Antennæ in male somewhat thickened, biciliated with long fine cilia. Palpi moderate, porrected, second joint triangularly rough-scaled, terminal joint almost concealed. Forewings rather elongate, costa in male simple, evenly arched, hindmargin very oblique, almost sinuate, rounded. Hindwings rounded-trapezoidal, not broader than forewings. Forewings with veins 7 and 8 separate, 7 running to hindmargin, secondary cell distinct. Hindwings with veins 3 and 4 from a point, 5 slightly approximated to 4 at base, 6 and 7 stalked.

Allied to *Tortrix* and *Arctophora*, but distinguished from both by the stalking of veins 6 and 7 of hindwings, the presence of a distinctly marked secondary cell in forewings, and the long fine double cilia of the antennæ in male. In superficial appearance the species rather remind one of *Sciaphila*.

I have four Australian and one New Zealand species, which may be thus arranged:

- A. Forewings pale yellow, with blackish markings1. tasmaniana.
- B. Forewings whitish.
1. Central fascia straight, oblique2. tribolana.
2. Central fascia angulated5. imbriferana.
- C. Forewings grey, with darker markings ..4. rupicolana.
- D. Forewings dark purplish-fuscous, with blackish transverse lines3. refluana.

1. Dipt. tasmaniana, *Walk.*

(*Conchylis tasmaniana*, Walk., Brit. Mus. Cat. 365).

♂ ♀. 5"-7". Head and palpi deep yellow. Antennæ whitish, annulated with dark fuscous, basal joint yellow. Thorax blackish-fuscous. Abdomen dark fuscous. Legs yellowish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings subtriangular, costa hardly arched, hindmargin obliquely rounded; pale yellow, tinged with orange towards base; an indistinct blackish dash on base of inner margin; a blackish subtriangular patch on costa towards base, its apex reaching two-thirds across wing; a moderately broad straight blackish fascia from middle of costa to inner margin slightly beyond middle, its edges slightly irregular; a black dot on costa beyond it; a blackish hind-marginal band, rather broad on costa, with a blunt projecting tooth above middle, thence attenuated to anal angle, and slenderly produced along inner margin to meet central fascia; in this band is usually enclosed a yellow dot on costa: cilia yellow, black at apex and anal angle, and suffusedly blackish along base. Hindwings fuscous-grey, towards apex dark fuscous; cilia fuscous-grey with a dark fuscous line near base.

A very distinct species, not liable to be confused with any other.

Mr. G. H. Raynor took this species in plenty at Melbourne in gardens, during September and October; Walker's type is from Tasmania.

2. Dipt. tribolana, *n. sp.*

♂ 6½"-7". Head and palpi whitish-ochreous mixed with fuscous. Antennæ whitish-ochreous, annulated with dark fuscous. Thorax dark fuscous, shoulders mixed with whitish-ochreous. Abdomen dark fuscous. Legs ochreous-whitish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings subtriangular, costa slightly arched, hindmargin obliquely rounded; whitish, irregularly irrorated with fuscous; costa and inner margin coarsely strigulated with dark fuscous, last three costal strigulæ larger and subquadrate; basal patch dark ochreous-fuscous mixed with black, towards base mixed with whitish, its outer edge extending from one-fifth of costa to one-fourth of inner margin, sharply angulated in middle; central fascia rather narrow, oblique, from before middle of costa to inner margin before anal angle, dark ochreous-fuscous mixed with blackish, its posterior margin with an obtuse projecting tooth below middle; beyond central fascia is an obscure greyish-fuscous cloud towards costa, suffusedly connected with it; a dark ochreous-fuscous hindmarginal band, mixed with blackish, broadest in middle, attenuated each way to apex and anal angle: cilia whitish-ochreous, towards base brownish-ochreous mixed with blackish. Hindwings dark fuscous-grey; cilia grey, with a dark fuscous line near base.

Allied to *D. tasmaniana*, which it resembles in form of wing and position of markings; but differing widely in the whitish groundcolour, and dark ochreous-fuscous tint of the markings, and the complete basal patch.

Mr. G. H. Raynor took five specimens at Mount Macedon, Victoria, in December.

3. Dipt. refluana, *n. sp.*

♀. 9¼". Head, palpi, and thorax dark purplish-fuscous mixed with blackish. Antennæ light purplish-fuscous, annulated

with blackish. Abdomen dark ochreous-grey. Legs whitish-ochreous mixed with grey; anterior and middle tibiæ and tarsi dark fuscous with pale rings. Forewings moderately broad, costa arched towards base, hindmargin obliquely rounded; dark purplish-fuscous, suffused with purplish-grey, and crossed by numerous irregular transverse broken blackish lines; a black tooth of scales on inner margin near base: cilia dark purple-fuscous, with a darker central line. Hindwings grey, spotted with dark fuscous-grey; cilia grey, with a dark fuscous-grey line near base.

Allied to *D. rupicolana*, from which it is separated by the dark purplish-fuscous colour and transverse blackish lines; the male is unknown to me, but might be expected to have more distinct markings, as in *D. rupicolana*.

One female taken by Mr. G. H. Raynor near Melbourne.

4. *Dipt. rupicolana*, *n. sp.*

♂ ♀. $6\frac{3}{4}$ "-9". Head, palpi, and thorax dark grey mixed with paler. Antennæ whitish-grey, annulated with dark fuscous. Abdomen pale ochreous-grey. Legs whitish-grey, anterior and middle tibiæ and all tarsi dark fuscous with pale rings. Forewings moderately broad, in male dilated posteriorly, costa moderately arched, hindmargin obliquely rounded; light grey, more or less suffused with darker grey, and with numerous scattered black transverse strigulæ; costa and inner margin strigulated with blackish, last five costal strigulæ dilated into small subquadrate spots; extreme base of wing dark fuscous-grey; outer edge of basal patch represented by an irregular interrupted blackish line from one-fifth of costa to one-fifth of inner margin, angulated in middle; central fascia narrow, oblique, dark grey, irregularly margined with blackish, in female often obsolete, running from before middle of costa to beyond middle of inner margin, attenuated at lower extremity; a small cloudy dark grey irregular spot on anal angle, and another on hind-

margin above it, connected with the five subquadrate costal spots by curved rows of blackish scales: cilia grey, with two obscure blackish lines. Hindwings whitish-grey spotted with dark grey; cilia whitish-grey, with a dark grey line near base.

A dull-looking species, distinguished by its grey colouring, with darker grey markings; the female is more obscure than the male.

Tolerably common in shady well-sheltered spots in the bush, generally amongst rocks, near Sydney and Parramatta, and also taken at Murrurundi, and at Blackheath on the Blue Mountains; an early spring insect, occurring in August and September, and on the mountains in October.

5. *Dipt. imbriferana*, *n. sp.*

♂ ♀. 4"-5½". Head and palpi whitish mixed with grey. Antennæ whitish. Thorax fuscous-grey, mixed with whitish on sides. Abdomen grey, sides and anal tuft whitish. Legs whitish, anterior and middle tibiae and all tarsi suffusedly banded with dark fuscous. Forewings rather elongate, costa moderately arched, hindmargin obliquely rounded; whitish, sometimes faintly clouded with grey; costa and inner margin obscurely strigulated with fuscous-grey; basal patch light fuscous-grey, outer edge extending from one-fourth of costa to one-fourth of inner margin, angulated in middle; central fascia fuscous-grey, margined with dark fuscous, moderately narrow towards costa, rather broader beneath, running from middle of costa to middle of inner margin, angulated in middle; an obscure fuscous-grey cloudy spot on anal angle; a dark fuscous-grey spot on costa at three-fourths, connected with middle of hindmargin by an obscure line; apex sometimes clouded with grey: cilia whitish, with a grey line near base. Hindwings grey, darker posteriorly; cilia grey, with a darker line near base.

Not very near any of the other species; characterised by the whitish groundcolour, grey markings, and especially the angulated central fascia.

I took five specimens amongst bush near Auckland and Wellington, New Zealand, in January.

21. *AROTROPHORA*, *n. g.*

Thorax smooth. Antennæ in male somewhat thickened, strongly dentate, ciliated with tufts of hairs. Palpi very long, second joint elongate-triangularly scaled, attenuated to apex, terminal joint short, distinct. Forewings elongate, costa in male simple, gently and evenly arched, hindmargin obliquely rounded or nearly straight. Hindwings rather elongate, broader than forewings. Forewings with veins 7 and 8 separate, 7 running to hindmargin. Hindwings with veins 3 and 4 rising from a point, 5 approximated to 4 at base, 6 and 7 separate.

Larva sixteen-legged, stout, feeding in seed-heads.

Allied to *Tortrix*, but distinguished by the long palpi, and by the antennæ of male, which are very strongly dentate, and furnished with a tuft of cilia on the apex of each tooth.

I have five Australian and one New Zealand species, thus tabulated:

- A. Head and thorax ochreous-yellow . . 2. *xythopterana*.
- B. Head and thorax dark fuscous . . . 1. *incessana*.
- C. Head and thorax whitish, sometimes
greyish-tinged.
 - 1. Forewings without ochreous tinge . . 5. *confusana*.
 - 2. Forewings with more or less reddish-
ochreous suffusion.
 - a. A well-defined straight dark reddish
streak from apex to anal angle . . 3. *arcuatalis*,
 - b. No such streak. 4. *lividana*.
- D. Head and thorax rather dark grey . . 6. *atimana*.

1. *Arotr. incessana*, Walk.

(*Teras incessana*, Walk., Brit. Mus. Cat. 304).

♂. 6"-8". Head, palpi, antennæ, thorax, and abdomen dark fuscous; palpi long. Legs whitish-ochreous, anterior and middle pair and posterior tarsi suffused with dark fuscous above. Forewings subtriangular, posteriorly dilated, costa moderately arched, apex rather acute, hindmargin sinuate, oblique; reddish-fuscous, indistinctly strigulated with darker, with dark fuscous markings; basal patch obscure, its outer edge nearly straight, not oblique, most distinct on inner margin; central fascia moderately broad, not oblique, from middle of costa to middle of inner margin, its anterior edge straight, well-defined, its posterior edge suffused, connected with an obscure dark cloud on disc beyond middle; a triangular spot on costa at three-fourths; a short erect streak from anal angle, reaching nearly half across wing: cilia pale reddish-fuscous, with a blackish line along base. Hindwings fuscous-grey, indistinctly spotted with darker; cilia pale grey, with a darker line near base.

Distinguished amongst its allies by the reddish-fuscous ground-colour, and especially by the well-defined straight, not oblique, anterior edge of central fascia.

I took one specimen amongst bush near Auckland, New Zealand, in January; and there are two others in the British Museum from the same locality, agreeing with mine in all respects.

2. *Arotr. xythoptera*, n. sp.

♂. 8½". Head and thorax ochreous-yellow. Palpi very long, ochreous-yellow above, ochreous-fuscous beneath. Antennæ dark fuscous, basal joint yellow. Abdomen dark grey. Legs grey-whitish, anterior and middle tibiæ and all tarsi suffused above with dark fuscous-grey. Forewings moderately broad, costa rather strongly arched, hindmargin straight, oblique, rounded beneath; pale yellowish-ochreous, apical half (beyond

a line from costa at two-fifths very obliquely outwards to disc beyond middle, sharply angulated and continued obliquely inwards to middle of inner margin) dark reddish-ochreous-fuscous, strewn with numerous small dark leaden-grey spots; a dark fuscous dot at the angulation; a small cloudy dark reddish-ochreous-fuscous spot, mixed with grey, on inner margin before middle; a suffused dark ochreous-grey cloud from apex to inner margin at two-thirds: cilia dark fuscous-grey, with two blackish lines. Hindwings light fuscous-grey spotted with darker; cilia grey, with two dark grey lines.

A distinct and handsome species, characterised by the well-marked contrast between the pale yellowish basal and dark ochreous-brown apical halves of the forewings; allied to *A. arcuatalis*, but broader-winged, costa more arched, and hindmargin rather less oblique.

One male beaten from a *Banksia* near Parramatta, New South Wales, in March; a second from *Banksia spinulosa* at Mittagong.

3. *Arotr. arcuatalis*, Walk.

(*Scopula arcuatalis*, Walk., Brit. Mus. Cat. (Pyr.) ; *Eromene transcissella*, ibid. Suppl. 1763).

♂ ♀. $7\frac{3}{4}$ "-11". Head and thorax whitish, shoulders whitish-ochreous. Palpi very long, whitish, externally on sides pale ochreous or reddish-ochreous. Antennæ whitish-ochreous, basal joint white. Abdomen whitish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi suffusedly banded with grey. Forewings elongate, triangular, costa slightly arched near base, thence nearly straight, hindmargin straight, oblique; whitish, very finely irrorated with grey, with reddish-ochreous markings; a dark reddish-ochreous streak from base beneath costa to one-third thence bent obliquely downwards to centre of disc, and again upwards to beneath costa at two-thirds, sometimes faintly continued to costa before apex; the space between this line and costa is grey, suffused with reddish-ochreous along costa, some-

times wholly reddish-ochreous; a dark reddish-ochreous streak along submedian fold from base to middle; a black dot on disc at two-thirds; a straight dark reddish-ochreous streak, posteriorly darker and sharply defined, from apex to just before anal angle, and a more slender dark reddish-ochreous streak along hindmargin from apex to below middle: cilia whitish, irrorated with grey, with a dark grey line near base. Hindwings whitish-grey; cilia whitish-grey, with a dark grey line near base.

Always recognisable by the distinct dark reddish-ochreous lines on the grey-whitish forewings; variable in size, but always considerably larger and rather broader-winged than the three following species; the palpi are also comparatively longer.

Larva stout, cylindrical; rather dull uniform carmine-pink; head black. Feeds in the flower-cones of *Banksia serrata* (*Proteaceæ*), burrowing through the substance of the cone whilst the seeds are forming. Larvæ found in July and August emerged in October, and others found in January emerged in February.

Rather common at Sydney and Parramatta, and at Blackheath on the Blue Mountains (3,600 feet), from October to December, and in February; the imago is inactive, and when beaten out usually flies straight to the ground.

4. *Arotr. lividana*, *n. sp.*

♂ ♀. 5"-6". Head and thorax whitish tinged with grey. Palpi long, whitish mixed with grey. Antennæ whitish-grey. Abdomen whitish-grey. Legs whitish, anterior and middle tibiae and tarsi banded with dark fuscous-grey. Forewings elongate, narrow, costa slightly arched, hindmargin straight, very oblique; whitish, coarsely irrorated with grey, and more or less strongly suffused with dark grey along margins, more widely along basal two-thirds of costa and along hindmargin; costa and inner margin strigulated with darker; a dark grey spot, often suffused with reddish-ochreous, above submedian fold at one-third; an

ill-defined dark grey cloud, more or less suffused with reddish-ochreous, in middle of disc, confluent with costal suffusion; the reddish-ochreous suffusion is sometimes more or less distinctly produced to base, and extends to costa: cilia whitish-grey, with two dark fuscous-grey lines. Hindwings pale fuscous-grey; cilia whitish-grey, with a fuscous-grey line near base.

This and the two following species are very closely allied together, and differ from the three preceding by their small size, and narrow wings, with more oblique hindmargin. *A. lividana* differs from both *A. confusana* and *A. atimana* by the always perceptible reddish-ochreous discal suffusion, more whitish groundcolour, and grey marginal suffusion.

Six specimens taken at Sydney and Bulli, New South Wales, and near Brisbane, Queensland, in September and October; this and the two following species all seem to frequent species of *Banksia*, and their larvæ probably feed in the same way as *A. arcuatalis*.

5. *Arotr. confusana*, Walk.

(*Pædisca confusana*, Walk., Brit. Mus. Cat., 381).

♂. 5"-5½". Head and thorax whitish-grey. Palpi long, whitish-grey mixed with darker. Antennæ whitish-grey. Abdomen whitish-grey, towards base and at apex whitish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings moderately elongate, costa moderately arched, hindmargin straight, oblique; whitish-grey, irrorated with darker; costa and inner margin obscurely strigulated with dark fuscous-grey; an indistinct somewhat triangular dark fuscous-grey spot on inner margin at one-third; an outwardly oblique dark fuscous-grey streak from costa at one-third, reaching half across wing; a rather broader oblique wedge-shaped dark fuscous-grey spot on middle of costa, meeting a small white spot in middle of disc, which is connected with inner margin beyond middle by an indistinct dark fuscous-grey cloud;

a triangular fuscous-grey spot on costa at three-fourths; an oblique fuscous-grey streak near hindmargin from anal angle, not reaching apex; a dark fuscous-grey line along hindmargin: cilia whitish-grey, with two dark grey lines. Hindwings whitish, faintly greyish-tinged; cilia whitish, with a faint grey line near base.

Rather broader-winged than either *A. lividana* or *A. atimana*; more greyish-tinged than *A. lividana*, without reddish-ochreous suffusion, and with well-defined dark grey transverse markings on costal half of wing, which are not found in *A. lividana*; lighter than *A. atimana*, with less suffused and more numerous markings differing in position.

Eight specimens taken amongst *Banksia* near Sydney, in October, and again in March and April.

6. *Arotr. atimana*, *n. sp.*

♂ ♀. $4\frac{3}{4}$ "- $5\frac{1}{2}$ ". Head, palpi, and thorax rather dark grey. Antennæ pale grey. Abdomen whitish-grey. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings elongate, narrow, costa gently arched, hindmargin straight, very oblique, anal angle almost obliterated; light grey, very indistinctly strigulated with darker; a suffused oblique dark fuscous-grey streak from costa at one-fourth, and another inwardly oblique from costa in middle, their extremities confluent in middle of disc; three or four suffused subquadrate dark fuscous-grey spots on costa between middle and apex; some indistinct dark grey transverse streaks towards inner margin: cilia whitish-grey, without distinct lines. Hindwings whitish-grey at base, darker grey posteriorly; cilia whitish-grey.

Narrower-winged than either of the other species, and with extremely oblique hindmargin; also rather smaller and darker than either *A. lividana* or *A. confusana*, with two suffused darker streaks forming a triangle with costa before middle.

Four specimens taken near Sydney in August and January.

The next paper will include the species of the families *Grapholithidæ* and *Conchylidæ*, completing the *Tortricina*; as an appendix to which I propose to add a list of Walker's descriptions of the group, referred to their proper species and genera, by way of index.

ADDENDA.

Whilst the foregoing descriptions were passing through the press I have obtained an additional new species, and further information respecting three species described above, particulars of which are here subjoined.

Capua parmierana, n. sp.

♂. 5½". Head pale greyish-ochreous on crown, face dark fuscous. Palpi dark fuscous. Antennæ greyish-ochreous. Thorax light greyish-ochreous. Abdomen light grey. Legs light grey, anterior and middle tibiæ and tarsi dark fuscous with light greyish-ochreous rings. Forewings rather narrow, costa gently arched, bent before middle, hindmargin oblique, slightly sinuate; pale greyish-ochreous, with scattered faint pale grey slightly metallic transverse strigulæ; basal patch indicated by a few dark fuscous scales in disc and towards inner margin about one-third; a purplish-grey rounded-triangular patch extending along costa from two-fifths almost to apex, and reaching half across wing, its anterior margin bordered by a strong blackish-fuscous streak, posterior margin with several irregular blackish-fuscous spots, included portion of costa also spotted with blackish-fuscous; a slender suffused blackish-fuscous streak along upper half of hindmargin; a few blackish-fuscous scales at anal angle: cilia pale greyish-ochreous, indistinctly chequered with purplish-grey, bars becoming confluent on basal half towards upper part of hindmargin. Hindwings rather light grey; cilia light grey, darker near base, extreme base whitish.

A very distinct species, allied to *C. vacuana* and *C. hemicosmana*, but readily known by the dark costal triangular patch.

One male, taken in a gully near Sydney in October.

Cryptoptila immersana, *Walk.*

The discovery of the larva of this insect has revealed the very extraordinary and startling fact that it is the female of *Cacæcia australana*, Lw. It becomes now questionable whether the costal tuft of the hindwings, being confined to the female sex, is a sufficient basis for generic distinction, curious as it is. I think it will perhaps be better to regard the insect for the present as an extreme type of *Cacæcia*, but further knowledge of the group may confirm the original separation of the genus. The specific name *australana*, Lw. will be retained as the oldest.

Larva elongate, cylindrical, when at rest curiously flattened posteriorly, head rather large, anal segment flattened; dark bluish-grey above, yellowish-green on sides; spots raised, rather large, greenish-yellowish; head and second segment whitish-bluish, head with four large black spots on posterior margin, and some black marks round mouth; second segment with an oblique linear black mark on each side; anal segment pale whitish-blue. It feeds in folded and irregularly joined leaves of *Hedera* and *Lonicera* (garden ivy and honeysuckle); also, according to Lewin, on *Embothrium speciosissimum*, so that it is probably polyphagous. These singular larvæ were found abundantly towards the end of August near Parramatta, and imagos appeared about the end of September.

Tortrix trygodana.

I have since taken this species in abundance near Sale, Gippsland, flying very readily in somewhat swampy grass plains in September. It is very variable in appearance; the description applies to a well-marked type, but the markings are very commonly

more or less wholly obsolete, represented only by a few coarse scattered dark fuscous scales. The species is however a good and distinct one, separated, as indicated above, from its nearest allies by the darker hindwings.

Arotrophora xythopterana.

Larva moderately stout, cylindrical, rather tapering posteriorly; dull bluish-grey-green, spots darker; head and second segment black. It feeds in a short stiff silken tube amongst leaves of *Lomatia silaifolia* (*Proteacæ*), discolouring them conspicuously. Pupa in a firm silken cocoon covered with refuse, within the end of the tube.

The larvæ were found in July, and I bred two imagos (male and female) at the beginning of August.

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DESCRIPTIONS OF AUSTRALIAN MICRO-LEPIDOPTERA.

By E. MEYRICK, B.A.

VI. TORTRICINA. (Continued)

The present instalment concludes the *Tortricina*, so far as they are at present known. It treats of the two remaining families, the *Grapholithidæ* and the *Conchylidæ*, as defined in the preceding paper (No. V.). These families are far less prominent in the Australian region than they are in the Northern hemisphere, and especially in Europe; their main groups are indeed wholly absent and the representatives of the families consist chiefly of specially developed groups, with scattered outliers of some northern types. Descriptions are here given of 55 species, of which 45 are new to science.

The *Grapholithidæ* are represented by 49 species, less than half the *Tortricidæ*, of which in Europe they are very considerably more than double. Even of this number 4 are species introduced from Europe and now fully naturalised; of the remaining 45 species 2 are common to Australia and New Zealand, 2 are endemic to New Zealand, and the remainder are endemic to Australia. The character of this fauna is strikingly peculiar and of great interest, but before discussing its nature, it will be necessary to make some remarks upon the internal classification of the family.

In my view the *Grapholithidæ*, as at present known, are divisible into six equivalent groups of genera, by the following characters; these groups are mostly natural subdivisions, and the characters defined will be found to hold almost universally, though it is not denied that exceptions may occur within the limits of the group.

- A. (*Penthina* group.) thorax crested; antennæ entire; veins 7 and 8 of forewings separate (rarely stalked); veins 3 and 4 of hindwings from a point (rarely stalked).
- B. *Eudemis* group.) thorax slightly crested; antennæ entire; veins 7 and 8 of forewings separate; veins 3 and 4 of hindwings remote at origin.
- C. (*Pædisca* group.) thorax smooth; antennæ entire; veins 7 and 8 of forewings separate; veins 3 and 4 of hindwings from a point.
- D. (*Grapholitha* group.) thorax smooth; antennæ entire; veins 7 and 8 of forewings separate; veins 3 and 4 of hindwings stalked.
- E. (*Palæobia* group.) thorax smooth; antennæ entire; veins 7 and 8 of forewings stalked; veins 3 and 4 of hindwings stalked.
- F. (*Strepsiceros* group.) thorax smooth; antennæ of male with a deep notch; veins 7 and 8 of forewings separate; veins 3 and 4 of hindwings stalked.

Comparing the relative proportions of these groups in Australia, New Zealand, and Europe, and adding the proportion of *Tortricidæ* as a standard of comparison, we have the following results; and although the actual number of species indicated from this region will doubtless be largely increased, there is no reason to suppose that the proportions will be materially changed.

		Europe.	Australia.	New Zealand.
<i>Tortricidæ</i> ..	..	..151	.. 79	.. 24
<i>Grapholithidæ</i> {	Group A..	87	.. 9	.. 1
	„ B..	13	.. 0	.. 0
	„ C..	70	.. 0	.. 0
	„ D..	230	.. 6	.. 0
	„ E..	1	.. 14	.. 0
	„ F..	1	.. 14	.. 3

Here we have two-thirds of the Australian species corresponding to two species in Europe, whilst the remaining third corresponds to four hundred species; whilst in New Zealand the family is hardly present at all. In the only other region of which the *Tortricina* are at all known, North America, the relative proportions of the various groups are much the same as in Europe, and groups E. and F. are not known to be represented at all.

The indigenous Australian species of *Grapholithidæ* are referable to eleven genera, of which three, containing nine species, occur also in Europe and North America; the other eight, with thirty-four species, are new and endemic, one only extending to New Zealand. The two peculiar New Zealand species belong to two endemic genera, one of which is very abnormal, the other nearly allied to Australian genera. The four introduced European species belong to four other genera, which are not otherwise represented in the region; there can be no doubt that they came over with their food-plants, but all are now well established and of common occurrence, and two at least are found in New Zealand as well as in Australia. It may be remarked that one of them,

Crocidosema plebeiana, seems to be already much more plentiful here than at home; indeed, if it were not so marked an European type, it might be argued that it was really introduced from Australia into Europe, but it is not probable that this was the case.

The principal feature of the family is the development of the nearly-allied groups of *Palæobia* and *Strepsiceros*, which are apparently almost confined to the Australian region. The two European species of these groups are very similar in facies to the Australian, but generically distinct. The peculiar larval habit of at least one species of *Palæobia*, which mines blotches beneath the cuticle of leaves, in the same manner as many of the smaller *Tineina*, is unprecedented in the *Tortricina*. Two species of *Strepsiceros*, which occur in both Australia and New Zealand, are the only *Tortricina* which appear to be indigenous to both countries; and under those circumstances it becomes a question of importance whether they are really indigenous to both, that is to say, whether their occurrence in one or other is not due immediately to human agencies. Of the two species in question, *S. ejectana* is an excessively abundant species in various parts of Australia, and is known to feed on several common Australian shrubs; in New Zealand it seems to occur more sparingly, and the specimens I took were decidedly dwarfed; it does not seem at all improbable that it may have been accidentally transported with some one of its foodplants from Australia to New Zealand, and subsequently have maintained itself on allied plants. *S. zopherana*, on the other hand, occurred to me in great abundance in New Zealand, and I have only met with occasional individuals round Sydney; it is not inconceivable that in this case the previous process may have been reversed, but further evidence is required. If however these species are really indigenous to New Zealand, I am surprised that peculiar species of the genus have not occurred there; though it is true that we have there the nearly allied but peculiar genus *Hendecasticha*. In view of the otherwise complete

specific difference between the *Tortricina* of Australia and New Zealand, the matter is deserving of a full investigation.

The little genus *Stigmonota* is also worthy of notice, as being, with the exception of the abnormal and doubtful genus *Epitymbia* the sole representative of the large *Grapholitha* group. Its presence probably indicates the antiquity of the genus; the species are very similar in facies to the European.

Of the *Conchylidæ* there are five Australian and one New Zealand species, all endemic, distributed amongst four endemic genera, the New Zealand species being congeneric with an Australian one. These appear to form two groups, both of which are very distinct from anything yet known to occur in other parts of the world, and are characterised by the structure of the hindwings. These in all other known genera of the family contain eight veins, of which 3 and 4 are stalked or from a point; but in one Australian type, represented by the genus *Heliocosma*, these veins 3 and 4 are widely remote at origin and parallel, whilst in the other type, of which the other three genera are examples, there are only six veins in the hindwings altogether. The curious bladder-like swelling of the forewings in *Coscinoptycha*, and the spherical radiating tuft of hairs on the hindwings of *Oistophora*, are abnormal and remarkable characters to which no analogy is found elsewhere. The facies of *Heliocosma* is that of the normal European type; but the species of the other group are eccentric and peculiar in appearance, and indeed are hardly recognisable superficially as belonging to the *Tortricina*. The origin of the whole of the Australian forms may probably be referred to some single ancestor of extinct type, finding its way hither at a very remote period, perhaps intermediate in structure between *Heliocosma* and *Paramorpha*, which have many points of resemblance. The habit of the only larva of this family which I have yet met with is also very extraordinary, for it constructs for itself a portable case of the fragments of the flowers on which

it feeds, exactly after the fashion of some of the smaller *Tineina*, such as *Coleophora*.

If the general remarks on the three families of *Tortricina* are compared, it will be seen that the evidence of all points in the same direction. All alike show indications of long isolation and great specialisation, and are distinguished by the disproportionate development of peculiar endemic groups. We have at present too little knowledge of other extra-European regions to be able to understand precisely the bearing of individual peculiarities, but the main lines of difference are clearly defined and instructive, and it may be anticipated that, when the fauna of the Malayan region is made known, we shall be in a position to furnish valuable evidence on the process of immigration of the Australian *Micro-Lepidoptera*.

It may be mentioned that according to the number of species at present known, the proportion of *Tortricina* to *Tineina* is in the European region 35 per cent., and in the Australasian only 16 per cent., or less than half the European.

Fam. II. GRAPHOLITHIDÆ.

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

The Australian and New Zealand species of the family described hereafter are referred to seventeen genera, which may be analytically separated as follows:

I. Forewings with 12 veins.

A. Veins 7 and 8 of forewings stalked.

1. Veins 3 and 4 of hindwings from a point 1. *Phricanthes*.

2. Veins 3 and 4 of hindwings stalked.

a. Hindwings with a membranous discal

ridge near base 11. *Epitymbia*.

b. Hindwings smooth.

i. Costa in male with basal fold ..14. *Holocola*.

ii. Costa in male simple13. *Palæobia*.

B. Veins 7 and 8 of forewings separate.

1. Veins 3 and 4 of hindwings from a point.

a. Vein 7 of hindwing rising from cell

much before upper angle 5. *Scolioplecta*.

b. Vein 7 of hindwing rising from
upper angle of cell.

i. Thorax smooth 8. *Aphelia*.

ii. Thorax crested.

* Thorax with three crests; apex

of forewings falcate 6. *Epalxiphora*.

** Thorax simply crested; apex of
forewings rounded.

† Palpi porrected 4. *Penthina*.

†† Palpi ascending, appressed

to face 3. *Antithesia*.

2. Veins 3 and 4 of hindwings stalked.

a. Costa in male with basal fold.

i. Antennæ of male notched above
basal joint.

* Veins 6 and 7 of hindwings stalked 15. *Bathrotoma*.

** Veins 6 and 7 of hindwings

separate 16. *Strepsiceros*.

ii. Antennæ of male simple 12. *Crocidosema*.

b. Costa in male simple.

i. Hindwings in male with discal

groove and ridge near base ..10. *Carpocapsa*.

ii. Hindwings in male smooth.

* Thorax crested 2. *Helictophanes*

** Thorax smooth 9. *Stigmonota*.

3. Veins 3 and 4 of hindwings separate

at origin 7. *Eudemis*.

II. Forewings with 11 veins17. *Hendecasticha*

1. PHRICANTHES, *n. g.*

Thorax with a moderate erect crest. Antennæ in male thickened, shortly ciliated. Palpi rather short, porrected, second joint densely rough-haired beneath and at apex above, terminal joint exposed. Posterior tibiæ fringed with short hairs above. Forewings moderately broad, costa in male simple, arched, hind-margin slightly sinuate beneath apex; surface with raised scales. Hindwings strongly rounded, broader than forewings. Forewings with veins 7 and 8 stalked, vein 7 running to costa, secondary cell indicated, vein 1 simple at base. Hindwings with veins 3 and 4 rising from a point, 5 approximated to 4 at base, 6 and 7 separate, diverging.

Belonging to the group of *Penthina*, and very similar in facies to *Helictophanes*, but distinguished by the peculiar and abnormal neuration of forewings, in which veins 7 and 8 are stalked and both run to costa before apex, and vein 1 is not furcate at base; the neuration of hindwings is normal.

The only species is of moderate size, and rather conspicuously marked.

1. Phric. asperana, *n. sp.*

♂ ♀. $6\frac{1}{2}$ "-8". Head white, mixed above with dark fuscous, forehead with a small blackish spot. Palpi white, second joint black at base and with two interrupted black rings externally. Antennæ dark ochreous-grey, with slender blackish annulations. Thorax dark fuscous mixed with black, and on shoulders with whitish. Abdomen light brownish-ochreous. Anterior tibiæ black with two white rings, tarsi black with base and two rings slenderly white; middle tibiæ white with three narrow black rings, tarsi white with apex, a broad band near base, and two slender rings black; posterior tibiæ whitish-ochreous minutely speckled with black, tarsi whitish-ochreous with slender blackish rings at base of joints. Forewings moderate, apex very obtuse,

dorsal half with numerous spots of roughened scales ; white, costa and inner margin strongly strigulated with blackish, alternate spots larger, last four costal spots broader and close together ; a dark grey blotch, mixed with ochreous and transversely strigulated with black, extending along inner margin from base to two-thirds, and reaching two-thirds across wing, rather ill-defined, rounded posteriorly ; a slender ferruginous transverse streak from costa at one-fourth, reaching half across wing, blackish on costa ; a small grey irregularly triangular spot on disc at two-thirds ; a rather broad grey streak, coarsely mixed with black, from costa at three-fourths to anal angle, posteriorly rather undefined, anterior edge closely preceded by a slender irregular grey line ; some small irregular black streaks on hindmargin, connected together by a slender ferruginous streak close to hindmargin, extending to above apex ; cilia grey, mixed with dark grey, towards anal angle whitish. Hindwings smoky brownish-ochreous ; cilia pale ochreous, with a dark ochreous-grey line near base, extremities dark fuscous round apex.

Superficially somewhat similar to *Helictophanes tricolorana*, but differing by the ferruginous marks on forewings, and the smoky brownish-ochreous hindwings, besides other details.

Generally taken at rest on the trunks of *Eucalyptus* ; tolerably common on the sandy coast near Sydney, in thin scrub, and occurs also at Waratah on the Hunter River, in October, December, and January.

2. *HELICTOPHANES*, *n. g.*

Thorax with a moderate erect crest. Antennæ in male moderately ciliated. Palpi moderate, porrected, second joint roughly haired beneath and at apex above, terminal joint exposed. Posterior tibiæ fringed with hairs above. Forewings moderately broad, costa slightly arched, in male simple, hindmargin rounded or slightly sinuate. Hindwings rounded-elongate, broader than forewings. Forewings with veins 7 and 8 separate, 7 running to

costa (? or hindmargin), secondary cell distinct, vein 1 furcate at base. Hindwings with veins 3 and 4 stalked, 5 approximated to 4 at base, 6 and 7 stalked.

Allied to *Penthina*, but distinguished from all other genera of the group by the stalking of veins 3 and 4 of hindwings; the stalking of veins 6 and 7 of hindwings, and the termination of vein 7 of forewings on the costa, are also noticeable characters.

I have only been able to thoroughly examine the neuration of *H. uberana*; but the other two species appear to agree in all essential points, as well as they can be made out, and especially in the stalking of veins 3 and 4 of hindwings, which is distinct.

The three species may be separated as follows :

- a. Forewings white and black; hindwings yellow. .1. *tricolorana*.
- b. Forewings ochreous-brown; hindwings dark-grey 2. *uberana*.
- c. Forewings light ochreous; hindwings pale
brownish-ochreous3. *fungiferana*.

1. *Helict. tricolorana*, n. sp.

♂. 7". Head, palpi, and thorax dark fuscous mixed with whitish, second joint of palpi with an ochreous spot on outer side. Antennæ brownish-ochreous. Abdomen dark fuscous, tinged with ochreous. Legs blackish-fuscous, tibiæ and tarsi with slender whitish rings. Forewings moderate, costa gently arched, apex obtusely rectangular, hindmargin hardly oblique; white, costa and inner margin very shortly strigulated with black; basal patch blackish, mixed with dark grey and whitish, its outer edge extending from one-third of costa to one-third of inner margin, irregular, slightly angulated in middle; a dark fuscous-grey ill-defined blotch extending along inner margin from basal patch to three-fourths, reaching half across wing, somewhat rounded posteriorly; two or three small black marks immediately beyond its posterior edge; a small black triangular spot at apex of wing, slenderly produced along hindmargin, and containing

two oblique white streaks before apex; from its anterior angle proceeds a slender blackish sinuate line at first inwards, then curved outwards to anal angle; a dark fuscous-grey cloudy streak parallel and close to lower half of hindmargin: cilia whitish with two black lines (?). Hindwings deep yellow, apex and hindmargin broadly suffused with dark fuscous; cilia grey-yellowish, with a dark fuscous line near base.

A distinct and handsome species, superficially separable from *Phric. asperana* by the yellow hindwings, and the entire basal patch, black apical spot, and absence of ferruginous markings on forewings.

One specimen, taken at Sydney in October.

2. *Helict. uberana*, n. sp.

♂ ♀. $6\frac{1}{2}''$ - $7\frac{1}{2}''$. Head, palpi, thorax, and antennæ ochreous-brown, sometimes mixed with dark fuscous. Abdomen dark fuscous. Legs grey-whitish, anterior tarsi black with base and two narrow median rings whitish, anterior and middle tibiæ, and middle and posterior tarsi banded with dark fuscous. Forewings moderate, costa bent before apex, apex obtusely rounded; ochreous-brown, more or less irrorated and suffused with dark fuscous; costa with slender oblique whitish strigulæ, the interspaces between which are black; a small subquadrate black spot on costa at one-fourth, and a blackish ill-defined spot on disc at one-third, indistinctly connected; a small subquadrate black spot on costa in middle; some indistinct dark fuscous transverse strigulæ towards anal angle and hindmargin: cilia ochreous-brown or dark fuscous. Hindwings dark fuscous-grey; cilia fuscous-grey, with a dark suffused line near base.

Var. Forewings with a large round ochreous-yellow blotch in disc above middle at two-thirds from base.

Recognisable by the rich ochreous-brown colour, and peculiarly rounded apex of forewings; the variety characterised is curious, but appears to belong to this species without doubt.

Seven specimens of the type, and one of the variety, taken at rest on fences round Sydney, in October and December; in repose the tips of the forewings are peculiarly bent in beneath the extremity of the abdomen, causing an appearance of deformity.

3. *Helict. fungiferana*, *n. sp.*

♂. $6\frac{1}{4}$ ". Head and thorax pale ochreous, mixed with whitish, centre of thorax with a large square blackish spot. Palpi blackish. Antennæ brownish-ochreous. Abdomen brownish-ochreous, segments suffused with dark grey towards base. Legs whitish-ochreous, anterior and middle tibiæ and all tarsi banded with blackish. Forewings moderate, costa gently arched, apex rectangular, hindmargin rather bowed outwards below middle; light ochreous, with two clusters of tufts of raised scales towards inner margin, the first about one-fourth, the second in middle, and some scattered tufts above anal angle; some irregular blackish scales along inner margin towards base; a large dark grey triangular costal blotch, mixed with black, extending on costa from one-fourth nearly to apex, anteriorly attenuated, its apex reaching two-thirds across wing a little before anal angle, indistinctly connected with hindmargin before anal angle by two or three dark grey and blackish scales: cilia light brownish-ochreous. Hindwings pale brownish-ochreous, transparent at base, hindmargin suffused with dark fuscous-grey; cilia pale brownish-ochreous, with a darker line near base.

Somewhat resembling *Penth. helicana* in colour and type of marking, but characterised by the tufts of raised scales towards inner margin, and the much larger costal blotch.

One specimen taken in scrub near Parramatta, New South Wales, in September.

3. *ANTITHESIA*, Gn.

Thorax with a strong erect crest. Antennæ in male thickened, ciliated. Palpi rather short, ascending, closely appressed to face,

second joint shortly rough-haired beneath, terminal joint short, distinct. Posterior tibiæ fringed with hairs above. Forewings moderately broad, costa gently arched, in male simple, hindmargin rounded. Hindwings rounded-elongate, broader than forewings. Forewings with veins 7 and 8 separate, vein 7 running to hindmargin, secondary cell distinct. Hindwings with veins 3 and 4 rising from a point, 5 approximated to 4 at base, 6 and 7 separate, diverging.

Larva sixteen-legged, feeding in rolled leaves.

The genus only differs from *Penthina* in the form of the palpi, which are bent upwards and appressed to the face; but unless the two genera can be connected by indefinable gradations, this appears to me a sufficient point of distinction.

I have two Australian species; the genus is scantily represented in Europe.

1. *Ant. phyllanthana*, n. sp.

♂ ♀. $6\frac{1}{2}$ "- $7\frac{1}{2}$ ". Head and palpi dark fuscous mixed with whitish-grey. Antennæ dark ochreous-fuscous. Thorax in male whitish-ochreous or pale ochreous mixed with dark fuscous, in female almost wholly dark fuscous. Abdomen ochreous-grey, anal tuft of male whitish-ochreous. Legs whitish-ochreous, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings moderate, costa gently arched, apex obtuse, hindmargin somewhat oblique; light reddish-fuscous, somewhat suffused with whitish, in female more or less wholly suffused with dark fuscous-grey; basal patch blackish-grey, irregularly suffused with white and light reddish towards base, outer edge extending from costa at one-third to inner margin before middle, somewhat concave below middle; central fascia blackish, on lower half mixed or suffused with light reddish, moderately broad, anterior edge well-defined, extending from just before middle of costa to just beyond middle of inner margin, separated on costa from basal

patch by a subquadrate white spot; costa between central fascia and apex suffused with blackish, with five pairs of oblique whitish strigulæ; beyond central fascia the disc is wholly suffused with dark grey, except an ovate reddish-white patch on anal angle, emitting a curved whitish line from its anterior end reaching half across wing, and two sinuate whitish lines close together from its apical end, meeting and terminating a little below apex; sometimes a reddish-white mark on hindmargin below apex; in female these markings are often almost obliterated in the dark fuscous-grey suffusion: cilia light reddish-fuscous, beneath anal angle whitish, in female sometimes wholly whitish or wholly blackish-fuscous. Hindwings fuscous-grey, hindmarginal edge darker; cilia whitish-grey, with a dark grey line near base.

A variable insect, ranging from light reddish-fuscous to dark grey, but generally showing a small clear white spot on costa before middle, and a whitish patch on anal angle; some forms recall the European *Penth. profundana*, F.

Larva dull green, but undescribed; feeding in rolled-up leaves of *Phyllanthus Ferdinandi*, (a small tree belonging to the *Euphorbiaceæ*) in December.

Rather common on fences in Sydney, where the food-plant is only grown in gardens, being a native of Queensland; occurs in January and February.

2. Ant. sphærocosmana, n. sp.

♂. 8½". Head, palpi, antennæ, and thorax ochreous, face and outer side of palpi mixed with blackish, basal joint of antennæ blackish. Abdomen grey, anal tuft whitish-ochreous. Anterior and middle legs whitish-ochreous, broadly banded with dark fuscous; posterior legs whitish. Forewings strongly dilated posteriorly, costa slightly arched, considerably bent beyond middle, apex obtuse-angled, hindmargin straight, not oblique; reddish-ochreous, slightly mixed with whitish-ochreous, and with

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<i>Projectana</i> Wkr (Scia)..	458.	<i>Scopulofana</i>	675/77 ner line
<i>Terocosmana</i>	699.	<i>Scutiferana</i>	445/56. osta
<i>Troscemana</i>	485.496.	<i>Secundana</i> Wkr.(Tortr.)... 502.	; a sta,
<i>Uietana</i>	670/73.	<i>Secretana</i> Wkr(Ter.).... 502.	with kish
<i>Uanulana</i>	424.	<i>Scitiofana</i>	680/4. oper lisc,
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<i>Uffonsana</i>	485.500.	<i>Semirectana</i> Wkr.... 510.	path an
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<i>Uodopnoana</i>	694.	<i>Simana</i>	465. 7 ken
<i>Uopeana</i> Feld.	487.	<i>Similana</i> Wkr.... 465/66	1
<i>Uudisana</i> Wkr(Scia) . . .	438.	<i>Siriana</i>	509/22. rtly
<i>Uupicomana</i>	675/76.	<i>Sobriana</i> Wkr. 502.	red
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<i>sciceps</i>	469.	<i>Indigestana</i>	509/10.	grey
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<i>avisana</i> Wkr	442.	<i>Infectana</i>	661/3.	line
<i>aphyrana</i>	509/16.	<i>Insignana</i>	440.	osta
<i>elicana</i>	645.	<i>Intactella</i> Wkr (Gel.)	517.	; a
<i>nicosmana</i>	445/49.	<i>Iridescent</i> Bth	655.	osta,
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<i>mersdana</i>	662/66.	<i>ligniferata</i> Wkr (Conch.)	681.	disc,
<i>merana</i>	469/74.	<i>lignigerana</i> Wkr (Adrop.)	437.	uent
<i>peretana</i>	470/39.	<i>liquidana</i>	485.505.	and
<i>briferana</i>	524/7.	<i>lividana</i>	531/28.	high
<i>mersana</i> Wkr	481.502.535.	<i>luciplagana</i>	469.	path
<i>pletana</i> Wkr	431.	<i>lythrodana</i>	485/97.	; an
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<i>raptana</i> Wkr (Ter.)	489.	<i>lugicolana</i>	485/99.	rey,
		<i>Macropetana</i>	683.	ous.

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zana 421.	Centurionana 509. 518.	aken
hana 445.	Cepsana Wkr. (Coch.) . . . 473.	
tana Wkr. 695	Ceramicana 508. 512.	ortly
lana 6 697.	Charactana 484. 492.	ired ged ple, fore- g to and
atalis Wkr. 528. 530.		
lofana 469. 479.		

642	<i>Chimerinana</i>	446.452.	<i>Desmotana</i>	485
pate	<i>Chrysophilana</i> Wkr.	428.	<i>Detritana</i> Wkr (Sci.) . . .	
and	<i>Clarana</i>	469.475.	<i>Diemeniana</i> Z (Conch) . .	
strig	<i>Comptana</i> Wkr	646.	<i>Disputana</i>	469
dark	<i>Concolorana</i>	509.522.	<i>Dolofana</i> Wkr	
emit	<i>Concordana</i>	509.519.	<i>Dotatana</i> Wkr (Ter.) . . .	
acro	<i>Conficitana</i> Wkr.	652.654.	<i>Doxafficana</i>	
apie	<i>Conditana</i> Wkr	443.	<i>Ejectana</i> Wkr.	
time	<i>Confusana</i>	528.532.	<i>Erythrana</i>	6
thes	<i>Conjunctana</i> Wkr.	462.	<i>Excessana</i> Wkr	48
grey	<i>Consociana</i> Wkr (Ter.) . . .	502.	<i>Fidana</i>	6
whi	<i>Constrictana</i>	675.	<i>Flavescens</i> Btl	
fusc	<i>Crepusculana</i>	662.668.	<i>flexanimana</i> (Mistom.) . . .	
cilia	<i>Craterana</i>	464.	<i>flexivittana</i> Wkr.	
A	<i>Cuneiferana</i> Wkr.	492.	<i>fluidana</i>	6
grey	<i>Cuneigera</i> Btl.	484.490.	<i>floricolana</i>	
befo	<i>Debiliana</i> Wkr (Sci.) . . .	498		
reca	<i>Decolorana</i>	445.447.		
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a few scattered metallic-grey scales; basal patch dark slaty-grey mixed with blackish, becoming reddish-ochreous towards inner margin, its outer edge defined by a thick curved blackish line from costa before one-third, becoming obsolete below fold; costa shortly and obliquely strigulated with blackish throughout; a small blackish subquadrate oblique spot on middle of costa, between which and basal patch the costa is broadly suffused with dark slaty-grey, except on extreme edge; a triangular blackish space at apex, extending along apical third of costa and upper half of hindmargin, shading into ground-colour towards disc, intersected by two or three oblique irregular partially confluent leaden-metallic lines from costa to hindmargin about middle, and containing short oblique pale ochreous costal strigulae, of which the last is more conspicuous and produced to hindmargin beneath apex; inner margin obscurely strigulated with dark grey; an irregular suffused fuscous spot on inner margin towards anal angle, extending nearly to middle of disc: cilia dark slaty-grey, with a blackish basal line, towards anal angle reddish-ochreous. Hindwings dark fuscous-grey; cilia grey, tips more whitish-grey.

A very distinct and elegantly-marked species, differing considerably in form of wing from the preceding.

One fine specimen in the collection of Mr. G. Masters, taken on the Richmond River.

4. PENTHINA, Tr.

Thorax with a strong erect crest. Antennæ in male shortly ciliated. Palpi moderate, porrected, second joint roughly haired above and below, terminal joint distinct. Posterior tibiæ fringed with hairs above. Forewings rather broad, costa in male simple, rather strongly arched. Hindwings rounded, broader than forewings. Forewings with veins 7 and 8 separate, 7 running to hindmargin, secondary cell distinct. Hindwings with veins 3 and 4 from a point, 5 approximated to 4 at base, 6 and 7 separate.

This genus is the type of a considerable group, characterised usually by the presence of a well-marked thoracic crest, the origin of veins 3 and 4 of hindwings from a point, and the approximation of 5 to 4 at base. *Sericoris*, Tr., separated from *Penthina* by the less well-marked crest, appears to me at present insufficiently distinguished, but is not represented in Australia, the two species described below belonging truly to *Penthina*.

Larva sixteen-legged, feeding in rolled or spun-together leaves, or in stems and seedheads.

The genus is rather numerously represented in Europe and North America; of the two Australian species *P. helicana* may be separated from *P. doxasticana* by the dark triangular costal spot.

1. *Penth. doxasticana*, n. sp.

♂ ♀. 6"-7 $\frac{3}{4}$ ". Head, palpi, antennæ, and thorax light grey or dark grey, crest of thorax sometimes black. Abdomen ochreous-grey, edges of segments whitish. Legs whitish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings posteriorly dilated, costa slightly arched, apex nearly rectangular, hindmargin slightly oblique; light grey, irrorated with blackish scales in rows, sometimes suffused with darker grey; costa with numerous short oblique blackish strigulæ, more or less suffused with ferruginous; central fascia generally obsolete or indicated by two or three faintly darker spots, sometimes tolerably distinct but ill-defined, narrow, dark grey, from middle of costa to inner margin before anal angle, interrupted beneath costa; four or five alternate costal strigulæ towards apex dilated into very small subquadrate black spots: cilia ferruginous-grey with a sharply defined black basal line on upper half of hindmargin, wholly whitish on lower half, blackish beneath anal angle. Hindwings fuscous-grey, paler at base, hindmarginal edge darker; cilia whitish or grey-whitish, with a dark grey line near base.

Perhaps more allied to the European *P. profundana*, F. than to any other species, but very distinct; the white cilia on lower half

of hindmargin apparently indicate some relationship with *Ant. phyllanthana*.

I took five specimens in a grass-field near Parramatta, New South Wales, in June and July, flying at sunset; and also one near Brisbane, in September.

2. *Penth. helicana*, n. sp.

♀. $7\frac{1}{2}$ ". Head, palpi, antennæ, and thorax pale ochreous, suffused with reddish-fuscous. Abdomen dark ochreous-grey. Legs whitish-ochreous, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings rather broad, costa moderately arched, apex nearly rectangular, hindmargin slightly sinuate beneath apex; pale ochreous-fuscous, towards costa mixed with whitish; costa shortly strigulated with blackish; inner margin suffused with ochreous-fuscous; outer edge of basal patch indicated by an indistinct interrupted dark fuscous line from costa at one-fourth to inner margin before middle, before which the groundcolour is mixed with dark grey strigulæ; a dark fuscous triangular costal blotch, mixed with blackish, extending on costa from a little before middle to three-fourths, its apex reaching half across wing beyond middle of disc, connected with anterior extremity of a small cloudy ovate dark fuscous spot on disc at two-thirds; an ovate reddish-ochreous-fuscous clearly-defined blotch before hindmargin above middle, its lower and narrow end resting on middle of hindmargin; a small irregular ochreous-fuscous spot above anal angle; a small roundish black apical spot: cilia pale brownish-ochreous, whitish-ochreous towards anal angle, with a whitish-ochreous line at base along hindmargin, on upper half with three or four dark fuscous-grey transverse bars starting from black dots on hindmargin. Hindwings fuscous-grey; cilia whitish-grey, with a dark grey line.

In form resembling the European *P. semifasciana*, Hw., but not capable of being confused with any other.

One specimen in the thick forest-growth on the Bulli Pass (2000 feet), New South Wales, in October ; a second, much worn at Rosewood, Queensland, in September ; and a third in Mr. G. Masters' collection, from the Richmond River.

5. SCOLIOPLECTA, *n. g.*

Thorax with a small erect crest. Antennæ in male moderately ciliated. Palpi moderate, porrected, second joint roughly haired beneath and at apex above, terminal joint distinct. Posterior tibiæ loosely scaled above. Forewings moderately broad, costa in male simple, slightly arched, hindmargin slightly oblique. Hindwings rounded, broader than forewings. Forewings with veins 7 and 8 separate, 7 running to hindmargin. Hindwings with veins 3 and 4 from a point, 5 parallel to 4, 6 and 7 remote at origin, 7 rising from upper margin of cell considerably before the angle.

Apparently allied to the group of *Penthina*, but the neurulation of the hindwings is abnormal, and separates the genus from all others of the family with which I am acquainted. The only species is a handsome and distinct insect.

1. *Scol. comptana*, Walk.

(*Sciaphila comptana*, Walk., Brit. Mus. Cat. 353).

♂. 8". Head dark fuscous mixed with whitish. Palpi whitish, mixed with dark fuscous beneath, second joint with three obscure dark fuscous bands. Antennæ grey. Thorax dark fuscous, mixed with white posteriorly. Abdomen dark fuscous, segments ochreous-tinged towards base. Legs ochreous-white, all tarsi and tibiæ with sharply-defined black bands. Forewings moderate, costa hardly arched, hindmargin slightly oblique, hardly rounded ; deep ferruginous, coarsely mixed with black, and with a few scattered leaden-metallic scales, with two sharply defined white bands ; disc with numerous small tufts of raised scales ; costa and inner margin shortly strigulated with blackish ;

base of wing mixed with white; first band from costa at one-third to inner margin before middle, rather irregularly margined, somewhat attenuated beneath costa, shortly dilated on inner margin; second band from costa at two-thirds to inner margin at three-fourths, rather narrow throughout, slightly dilated on inner margin, its anterior margin emitting a short oblique tooth in middle; three white costal strigulae before apex, from the anterior one of which proceeds a faint leaden-metallic line to anal angle, the two posterior nearly confluent with a white sinuate streak near hindmargin above middle; beyond the second band the black colour tends to form thick lines along the veins: cilia white, towards anal angle ochreous, with a blackish line near base. Hindwings deep yellow towards base, posteriorly very broadly suffused with dark fuscous, sometimes almost wholly dark fuscous; cilia whitish, with a broad dark fuscous line near base.

Easily known by the white bands on the roughened dark ferruginous and black forewings.

Three specimens taken at Parramatta and Murrurundi, New South Wales, in October and November. Walker's type is said to be from Sydney.

6. EPALXIPHORA, *n. g.*

Thorax with a very large erect crest on each side of back, and a small double crest behind. Antennae in male thinly ciliated. Palpi moderate, straight, porrected, second joint with closely-appressed scales, terminal joint exposed. Posterior tibiae fringed with hairs above. Forewings oblong, moderately broad, costa in male simple, dilated before middle, straight towards apex, apex acutely produced, falcate, hindmargin obliquely rounded beneath. Hindwings rounded-trapezoidal, broader than forewings, indented beneath apex. Forewings with veins 7 and 8 separate, 7 running to hindmargin. Hindwings with veins 3 and 4 from a point, 5 moderately approximated to 4 at base, 6 and 7 stalked.

The facies of this genus is very singular, and it seems rather uncertain to what group it is most allied, but it agrees in its main characters with *Penthina*, differing widely, however, in the peculiar triple crest of the thorax, and the conspicuously falcate apex of forewings.

The only species is from New Zealand, and is of large size.

1. *Epalx. axenana*, n. sp.

♂. 12½". Head ochreous-white, spotted with light ochreous irrorated with dark fuscous. Palpi light ochreous irrorated with fuscous. Antennæ whitish-ochreous, slenderly annulated with dark fuscous. Thorax light greyish-ochreous mixed with fuscous, with two black transverse lines towards anterior margin, side-tufts whitish-ochreous. Abdomen whitish-ochreous. Legs pale ochreous, anterior and middle tibiæ and all tarsi banded with dark fuscous, posterior tibiæ ochreous-whitish. Forewings elongate, oblong, apex falcate; whitish-ochreous, irregularly mixed and clouded with brownish-ochreous, extreme costal edge white, obscurely spotted beneath with fuscous; the veins posteriorly marked with dark fuscous; outer edge of basal patch represented by a blackish-fuscous spot on costa at one-fifth, contracted in middle, and a blackish-fuscous cloudy spot, somewhat outwardly oblique, on inner margin before middle, connected together by a narrow ill-defined, twice strongly angulated, ochreous-fuscous streak; a narrow reddish-fuscous streak starting from costa at two-fifths, very oblique, extending to disc above anal angle a little below middle, thence bent rather obliquely inwards and ending just before reaching anal angle, most distinct towards extremities; a longitudinal elongate dark ochreous-grey-fuscous spot in middle of disc, its upper edge emitting a sharp inwardly oblique tooth in middle, its posterior extremity touching the oblique transverse streak; a dark reddish-fuscous transverse spot on inner margin slightly beyond middle, its apex almost suffused into the central spot; a flattened triangular dark reddish-

fuscous spot along costa from near middle to a little before apex, its apex reaching one-fourth across wing; an ill-defined sinuate fuscous streak extending from central transverse streak above angulation to hindmargin below apex: cilia ochreous-white, transversely barred with dark reddish-fuscous. Hindwings whitish, faintly mottled with pale grey towards hindmargin, with two or three scattered faint grey spots; cilia white, with a row of dark grey spots along base.

Very irregularly marked, and dissimilar to any other known species.

One specimen taken at rest on a tree-trunk near Wellington, New Zealand, in January.

7. EUDEMIS, Hb.

Thorax slightly crested. Antennæ in male thinly ciliated. Palpi rather short, porrected, second joint shortly rough-scaled beneath and at apex above, terminal joint distinct. Posterior tibiæ with appressed scales. Forewings elongate, subtriangular, costa hardly arched, in male simple, hindmargin obliquely rounded. Hindwings rounded, broader than forewings. Forewings with veins 7 and 8 separate, 7 running to hindmargin, secondary cell indicated. Hindwings with veins 3 and 4 separate at origin, 5 slightly approximated to 4 at base, 6 and 7 separate.

Larva sixteen-legged, feeding in spun-up shoots.

Allied to *Sericoris*, but distinguished from all other genera of this family by the separation of veins 3 and 4 of hindwings at base.

The only species found in Australia is not native, but has been introduced from Europe with the vine, on which it feeds; there are several other European species.

1. Eud. botrana, Schiff.

(*Grapholita parvulana*, Walk., Brit. Mus. Cat. 391.)

♂ ♀. $4\frac{3}{4}$ "-5". Head and palpi ochreous. Antennæ grey. Thorax ochreous, mixed with blackish-fuscous. Abdomen dark ochreous-grey, anal tuft ochreous-whitish. Legs ochreous-whitish, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings elongate, costa nearly straight, somewhat bent before apex, hindmargin rounded, very oblique; whitish, with numerous scattered blackish-grey transverse strigulæ, costa and inner margin finely strigulated; costa and inner margin suffused with greyish-ochreous near base; outer edge of basal patch represented by a slender greyish-ochreous slightly-curved fascia from one-fourth of costa to one-third of inner margin; central fascia straight, extending from costa slightly beyond middle to inner margin slightly beyond middle, broad and blackish-grey towards costa, rapidly attenuated below middle and greyish-ochreous; a small triangular blackish-grey ochreous-tinged spot on inner margin before anal angle; a greyish-ochreous slender streak from costa beyond central fascia to hindmargin below middle, dilated towards hindmargin into a roundish spot; a greyish-ochreous apical spot, containing two white costal strigulæ before apex, extreme apex blackish; a slender somewhat interrupted blackish line along hindmargin: cilia pale ochreous, towards anal angle whitish, with two dark grey lines. Hindwings grey, paler and subtransparent towards base; cilia pale grey, with a dark grey line near base.

Described from Australian specimens, which however do not seem to differ noticeably from others from the south of France.

Taken rather commonly at Parramatta, New South Wales, and also at Rosewood, Queensland, in August, September, March and May. The larva feeds in the shoots of vines; but as the imago seems to occur also in the native bush, it is possible that it may have adapted itself to other foodplants.

8. APHELIA, Stph.

Thorax smooth. Antennæ in male shortly ciliated. Palpi elongate, porrected, second joint roughly haired above and below,

attenuated posteriorly, terminal joint distinct or partly concealed. Posterior tibiæ fringed with hairs above. Forewings elongate, rather narrow, costa in male simple, slightly arched, apex acute, hindmargin straight, very oblique. Hindwings rounded-elongate, broader than forewings. Forewings with veins 7 and 8 separate, 7 running to hindmargin, secondary cell distinct. Hindwings with veins 3 and 4 from a point, 5 very closely approximated to 4 at base, 6 and 7 stalked.

A small genus of rather doubtful affinity, but apparently connected with *Sericoris* by the rootfeeding species of *Orthotania*. The larva is believed to feed in the stems of *Juncus*. The species described below appears to occur all over the world, whether introduced or indigenous it is hard to say; it is at all times very variable, but I do not think the local forms can be maintained as distinct species. It is abundant through Europe, and occurs also in North America; I have taken it in Ceylon, and it is found in both Australia and New Zealand.

1. *Aph. lanceolana*, *Hb.*

♂ ♀. $6\frac{1}{2}$ "-9". Head, palpi, antennæ, and thorax varying from pale ochreous to ochreous-brown, sometimes reddish-tinged; palpi variable in length (in one New Zealand specimen extremely elongate). Abdomen elongate, varying from whitish-ochreous to fuscous. Legs whitish-ochreous, more or less suffused with fuscous. Forewings elongate, costa very slightly arched, apex acute, hindmargin very oblique, slightly rounded beneath; very variable; pale ochreous, often almost wholly suffused with fuscous, sometimes unicolorous 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, slightly darker at apex; cilia grey-whitish, some times with a darker line.

The description refers to Australian and New Zealand forms only, so far as I am acquainted with them.

Occurs, not commonly, round Sydney, Parramatta, and Campbelltown, New South Wales, from December to March, in damp places and at light; also in the district of Duaringa, Queensland; and I took it at Hamilton, New Zealand, in January.

9. STIGMONOTA, HW.

Thorax smooth. Antennæ in male shortly ciliated. Palpi rather short, arched, ascending, second joint roughly haired beneath, terminal joint distinct. Posterior tibiæ loosely scaled. Forewings short, moderately broad, costa in male simple, gently arched, hindmargin rounded or somewhat sinuate. Hindwings rounded, broader than forewings. Forewings with veins 7 and 8 separate, 7 running to hindmargin, secondary cell distinct. Hindwings with veins 3 and 4 stalked, 5 parallel to 4, 6 and 7 separate.

Belongs to the group of *Grapholitha*, in which it is distinguished by the ascending palpi, and the parallel veins 4 and 5 of the hindwings. The species are small, and usually dark with a pale often obsolete spot on middle of inner margin. The known larvæ feed principally in the seed-pods of *Leguminosæ*.

The genus is represented by some number of species in Europe and North America; and I am acquainted with five from Australia, which may be thus distinguished:

A. Hindwings orange towards base.

1. Dorsal blotch distinct	..	..	..	1. <i>zapyrana</i> .
2. Dorsal blotch obsolete	..	..	..	2. <i>conficitana</i> .

B. Hindwings wholly fuscous.

1. Dorsal blotch distinct	..	..	..	3. <i>parvisignana</i> .
2. Dorsal blotch absent.				

a. Costa clearly strigulated throughout

with whitish	..	..	..	4. <i>iridescens</i> .

b. Costa without pale strigulæ	..	..	..	5. <i>floricolana</i> .

1. *Stigm. zapyrana*, n. sp.

♂ ♀. 5"-5½". Head, antennæ, and thorax dark fuscous, face more or less whitish. Palpi ochreous-whitish. Abdomen blackish, beneath with white rings. Legs ochreous-white, anterior tibiæ with two dark fuscous rings, all tarsi banded with dark fuscous. Forewings short, broad, costa hardly arched, hindmargin slightly oblique, rounded beneath; dark fuscous, with a slight ochreous reflection; costa with numerous whitish strigulæ, more oblique towards base; a moderately narrow ochreous-white transverse parallel-sided blotch on middle of inner margin, reaching half across wing, rather curved outwards towards its extremity, containing three slender blackish lines parallel to its anterior edge, the first and third often broken or obsolete; three blue metallic transverse lines; first from before middle of costa, very short, oblique; second from beyond middle of costa to anal angle, angulated outwards in middle, below angulation leaden-metallic; third from costa at three-fourths to hindmargin beneath apex; lower half of second metallic line bordered posteriorly with ochreous-whitish, between which and hindmargin is a row of four or five short black linear marks, separated by whitish scales: cilia metallic silvery-grey, becoming bright blue in certain lights. Hindwings bright deep orange, with a rather narrow blackish border along hindmargin, somewhat variable in breadth, rather attenuated at anal angle; cilia ochreous-white, more ochreous towards anal angle, with a blackish line near base.

A very handsome species, conspicuously distinct by the bright orange hindwings of both sexes.

Rather common, flying briskly in the hot sunshine round the purple blossoms of *Hardenbergia monophylla* (*Leguminosæ*); occurs at Sydney, Parramatta, and Bulli, New South Wales; near Melbourne; and at Brisbane, Helidon, and Toowoomba, Queensland; in September, October, and December.

2. *Stigm. conficitana*, Walk.

(*Carpocapsa conficitana*, Walk., Brit. Mus. Cat. 412).

♀. 5". Head and thorax dark fuscous. Forewings in form resembling *S. zapyrana*; dark fuscous; dorsal blotch obsolete; only distinct markings a transverse silvery-metallic line crossing dorsal half of wing towards hindmargin, followed by a row of four or five black linear dots. Hindwings dull orange, hindmargin and inner margin broadly and suffusedly dark fuscous.

Nearly allied to *S. zapyrana*, but in a considerable series of both sexes of that species I have seen no specimen approaching it; distinguished by the obsolescence of the dorsal blotch and costal markings, and by the duller colour, broader hindmarginal band, and dark suffusion of inner margin of hindwings.

Walker's type is stated to be from Moreton Bay, Queensland; I have seen no other.

3. *Stigm. parvisignana*, n. sp.

♀. 5½". Head, antennæ, and thorax dark fuscous, face mixed with whitish. Palpi ochreous-whitish. Abdomen blackish, beneath with white rings. Legs whitish, tarsi banded with dark fuscous. Forewings moderately broad, costa somewhat bent before apex, hindmargin rather oblique; dark fuscous; costa with numerous whitish anteriorly blackish-margined oblique strigulæ; a narrow white parallel-sided streak from middle of inner margin, reaching half across wing, curved outwards towards extremity, containing a slender blackish central line; three indistinct bluish-metallic lines from costa, placed as in *S. zapyrana*, but obscure, lower half of second distinct, silvery-metallic, blackish-margined; between it and hindmargin is a row of four short black linear marks: cilia dark fuscous, extremities whitish. Hindwings dark fuscous, somewhat paler towards base; cilia dark fuscous, extremities whitish towards anal angle.

Resembling *S. zapyrana* in the markings of the forewings, but rather darker and more obscure, dorsal streak more slender and with a single dark line, and hindwings wholly dark fuscous.

One specimen taken in bush near Sydney in August.

4. *Stigm. iridescens*, *n. sp.*

♂ ♀. $3\frac{3}{4}$ "-4". Head and thorax dark fuscous, mottled with ochreous-white. Palpi whitish, beneath mixed with dark fuscous. Antennæ dark fuscous. Abdomen dark greyish-fuscous, beneath in male snow-white, in female whitish-grey. Legs whitish, tarsi banded with dark fuscous. Forewings rather elongate, in female slightly broader, costa hardly arched, hindmargin obliquely rounded; dark greyish-fuscous, very finely transversely strigulated with whitish; costa with short oblique broader whitish strigulae throughout; about eight ill-defined grey-whitish transverse lines from inner margin between base and two-thirds, reaching about half across wing, in female more indistinct; a faint bluish-metallic line from costa beyond middle to anal angle, angulated outwards in middle, distinct and silvery-metallic on lower half; between lower half of this line and hindmargin the ground colour is suffused with whitish (less distinctly in female), with a row of about five short linear black marks: cilia grey, whitish towards base, with a black basal and another black central line. Hindwings in male fuscous-grey, hindmargin narrowly dark fuscous, in female wholly dark fuscous, towards apex blackish; cilia grey-whitish, with a dark fuscous basal line.

Distinguished by the absence of a dorsal blotch, and by the grey-whitish transverse lines and suffusion at anal angle of forewings; the very fine whitish strigulation causes the ground-colour to appear lighter than in the allied species.

Four specimens taken at Parramatta and Murrurundi, New South Wales, in October.

5. *Stigm. floricolana*, n. sp.

♂ ♀. $3\frac{3}{4}$ "-4". Head, antennæ, and thorax dark fuscous, face and palpi whitish-ochreous. Abdomen blackish-fuscous, beneath ochreous-whitish. Legs grey-whitish, tarsi suffusedly banded with dark fuscous. Forewings moderate, costa hardly arched, hindmargin rather oblique; dark fuscous, with a slight golden tinge; costa with short oblique black strigulæ, between which near apex the costal cilia are shortly ochreous-white; the wing is crossed by numerous irregular very faint leaden-metallic lines, often obsolete; cilia silvery-grey, towards base silvery-whitish, with a black basal line. Hindwings dark fuscous, darker towards hindmargin; cilia grey-whitish, with a dark fuscous line near base.

Characterised by the entire absence of any pale markings on forewings, except in cilia.

This small and inconspicuous species frequents the flowers of *Bursaria spinosa*, (a shrub belonging to the *Pittosporæ*,) sitting on them in the hot sunshine; it is not uncommon near Parramatta and occurs also at Bowenfels on the Blue Mountains, 2,500 feet above the sea.

10. CARPOCAPSA, Tr.

Thorax smooth. Antennæ in male thickened, not ciliated. Palpi moderate, ascending, appressed to face, second joint shortly rough-scaled beneath, terminal joint distinct. Posterior tibiæ loosely scaled. Forewings moderately broad, costa in male simple, slightly arched, hindmargin rather oblique, slightly sinuate. Hindwings rounded, broader than forewings, in male with a short membranous ridge on lower median near base, and a grooved channel below it. Forewings with veins 7 and 8 separate, 7 running to hindmargin. Hindwings with veins 3 and 4 stalked, 5 nearly parallel to 4, 6 and 7 separate.

Allied to *Stigmonota*, but separated from it and other allied genera by the ridge and groove of the hindwings in male. From

Epitymbia, which has a somewhat similar structure, it differs by the separation of veins 7 and 8 of forewings, and the absence of a costal fold.

The larvæ feed in fruits, and the genus is indigenous in Europe and North America; the only species found in Australia has been introduced together with the apple-tree,

1. *Carp. pomonella*, L.

♂ ♀. $7\frac{1}{2}$ "-9". Head, palpi, and thorax dark greyish-fuscous, slightly sprinkled with whitish. Antennæ dark fuscous. Abdomen dark fuscous, segmental margins whitish-tinged. Legs whitish, anterior and middle tibiæ and all tarsi dark fuscous with slender whitish rings. Forewings moderately broad, posteriorly dilated, costa hardly arched, hindmargin oblique, indented beneath apex; ashy-grey, with numerous irregular transverse greyish-fuscous lines, coalescing to form a rather narrow transverse band at one-third from base; a moderately broad elongate-ovate coppery-fuscous patch on anal angle, extending along hindmargin nearly to apex, preceded and followed by a silvery-metallic line, and containing two small silvery marks on anal angle; the anterior silvery line is preceded by a blackish streak, extending from inner margin half-way across wing; cilia silvery-grey, towards base silvery-whitish, with a black basal line. Hindwings fuscous-grey, apex rather darker; cilia grey-whitish, with a dark fuscous line near base.

Described from Australian specimens.

Common round Melbourne and elsewhere in Victoria, and plentiful in Tasmania, where the larva causes considerable damage in orchards; I have also specimens from Wellington in New Zealand, where it is probably of general occurrence; taken from October to December.

11. *EPITYMBIA*, *n. g.*

Thorax smooth. Antennæ in male thickened, not ciliated. Palpi moderate, porrected, second joint with appressed scales,

terminal joint distinct. Posterior tibiæ fringed with hairs above. Forewings somewhat oblong, posteriorly dilated, costa in male with a short narrow basal fold, shortly arched at base, slightly sinuate in middle, hindmargin oblique. Hindwings as broad as forewings, hindmargin indented below middle; a large membranous scaled ridge on submedian vein towards base, and a thickened place above it on subcostal (? in male only). Forewings with veins 7 and 8 stalked, 7 running to hindmargin. Hindwings with veins 3 and 4 stalked, 5 approximated to 4 at base, 6 and 7 stalked.

A peculiar and abnormal genus, not evidently related to any other; I have placed it here, because the ridge of the hindwings (though much larger and more conspicuous) is analogous to what is found in *Carpocapsa*, but it disagrees in the stalking of veins 7 and 8 of forewings, and of veins 6 and 7 of hindwings, and in the presence of a small and inconspicuous costal fold; the form of the wings is also unusual, and the location of the genus must therefore remain uncertain at present.

1. *Epit. alaudana*, *n. sp.*

♂. 8". Head, palpi, antennæ, thorax, and abdomen dark fuscous. Legs pale greyish-ochreous, anterior and middle tibiæ and all tarsi dark fuscous with pale greyish-ochreous rings. Forewings moderate, dilated posteriorly, costa abruptly bent at base, sinuate in middle, hindmargin obliquely rounded; dark fuscous, irregularly mixed with black; a small somewhat oblong, rather oblique, ochreous-whitish spot on middle of inner margin; an ochreous-whitish band along hindmargin, irrorated with fuscous, and on hindmarginal edge becoming fuscous, moderately broad on costa and gradually attenuated to anal angle, its anterior edge sharply defined and emitting a short tooth in middle: cilia dark fuscous mixed with ochreous-whitish, especially towards anal angle. Hindwings whitish-ochreous above the ridge, suffused with fuscous-grey below the ridge and towards

hindmargin; cilia ochreous-whitish, with two broad suffused grey lines.

Not like any other species known to me.

One male taken in bush near Parramatta, New South Wales, in September.

12. CROCIDOSEMA, Z.

Thorax smooth. Antennæ in male somewhat thickened, not ciliated. Palpi moderate, porrected, second joint somewhat arched, roughly haired beneath and at apex above, terminal joint nearly concealed. Posterior tibiæ loosely scaled. Forewings elongate, rather narrow, costa in male with short basal fold, slightly arched, hindmargin sinuate, oblique. Hindwings elongate-trapezoidal, broader than forewings; in male with a dense erect tuft of hairs on surface at base beneath lower median vein. Forewings with veins 7 and 8 separate, 7 running to hindmargin, secondary cell distinct. Hindwings with veins 3 and 4 stalked, 5 very closely approximated to 4 at base, 6 and 7 separate.

Belongs to the group of *Pædisca* and *Grapholitha*, amongst which it is distinguished by the conspicuous tuft of hairs on base of hindwings in male. There is only one species in the genus, which has been introduced from Europe, where however it seems to have been but little noticed; it was originally described by Zeller from a single Sicilian specimen, and was subsequently met with in Spain, and latterly also in other southern localities.

1. *Croc. plebeiana*, Z.

♂ ♀. $5\frac{1}{2}$ "- $7\frac{1}{2}$ ". Head and palpi ochreous-whitish, sometimes tinged with greyish-ochreous above. Antennæ whitish, indistinctly suffused with grey. Thorax ochreous-whitish, mixed or suffused with fuscous-grey. Abdomen grey, anal tuft of male whitish. Legs ochreous-whitish, anterior and middle tibiæ and all tarsi ringed with dark fuscous. Forewings rather narrow

not dilated, costa slightly arched, hindmargin sinuate, oblique; whitish, more or less ochreous-tinged, especially in female, with coarse irregular scattered blackish-grey strigulæ; costa with fine oblique blackish-grey strigulæ, and four small dark ochreous-grey spots towards apex; basal patch dark ochreous-grey strigulated with whitish, in female obsolete above middle, its outer edge extending from costa at one-fourth to inner margin beyond one-third, very obtusely angulated about middle; central fascia dark ochreous-grey, ill-defined, oblique, running from middle of costa to inner margin before anal angle, slender towards costa, rather broader beneath, containing a short longitudinal black mark near inner margin, above which is often a small silvery spot; beyond central fascia the wing is more or less suffused with ochreous-grey, except on a partially whitish, strongly silvery-margined, oval patch on anal angle, extending about half across wing, and containing near its posterior edge three black dots; above this patch is sometimes a blackish mark towards apex: cilia silvery-white, mixed with ochreous-grey points, and becoming dark grey towards apex. Hindwings rather thinly scaled, fuscous-grey; cilia silvery-white, with a dark grey line near base and a faint grey central line.

A dull-looking species, but not closely resembling any other.

Common near cultivated ground, and also comes freely to light; occurs round Sydney, Parramatta, and Morpeth, New South Wales, and at Melbourne, from December to March, and in July; I have also received it from the district of Duaringa, in Queensland. Prof. Zeller informs me that the larva feeds on *Althea* and *Lavatera* (*Malvaceæ*), with either of which it may have been introduced.

13. PALÆOBIA, *n. g.*

Thorax smooth. Antennæ in male ciliated. Palpi moderate, porrected, second joint with a long dense tuft of hairs beneath towards apex, terminal joint concealed. Posterior tibiæ fringed

with hairs above. Forewings elongate, rather narrow, costa in male simple, moderately arched, hindmargin rather strongly sinuate below apex. Hindwings elongate, broader than forewings. Forewings with veins 7 and 8 stalked, 7 running to hindmargin, secondary cell indicated or distinct. Hindwings with veins 3 and 4 stalked, 5 closely approximated to 4 at base, 6 and 7 stalked.

Larva sixteen-legged, mining in blotches in leaves, or feeding in spun-up shoots.

This genus may be regarded as the type of a small group, to which *Rhopobota* and *Holocola* also belong, related in general characters to the group of *Grapholitha* (particularly to the genus *Phoxopteryx*), but distinguished by the stalking of veins 7 and 8 of forewings. The same character suffices to separate it from the group of *Strepsiceros*, between which and the group of *Grapholitha* it is apparently intermediate. *Palæobia* differs from *Holocola* by the absence of a costal fold in male, and from *Rhopobota* by the dense tuft of palpi. Superficially it much resembles *Phoxopteryx* in form, colour, and marking, but the apex of forewings is never actually falcate. The mining habit of the larva of at least one species is very curious, and unparalleled among the *Tortricina*.

The genus is probably rather numerous represented in Australia; I am acquainted with nine species, which may be tabulated as follows:

- A. Forewings whitish, with dark grey and ferruginous markings; apex strongly produced.
 - 1. Anterior half of costa whitish.
 - a. Central fascia distinct3. *volutana*.
 - b. Central fascia merged with costal spot..1. *anguillana*.
 - 2. Anterior half of costa dark ferruginous.
 - a. Costa beyond middle whitish4. *erythrana*.
 - b. Costa beyond middle dark ferruginous..2. *infectana*.

B. Forewings whitish-ochreous or ochreous-brown; apex shortly produced.

1. Head and thorax ochreous-brown.

a. Hindwings dark fuscous 8. *crepusculana*.

b. Hindwings golden brownish-ochreous.

i. Cilia of forewings brownish-ochreous 5. *hibbertiana*.

ii. Cilia of forewings grey, with two white subapical spots 6. *himerodana*.

2. Head and thorax pale ochreous mixed

with fuscous 7. *fidana*.

3. Head and thorax whitish-ochreous, face

white 9. *segetana*.

1. *Pal. anguillana*, *n. sp.*

♀. $5\frac{3}{4}$ ". Head ochreous-fuscous above, whitish on sides, strongly tufted between antennæ. Palpi ochreous-white, tuft dark fuscous towards extremity. Antennæ dark fuscous. Thorax ochreous-grey, paler on shoulders. Abdomen grey. Legs whitish, anterior tibiæ and all tarsi banded with dark fuscous. Forewings moderately narrow, costa moderately arched, apex strongly produced, hindmargin rounded beneath; whitish, with a few grey scales, and with a faint greyish suffusion towards anal angle; anterior half of costa strigulated with blackish; a dark grey irregularly semi-oval patch on anterior half of inner margin, extending from base to a little beyond middle, and at its broadest part reaching a little more than half across wing; a rather larger dark ferruginous irregularly oblong patch on posterior half of costa, extending on costa from a little before middle to apex, and reaching nearly two-thirds across wing, its lower edge parallel to inner margin and rather ill-defined, its anterior edge outwardly oblique and somewhat parallel to posterior edge of the grey patch: cilia silvery-whitish, with a dark grey line near base.

Nearly allied to *P. infectana*, but distinguished readily from it by the whitish colour extending along anterior half of costa, the

clearer colouring, and the rather larger size. In form of markings it recalls *Phox.* (?) *obtusana*, Hw.

Larva light green (undescribed); feeds in spun-up shoots of *Correa speciosa* (*Rutaceæ*) in September; the imago emerged in October.

One specimen bred as above from a larva found near Parramatta, New South Wales; a second taken near the same place in August.

2. *Pal. infectana*, n. sp.

♂. $4\frac{1}{2}''$ - $4\frac{3}{4}''$. Head and thorax brownish-ochreous. Palpi ochreous-white, second joint with a dark fuscous spot, tuft dark fuscous towards extremity. Antennæ dark fuscous. Abdomen dark grey, extremity whitish. Legs whitish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings narrow, costa moderately arched, apex strongly produced, hind margin rounded beneath; dull dark ferruginous, becoming greyer towards inner margin, and mixed with dark fuscous; costa obliquely strigulated throughout with ashy-whitish; an ill-defined whitish longitudinal streak starting from base beneath costa, bent downwards at one-third and ending in an oval silvery-whitish patch on anal angle; between this streak and inner margin the basal third is suffused with dark fuscous-grey; cilia grey. Hindwings light fuscous grey; cilia grey with a pale line at base.

Distinguished by the whitish colour being confined to a sinuate longitudinal streak from base to anal angle, so that the whole costa is dark ferruginous; and also by the dull rather confused colouring, and small size.

Two specimens taken in low scrub near Sydney in August and April, and two others at Mittagong (2000 feet) in March.

3. *Pal. volutana*, n. sp.

♂. 7''. Head ochreous-whitish, greyish-tinged on crown. Palpi ochreous-white, extremity of tuft greyish-tinged. Antennæ

dark fuscous. Thorax dark grey, on shoulders ochreous-whitish. Abdomen grey. Legs whitish, anterior tibiæ and all tarsi ringed with dark fuscous. Forewings moderately narrow, somewhat broader posteriorly, costa moderately arched, apex strongly but obtusely produced, hindmargin rounded beneath; white, with a few irregular dark grey strigulæ; costa strigulated throughout with dark grey; a dark grey broadly semi-oval patch on anterior half of inner margin, extending almost from base to middle, at its broadest part reaching more than half across wing, posteriorly merged into an ill-defined grey suffusion extending along inner margin to anal angle; central fascia dark ferruginous, narrow, oblique, starting from middle of costa, beneath middle merged in the grey suffusion; an ill-defined dark ferruginous elongate-triangular patch towards apex, its base resting on apex and upper half of hindmargin, its apex meeting central fascia above middle; a narrow ill-defined greyish suffusion along lower half of hindmargin; cilia silvery grey. Hindwings fuscous-grey; cilia grey-whitish, with an indistinct darker line near base.

Differs from both the preceding species by the costa being white beyond middle, so that there is a distinct well-defined central fascia; the grey dorsal patch is rather more restricted and more clearly defined, and the insect is considerably larger. From *P. erythrana*, which is also smaller, it is at once separated by the well-defined grey dorsal patch towards base, and the absence of the dark ferruginous streak along anterior half of costa.

One specimen taken by Mr. G. H. Raynor at Warragul, in Gippsland, Victoria, in December.

4. *Pal. erythrana*, *n. sp.*

♂. $5\frac{1}{2}$ ". Head ochreous-fuscous, face whitish. Palpi white, second joint with two dark fuscous spots, tuft dark fuscous towards extremity. Antennæ grey. Thorax brownish-ochreous, paler posteriorly. Abdomen dark grey, with an ochreous band

near base, anal tuft silvery-whitish. Legs ochreous-whitish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings narrow, costa moderately arched, apex strongly but obtusely produced; white, on dorsal half slightly reddish-tinged, and suffused with grey along inner margin; costa shortly strigulated with dark fuscous-grey; a cloudy dark fuscous-grey spot in disc at one-third from base; a dark reddish-ferruginous moderately broad streak from base along costa to middle, thence bent downwards and ending in a dark grey spot on disc at two-thirds from base; three irregular oblique dark ferruginous lines from costa between middle and apex to hindmargin; an ill-defined cloudy grey patch on hindmargin, darkest towards apex, extending obscurely to anal angle, and tending to unite on disc with the spot at two-thirds; apex dark ferruginous; cilia grey, mixed with ferruginous, becoming dark ferruginous at apex, where the extremities are dark fuscous; costal cilia white. Hindwings ochreous-fuscous, more greyish towards hindmargin; cilia grey.

Distinguished from all other species by the dark ferruginous streak along anterior half of costa, bent downwards in middle so as to leave posterior half of costa white.

One specimen taken in dry bush near Sydney, in October.

5. *Pal. hibbertiana*, *n. sp.*

♂ ♀. 4"-5 $\frac{3}{4}$ ". Head and thorax dark ochreous-fuscous. Palpi whitish-ochreous, second joint with a dark fuscous spot, tuft blackish-fuscous towards extremity. Antennæ dark fuscous. Abdomen dark ochreous-fuscous. Legs whitish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings moderately narrow, somewhat dilated posteriorly, costa moderately arched, apex obtusely produced; rather dark fuscous, beyond middle suffused with blackish; costa obscurely strigulated with blackish, with four pairs of pale strigulæ between middle and apex, the first two pair leaden metallic and produced as

obscure lines to anal angle, third and fourth pair whitish, third connected with hindmargin below apex by a short leaden-metallic line; a whitish or ochreous-white streak beneath costa from base nearly to middle, sharply defined beneath but suffused into ground-colour towards costa; in male a moderately large roundish ochreous-whitish patch on anal angle, mixed with fuscous, in female not indicated; apex ferruginous-tinged: cilia brownish-ochreous, mixed with whitish, especially towards anal angle, with a dark fuscous spot at apex. Hindwings golden brownish-ochreous, towards hindmargin dark fuscous, in female more fuscous-tinged throughout; cilia brownish-ochreous, mixed with whitish towards extremities, with an obscure dark grey line near base.

Nearly allied to *P. himerodana*, but smaller and darker, especially in male; the first two pairs of costal pale strigulæ not white but leaden-metallic, the whitish streak from base rather shorter and more suffused, the cilia brownish-ochreous, and a large pale patch on anal angle in male.

Larva slender, cylindrical, pale yellowish; head broad, pale brown: mining first a straight gallery, then a large crumpled blotch in leaves of *Hibbertia volubilis* (*Dilleniaceæ*), the lower surface of the mine contracting and the upper becoming shrivelled and brown; feeding in November and December. Pupa pale brown, lying free within the mine. The imagos from these larvæ emerged late in December.

Common at Sydney, flying in the sunshine near its foodplant, and occurs also in the forest on the Bulli Pass, New-South Wales, from September to December, and in March; I also bred it plentifully from the larvæ as above.

6. *Pal. himerodana*, *n. sp.*

♂ ♀. $5\frac{1}{4}$ "- $6\frac{1}{2}$ ". Head and thorax ochreous-brown, in female rather darker. Palpi white, second joint with a dark grey spot,

tuft dark grey towards apex. Antennæ dark fuscous. Abdomen dark fuscous, somewhat ochreous-tinged. Legs ochreous-whitish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings moderately narrow, hardly dilated, costa moderately arched, apex obtusely produced; light ochreous-brown in male, darker in female and suffused with dark fuscous, especially on posterior half; costa indistinctly strigulated with dark fuscous before middle, between middle and apex with four pairs of white oblique strigulæ, separated with dark fuscous; from each of the first three pairs proceeds an irregular obscure leaden-metallic line, the first two running to near anal angle, the third to hindmargin beneath apex; a slender white central longitudinal streak from base to middle, somewhat bent downwards at extremity. margined beneath posteriorly by an obscure blackish streak; a black line along lower half of hindmargin: cilia metallic-grey on hindmargin, grey mixed with whitish towards anal angle, dark fuscous towards apex, with two white subapical spots, the lower one smaller. Hindwings golden brownish-ochreous, more dark fuscous towards apex; cilia grey, tinged with ochreous.

Very like the preceding, but larger and more lightly coloured, with four pairs of white costal strigulæ, the longitudinal streak from base clear white and black-margined beneath posteriorly, the cilia metallic-grey, with two small clear white subapical spots.

Taken rather commonly on the dry grassy hills near Murru-rundi, New South Wales, in November, flying readily in the afternoon sunshine.

7. *Pal. fidana*, *n. sp.*

♂ ♀. $4\frac{1}{2}$ "- $6\frac{1}{2}$ ". Head and thorax pale ochreous, mixed above with fuscous. Palpi white, tuft dark fuscous-grey towards extremity. Antennæ dark fuscous. Abdomen grey. Legs whitish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings moderately narrow, slightly dilated, costa moderately arched, apex obtusely produced; pale dull

whitish-ochreous or brownish-ochreous, rather narrowly suffused with fuscous-grey along inner and hind margins; costa shortly strigulated with blackish, and with several pale strigulæ towards apex, of which the last two or three are faintly produced to hindmargin below apex; some scattered black dots in disc towards base, and sometimes one larger spot at about one-third from base; a grey-whitish roundish patch on anal angle, margined with faint metallic-grey, and surrounded by a blackish-fuscous suffusion extending to apex; a slender blackish line along hindmargin: cilia silvery-white in middle, greyish towards anal angle, dark fuscous round apex, with a small white subapical dash. Hindwings in male grey, sometimes ochreous-tinged; in female fuscous-grey, more strongly ochreous-tinged; cilia grey.

Easily recognised by the pale ochreous groundcolour, grey suffusion on inner and hind margins, and the whitish anal patch.

Rather common amongst low heath-like scrub in some localities round Sydney, probably attached to some species of *Hibbertia*; it occurs in November and December, and again in March.

8. *Pal. crepusculana*, *n. sp.*

♂. $5\frac{1}{4}$ ". Head and thorax dark ochreous-brown, abdomen dark grey; rest as in *P. fidana*. Forewings in form as in *P. fidana*; wholly suffused with dark fuscous-grey, mixed with a few pale ochreous scales. Hindwings dark grey.

This species appears to be certainly distinct from *P. fidana*, to which it is nevertheless very closely allied, differing only in the very marked dark general suffusion. In the absence of a series of better specimens, I have merely indicated the species by what appears to be a sufficient diagnosis, as it might prove to be a local form only.

Two specimens, in rather poor condition, taken by Mr. G. H. Raynor at Warragul in Gippsland, Victoria, in December.

9. *Pal. segetana*, *n. sp.*

♂. $5\frac{3}{4}$ ". Head whitish-ochreous, face white. Palpi ochreous-white, with a grey spot on second joint, tuft grey towards extremity. Antennæ ochreous-whitish. Thorax pale ochreous. Abdomen light grey. Legs ochreous-white, anterior tarsi grey at base of joints. Forewings narrow, costa moderately arched, apex obtusely produced; whitish-ochreous, with numerous coarse irregular brownish-ochreous transverse strigulæ and lines; costa with numerous very short ill-defined dark fuscous strigulæ; a slender black line along hindmargin: cilia whitish-ochreous, with a broad suffused brownish-ochreous line near base. Hindwings grey, cilia grey-whitish.

A very distinct species, well characterised by the whitish-ochreous transversely strigulated forewings, without darker markings.

Mr. G. H. Raynor took one specimen at Warragul in Gippsland, Victoria, in December.

14. *HOLOCOLA*, *n. g.*

Thorax smooth. Antennæ in male somewhat thickened, ciliated. Palpi moderate, porrected, second joint with a dense tuft of hairs beneath towards apex, terminal joint almost concealed. Posterior tibiæ fringed with hairs above. Forewings elongate, narrow, costa in male with a strong basal fold, slightly arched, hindmargin sinuate below apex, obliquely rounded. Hindwings elongate, broader than forewings. Forewings with veins 7 and 8 stalked, 7 running to hindmargin, secondary cell indicated or distinct. Hindwings with veins 3 and 4 long-stalked or coincident, 5 closely approximated to 4 at base, 6 and 7 separate.

Larva sixteen-legged, feeding in spun-up shoots.

This genus is only separated structurally from *Palæobia* by the strong costal fold of male, agreeing with it in neuration and all

other respects ; but superficially the species bear a much closer resemblance to *Strepsicerus*, with which they agree in the costal fold of male and neuration of hindwings, differing in the stalking of veins 7 and 8 of forewings, and the absence of the notch on the antennæ of male. The species are small grey insects, marked as in *Strepsicerus*.

There are five species, distinguished as follows :

A. Forewings mostly suffused with dark fuscous-

grey 1. *triangulana*.

B. Forewings not dark grey.

1. An oblique dark streak from inner margin before middle.

a. This streak produced in disc to three-fourths from base 2. *perspectana*.

b. This streak interrupted at middle .. 3. *thalassinana*.

2. Oblique streak represented only by a discal spot.

a. Costal half of forewings grey 4. *quietana*.

b. Costal half of forewings whitish.. .. 5. *biscissana*.

1. *Hol. triangulana*, *n. sp.*

♂ ♀. $6\frac{1}{2}$ "- $7\frac{1}{2}$ ". Head and thorax light ashy-grey, mixed with blackish. Palpi light ashy-grey, internally whitish, second joint with three oblique blackish bands. Antennæ dark fuscous. Abdomen grey. Legs grey-whitish, anterior and middle tibiæ and all tarsi banded with blackish, posterior tibiæ grey. Forewings narrow, costa slightly arched, hindmargin rounded, rather oblique; light ashy-grey, more or less wholly suffused with dark fuscous-grey, especially along disc, and with indistinct transverse dark fuscous strigulæ; costa strongly strigulated with blackish; a moderately broad, outwardly very oblique, straight blackish streak, from inner margin before middle, reaching half across wing in middle of disc, anteriorly suffused, posteriorly sharply defined, truncate above, sometimes connected with costa

at one-fourth by an oblique blackish line; beyond this streak are some whitish scales; a small outwardly oblique blackish acute triangular spot on anal angle, reaching nearly half across wing, followed by some whitish scales, and with a whitish suffusion between its apex and costa; a blackish irregular very oblique line from costa at three-fourths to hindmargin above middle, on its lower half bordered anteriorly with dull leaden, preceded by three ill-defined blackish spots; cilia grey, paler along base, mixed with blackish. Hindwings grey, darker posteriorly, thinly scaled towards base; cilia whitish-grey or grey.

The largest and darkest species of the genus, readily known by the strong dark fuscous-grey suffusion of the forewings; in form of markings most resembling *H. thalassinana*; the forewings are very markedly elongate.

Taken rather commonly by Mr. G. H. Raynor near Melbourne.

2. *Hol. perspectana*, Walk.

(*Grapholita perspectana*, Walk., Brit. Mus. Cat. 393.)

♂ ♀. $5\frac{1}{2}$ "- $6\frac{1}{2}$ ". Head and thorax ashy-whitish, with a few black scales. Palpi light ashy-grey, beneath and internally white, second joint with a blackish band near apex. Antennæ grey. Abdomen in male dark grey, in female ochreous-grey. Legs whitish, anterior and middle tibiæ and all tarsi ringed with dark fuscous. Forewings narrow, costa hardly arched, hindmargin oblique, hardly rounded; whitish, with numerous irregular very oblique grey strigulæ; costa with several broader very oblique blackish strigulæ; a more or less distinct subquadrate blackish oblique blotch on inner margin near base, its apex tending to be suffusedly produced posteriorly; a narrow very oblique blackish streak from inner margin before middle, anteriorly suffused, posteriorly sharply defined, its apex somewhat curved outwards, extending to disc above middle at three-fourths from base; a small oblique, blackish-grey triangular spot on anal angle, not

reaching half across wing; a short oblique cloudy blackish-grey streak from apex, anteriorly suffused and almost meeting the oblique streak from inner margin; cilia with basal half white irregularly barred with blackish-grey, outer half light grey. Hindwings light grey, thinly scaled towards base; cilia grey-whitish, with a suffused grey line near base.

Very similar to *H. thalassinana*, but always larger and less variable; distinguished by the extreme obliqueness of the markings, and the length of the blackish streak from inner margin before middle, which extends along the disc uninterruptedly to three-fourths from base.

Very common amongst *Leptospermum* scrub from September to February, and I have taken it in May; it occurs round Sydney and Wollongong, in New South Wales; at Melbourne and Brisbane; and at Brighton in Tasmania.

3. *Hol. thalassinana*, *n. sp.*

♂ ♀. 4"-5½". Head and thorax whitish, thorax mixed with grey on back. Palpi whitish, second joint with a blackish spot in middle and a blackish band towards apex. Antennæ grey. Abdomen in male dark grey, with whitish anal tuft, in female ochreous-grey. Legs white, anterior and middle tibiæ and tarsi with slender dark fuscous rings. Forewings narrow, costa hardly arched, hindmargin oblique, hardly rounded; dull white, with fine very oblique grey strigulæ, in male almost entirely suffused with light grey; costa with several broader oblique blackish strigulæ; a small oblique subquadrate dark fuscous-grey blotch on inner margin near base, anteriorly suffused; a straight oblique moderately broad dark fuscous-grey streak from inner margin before middle, anteriorly suffused, posteriorly generally sharply defined, reaching half across wing, truncate above, sometimes obsolete towards inner margin; generally two dark fuscous-grey linear dots, longitudinally placed, beyond this above middle, not connected; a rather broad oblique triangular dark

fuscous-grey spot on anal angle, reaching half across wing, sometimes obscured by a greyish suffusion towards hindmargin; sometimes a dark fuscous-grey spot towards apex; cilia with basal half white barred with black, outer half light grey. Hindwings grey or light grey, thinly scaled towards base; cilia whitish, with a faint grey line near base.

Closely allied to *H. perspectana*, but smaller and greyer, with markings variable in intensity, but less well defined than in *H. perspectana* as a rule; the streak from inner margin before middle less oblique and extending only to middle of disc, its apex followed by two linear marks with which it is not connected.

Larva rather stout, pale green, head pale brown; feeding in spun-up shoots of *Leptospermum lævigatum* (*Myrtaceæ*), growing on coast sand-hills.

Abundant amongst its foodplant on sand-hills near the sea, at Sydney and Newcastle, New South Wales, from December to February; the larvæ were found in January, and imagos were bred from them the same month.

4. *Hol. quietana*, n. sp.

♀. $5\frac{1}{2}$ ". Head and palpi wholly white. Antennæ grey. Thorax white, irregularly suffused with black. Abdomen grey. Legs white, anterior and middle tibiæ and tarsi narrowly ringed with dark fuscous. Forewings narrow, costa slightly arched, apex slightly produced, hindmargin oblique, hardly rounded; whitish, very finely sprinkled with grey, upper half suffused with grey except along costa towards base; costa finely and obliquely strigulated with dark grey; a small somewhat oval dark fuscous-grey spot in disc below middle, midway between base and apex, connected above with the grey suffusion; a slight greyish suffusion towards anal angle, containing a blackish dot below middle above anal angle, and two or three scattered black scales above it: cilia white, irrorated with grey towards

extremities, with a strong black apical dash. Hindwings light grey, darker along hindmargin, more whitish-grey and thinly scaled towards base; cilia whitish, with a faint grey line.

The male of this species is unknown to me, but in neurulation and superficial characters it agrees with this genus, in which it is easily recognisable by the grey costal and white dorsal halves of the forewings. It has a superficial resemblance to *Streps. seditiosana*, from which it may be known by the wholly white head and palpi, the tuft of the palpi, and the absence of a dark longitudinal streak on forewings from base.

I took one specimen amongst scrub near Brisbane, in September.

5. *Hol. biscissana*, n. sp.

♂ ♀. $3\frac{1}{2}$ "-4". Head and thorax whitish mixed with grey. Palpi whitish, tuft of second joint grey towards extremity. Antennæ grey. Abdomen dark grey. Legs whitish, anterior and middle tibiæ and tarsi ringed with dark fuscous. Forewings narrow, costa slightly arched, apex somewhat produced, hindmargin sinuate; whitish, coarsely irrorated with grey scales, tending to form irregular hardly oblique strigulæ; costa obliquely strigulated with blackish; a small irregular dark fuscous grey spot in disc below middle at one-third from base, and a similar one below middle at two-thirds from base; from posterior half of costa run two or three very oblique dark grey lines to hindmargin above middle, the first of which tends to enclose with the second discal spot a round whitish patch on anal angle; a blackish apical dot; cilia whitish, becoming grey posteriorly, crossed by a blackish spot at apex. Hindwings grey; cilia grey, at base whitish.

A distinct species, characterised by its small size, the coarse and not oblique strigulation of forewings, and the two well-marked dark discal spots at one-third and two-thirds from base.

Five specimens, taken amongst low scrub near Sydney and on the Bulli Pass, New South Wales, in October and January.

15. BATHROTOMA, *n. g.*

Thorax smooth. Antennæ in male ciliated, with an excavated notch immediately above basal joint. Palpi moderate, porrected, second joint rough-haired beneath and towards apex above, terminal joint distinct. Posterior tibiæ fringed with hairs above. Forewings elongate, narrow, costa in male with a strong basal fold, almost straight, hindmargin sinuate. Hindwings trapezoidal, broader than forewings, posterior angle prominent, apex produced. Forewings with veins 7 and 8 separate, 7 running to hindmargin, secondary cell distinct. Hindwings with veins 3 and 4 coincident, 5 approximated to 4 at base, 6 and 7 stalked.

Belongs to the group of *Strepsiceros*; distinguished from *Strepsiceros* by the stalking of veins 6 and 7 of hindwings, and the position of the notch immediately above basal joint of antennæ, from *Tmetocera* by the costal fold of male, from *Hendecasticha* by the 12 veins of forewings; the peculiarly shaped prominent-angled hindwings are a special feature.

Of the three species described below, only the first two belong truly to this genus; the third, *B. scopulosana*, is only known to me in the female, and is placed provisionally in this genus, to which it has an evident affinity, until the male is known; but it is discordant in the separation of veins 6 and 7 of hindwings, and cannot remain here.

The three species described may be thus separated:

a. Forewings with a subquadrate dark blotch on inner margin at one-third.

1. Dorsal spot beyond middle erect, triangular 1. *constrictana*.

2. Dorsal spot beyond middle flattened, semi-

oval 3. *scopulosana*.

b. Forewings without dark dorsal blotch . . 2. *ruficomana*.

1. *Bathr. constrictana, n. sp.*

♂ ♀ . 5"-6½". Head ochreous-brown on crown and face, behind whitish finely irrorated with grey. Palpi deep ochreous-brown.

Antennæ dark fuscous. Thorax white, irrorated with grey, anterior margin and one or two spots on back blackish. Abdomen ochreous-grey, anal tuft of male ochreous. Legs whitish, anterior and middle tibiæ and tarsi banded with dark fuscous. Forewings very narrow, costa almost straight, hindmargin sinuate below apex, slightly oblique; white, very finely irrorated with grey scales, tending to form very fine strigulæ, especially along costa, where they cause a narrow greyish suffusion; costa rather obliquely and coarsely strigulated with blackish, and inner margin also generally with a few short blackish strigulæ; a small grey blackish-margined somewhat triangular spot on inner margin close to base, reaching two-thirds across wing; a rather large subquadrate erect dark grey blotch, mixed with blackish, on inner margin at one-third, reaching half across wing, rather ill-defined anteriorly; a small triangular dark grey spot on inner margin about three-fourths, reaching one-third across wing; a small blackish apical spot, slenderly produced along hindmargin nearly to anal angle: cilia dark fuscous with a blackish basal line, beneath anal angle whitish and becoming grey posteriorly. Hindwings thinly scaled, grey, somewhat darker at apex; cilia grey-whitish, with an indistinct grey line near base.

Distinctly characterised by the white forewings, dark grey dorsal spots, and ochreous-brown head.

Rather common at rest on certain fences near Sydney, and at Parramatta, and also beaten from a species of *Melaleuca*; it occurs from September to November, and in January.

2. *Bathr. ruficomana*, *n. sp.*

♂ ♀. $4\frac{3}{4}$ "- $5\frac{3}{4}$ ". Head reddish-ochreous on crown and face, behind light ashy-grey. Palpi deep reddish-ochreous. Antennæ grey. Thorax grey, more or less suffused with dark fuscous. Abdomen ochreous-grey, in male suffused with yellowish-ochreous. Legs grey-whitish, anterior and middle tibiæ and all tarsi suffusedly banded with dark fuscous. Forewings very narrow,

costa straight, hindmargin slightly sinuate, hardly oblique; light grey, with very fine whitish transverse strigulæ; a darker grey suffusion towards costa, attenuated posteriorly and ceasing before apex, in male more blackish-grey and more distinct; costa obscurely strigulated with dark grey; the veins obscurely indicated by irregular longitudinal dark grey lines; a hardly paler patch on anal angle, preceded and followed by an obscure leaden-metallic line, and containing a row of four or five ill-defined blackish dots; a small blackish apical spot, slenderly produced along hindmargin nearly to anal angle: cilia reddish-ochreous, with a black basal line, beneath anal angle whitish mixed with grey. Hindwings thinly scaled, grey, darker posteriorly; cilia grey, with a whitish basal line.

In form of wing closely resembling the preceding, but the forewings are grey, without any trace of dark dorsal spots, the cilia and head reddish-ochreous.

Four specimens, (one male, three females) taken at rest on a fence in Sydney, in December and January.

3. Bathr. (?) scopulosana, *n. sp.*

♀. $6\frac{1}{2}$ ". Head ochreous-whitish, between antennæ dark grey. Palpi whitish-ochreous, mixed with grey beneath. Antennæ grey-whitish, suffusedly annulated with dark fuscous. Thorax whitish-ochreous, with a few black scales, and with a grey spot mixed with blackish behind. Abdomen dark fuscous. Legs ochreous-whitish, anterior and middle tibiæ and all tarsi suffusedly banded with dark fuscous. Forewings moderately narrow, costa slightly arched, hindmargin sinuate below apex, slightly oblique; whitish-ochreous, somewhat suffused with brownish-ochreous posteriorly, and with a few scattered black scales; costa finely and obliquely strigulated with blackish; a subquadrate blotch on inner margin about one-third, black on inner margin, becoming ochreous-brown and shading gradually into groundcolour above, reaching half across wing, blackmargined

on each side, outer edge indented below middle, and connected with costa at one-fourth by an irregular inwardly oblique blackish line; between this blotch and base the inner margin is narrowly blackish; an elongate very narrowly semi-ovate blackish-fuscous spot along inner margin from beyond middle to beyond three-fourths, posteriorly whitish-margined; a roundish patch on anal angle is indistinctly indicated by a slender interrupted blackish boundary line, and contains a row of four or five ill-defined linear blackish dots; a small ferruginous apical spot; a row of linear black dots along hindmargin: cilia ochreous-fuscous, with a blackish spot above apex, and three broadly suffused blackish bars below apex, with a whitish line along base, towards anal angle wholly grey mixed with whitish. Hindwings dark grey, very thinly scaled and almost transparent towards base; cilia whitish, with an indistinct grey line near base.

Markings placed much as in *B. constrictana*, but groundcolour tinged with ochreous, no dorsal spot close to base, spot at one-third brown above, spot at three-fourths flattened, elongate, semi-ovate, and head not brown.

Two specimens taken at rest on fences near Sydney and Parramatta, in October.

16. STREPSICEROS, *n. g.*

Thorax smooth. Antennæ in male ciliated, with an excavated notch at about one-fifth from base. Palpi moderate, porrected, second joint roughly haired, often with a more or less dense tuft beneath towards apex, terminal joint more or less concealed. Posterior tibiæ fringed with hairs above. Forewings elongate, narrow, costa in male with a strong basal fold, gently arched, apex generally somewhat produced, hindmargin more or less sinuate. Hindwings elongate-trapezoidal, broader than forewings apex somewhat produced. Forewings with veins 7 and 8 separate, 7 running to hindmargin, secondary cell distinct. Hind-

wings with veins 3 and 4 long-stalked or coincident, 5 closely approximated at base to 4, 6 and 7 separate.

Larva sixteen-legged, feeding in spun-up shoots or between joined leaves of the *Myrtaceæ*.

This genus is the type of a group which is rather extensively represented in the Australian region, compared with the other groups of the family. The other known genera belonging to this group are *Tmetocera*, *Bathrotoma*, and *Hendecasticha*, the whole being characterised by the possession of a sharply excavated semicircular notch on the stalk of the antennæ of male; the antennæ of the female are simple. *Tmetocera* is the only genus found in Europe, and is distinguished from all the others by the absence of a costal fold in male. *Strepsiceros* differs from *Bathrotoma* in the separation of veins 6 and 7 of hindwings, and the position of the notch on the antennæ, which is remote from the basal joint; from *Hendecasticha* in the twelve-veined forewings. The genus is subject to variation in the structure of veins 3 and 4 of hindwings, which are sometimes on a long stalk, sometimes wholly coincident, so that there appear to be only seven veins; and in the palpi, which have often, but not always, a tuft beneath on the second joint; but these forms are connected by intermediate gradations, and are not available for generic characters. The species are generally small grey inconspicuous insects, with very similar markings.

There are eleven Australian species known to me, of which two occur in New Zealand also, and appear to be indigenous there, equally as in Australia. The following is a tabulation of them :

A. A broad white streak along part or whole of costa.

1. Costal streak extending from base to apex.

a. Costal streak interrupted before middle 9. *plinthinana*.

b. Costal streak entire 10. *obeliscana*.

2. Costal streak extending from base to one-third 4. *seditiosana*.
3. Costal streak extending from before middle to apex 11. *sicariana*.
- B. Costa not broadly white.
 1. A white subcostal streak.
 - a. Subcostal streak extending from base to apex 8. *zopherana*.
 - b. Subcostal streak extending from middle to apex 7. *sollicitana*.
 2. A white central longitudinal suffused streak only 6. *fluidana*, ♂.
 3. No white longitudinal markings.
 - a. Forewings reddish-ochreous 6. *fluidana*, ♀.
 - b. Forewings grey or dark fuscous.
 - i. A slender white transverse streak posteriorly 5. *pericyphana*.
 - ii. No white markings.
 - *. Forewings light, with well-defined entire dark central fascia .. 1. *limnephilana*.
 - **. Forewings dark or mottled, without entire fascia.
 - †. Forewings somewhat dilated, with broad dark suffused central streak.. .. . 2. *ejectana*.
 - ††. Forewings elongate, without central streak.. .. . 3. *macropetana*.

1. *Streps. limnephilana*, *n. sp.*

♀. 6"-6½". Head, palpi, and thorax light ashy-grey, slightly mixed with fuscous. Antennæ grey. Abdomen grey, extremity whitish. Legs grey-whitish, anterior and middle tibiæ and all tarsi banded with dark fuscous. Forewings moderate, posteriorly dilated, costa moderately arched, hindmargin nearly straight,

oblique; whitish, finely and densely irrorated with ashy-grey; costa with a few short blackish strigulae; some blackish scales towards inner margin near base; outer edge of basal patch indicated by an obscure blackish transverse line at one-third, in one specimen forming a short erect ochreous-fuscous black-margined streak from inner margin, reaching one-third across wing; central fascia narrow, oblique, ochreous-fuscous irregularly margined with black, suffused with black in middle and on inner margin, running from middle of costa to inner margin before anal angle; a blackish streak from apex along upper half of hindmargin: cilia ashy-whitish, with two faint grey lines, and obscurely barred with blackish. Hindwings fuscous-grey; cilia whitish, with two suffused grey lines.

The male being as yet unknown, it is not certain whether the species is correctly referred to this genus, but the general similarity to *S. ejectana*, and the identity of all non-sexual characters, are sufficient to warrant its position. The male may perhaps have a tuft of raised scales on the forewings, as in *S. ejectana*, and may also differ somewhat in marking. The female may be easily known from *S. ejectana* by the clearer and lighter groundcolour, and the well-defined entire central fascia, which in *S. ejectana* is partial and suffused, as well as by the absence of the dark fuscous longitudinal streak.

Five specimens, all females, taken on open swampy ground at Waratah on the Hunter River, New South Wales, in January.

2. *Streps. ejectana*, Walk.

(*Sciaphila ejectana*, Walk., Brit. Mus. Cat., 350; (?) *Sciaphila absconditana*, ibid. 351; *Sciaphila servilisana*, ibid. 356; *Sciaphila saxana*, ibid. 357; *Conchylis ligniferana*, ibid. 363).

♂ ♀. 5 $\frac{3}{4}$ "-7". Head, palpi, and thorax grey irrorated with ashy-whitish, and with a few black scales, shoulders ochreous-tinged; palpi not tufted. Antennae dark fuscous, in male thickened and notched at one-fifth from basal joint. Abdomen

grey. Legs whitish-grey, anterior and middle tibiae and tarsi suffusedly banded with dark fuscous-grey. Forewings moderate, slightly dilated posteriorly, costa gently arched, hindmargin nearly straight, oblique; light ashy-grey, with a few scattered black scales, in male more or less wholly suffused irregularly with dark grey, especially towards costa and hindmargin; costa and inner margin coarsely strigulated with blackish; a strong tuft of raised scales in male towards inner margin at one-third from base; 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; in male this streak is more or less obscured through the general dark suffusion; an ill-defined triangular dark fuscous blotch on upper half of hindmargin, its apex extending inwards to disc at three-fourths, sometimes ochreous-tinged, in male often cloudy and suffused, especially beneath, generally containing two or three longitudinal black streaks: 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.

The markings of this species are very obscure and confused, especially in the male, but it cannot well be mistaken for any other; it is comparatively the broadest-winged species of the genus, and the raised tuft of scales on forewings in male is a peculiar character; its dark cloudy colouring, and the absence of any white markings distinguish it from all but the much narrower-winged and differently marked *S. macropetana*, and the more clearly marked *S. limnephilana*.

Larva cylindrical, active, dull green, more yellowish on sides and towards extremities, dorsal spots paler; head and second segment, or posterior half of second segment, black. Feeds amongst spun-together shoots of *Kunzea capitata* and *Darwinia*

fasciculata (*Myrtaceæ*), and probably other plants of the same order, in December, January, and doubtless other months.

Extremely abundant in the bush round Sydney, readily disturbed and very active, especially towards sunset, almost without intermission from July to March; occurs also at Melbourne; and I took it not uncommonly at Wellington and Hamilton, New Zealand, in January, frequenting a shrub which I believe to be *Leptospermum ericoides*. The New Zealand specimens do not differ perceptibly from Australian, except in being slightly smaller than the average; and there seems no reason to suppose that the species has been artificially introduced from either country into the other.

3. *Streps. macropetana*, n. sp.

♂ ♀. 7"-8 $\frac{3}{4}$ ". Head, palpi, and thorax light ochreous-grey, mixed with dark grey and dark fuscous; palpi not tufted. Antennæ dark fuscous, in male thickened and notched at one-eighth from basal joint. Abdomen grey, segmental margins ochreous-whitish. Legs ochreous-whitish, anterior and middle tibiæ and all tarsi suffusedly banded with dark fuscous. Forewings elongate, narrow, costa gently arched, hindmargin nearly straight, very oblique; ashy-grey, variable in depth, finely and closely irrorated with whitish; costa finely and obliquely strigulated with blackish-grey; numerous indistinct dark grey longitudinal strigulæ in disc, towards hindmargin more distinct and forming connected lines; often there is a faint irregular ochreous suffusion, especially towards middle of disc; two or three raised scales near inner margin towards base; often a slender oblique anteriorly suffused black streak from inner margin at one-third, reaching half across wing, frequently interrupted or obsolete; often a small indistinct dark fuscous triangular spot on inner margin before anal angle; between this and the oblique streak at one-third the ground colour is often paler, forming an irregularly oblong patch; sometimes a small cloudy dark grey

triangular patch on upper half of hindmargin, darkest towards apex; a row of three or four black linear dots near hindmargin above anal angle, preceded and followed by a faint leaden-metallic line: cilia grey, irregularly mixed with blackish, and irrorated with whitish points. Hindwings thinly scaled, grey, darker at apex; cilia grey-whitish, with a grey line near base; veins 3 and 4 long-stalked.

The largest species of the genus, with very elongate forewings; variable, but generally very uniform in colouring, with very few darker markings, of various character in different specimens.

Larva cylindrical, with scattered hairs; rather pale yellowish-green, above rather darker dull green, dorsal spots faintly whitish; head amber, second segment rather lighter amber; anal segment with slight indications of a black plate. Feeds between joined leaves of *Eucalyptus* sp.—, in June.

A common species, occurring amongst *Eucalyptus* scrub round Sydney and Parramatta, at Bulli, Blackheath on the Blue Mountains, and Newcastle, in New South Wales; at Melbourne, and near Duaringa, Queensland; from July to October, and from January to March.

4. *Streps. seditiosana*, n. sp.

♂ ♀. $4\frac{3}{4}$ "- $5\frac{1}{4}$ ". Head, palpi, and thorax grey, densely irrorated with whitish; palpi not tufted. Antennæ dark fuscous, in male thickened and notched at one-fifth from basal joint. Abdomen grey. Legs grey-whitish, anterior and middle tibiæ and all tarsi suffusedly ringed with dark fuscous. Forewings narrow, costa slightly arched, hindmargin somewhat sinuate, oblique; dull whitish, costal half suffused with dark grey (in female slightly ochreous-tinged) except along basal third of costa and towards apex; costa shortly strigulated with dark fuscous; a dark fuscous strongly marked central streak from base to middle, posteriorly abruptly attenuated and somewhat bent upwards, posterior edge

blackish and sharply defined; an ill-defined grey suffusion about anal angle, and another on hindmargin beneath apex; a silvery-metallic line from anal angle reaching half across wing, and another near hindmargin extending to costa before apex: cilia grey, whitish towards base, with a blackish spot at apex. Hindwings very thinly scaled, grey, darker posteriorly; cilia whitish-grey, with an indistinct darker line near base; veins 3 and 4 stalked.

A distinct species, sufficiently characterised by the dark central longitudinal streak from base to middle.

Three specimens (one male, two females) taken in low scrub at Sydney and above the Bulli Pass, New South Wales, from August to October.

5. *Streps. pericyphana*, *n. sp.*

♂. $4\frac{1}{4}''$ - $4\frac{3}{4}''$. Head white, mixed with dark grey above. Palpi somewhat tufted, white, with a dark fuscous spot near base, and a dark fuscous band towards apex of second joint. Antennæ grey, in male abruptly swollen and notched at about one-fifth from basal joint. Thorax blackish, mixed with reddish-ochreous on sides. Abdomen ochreous-grey. Legs whitish, anterior and middle tibiae and all tarsi sharply and narrowly ringed with dark fuscous. Forewings very narrow. costa nearly straight, hindmargin sinuate, oblique; blackish-fuscous, mixed with ochreous-brown, and coarsely irrorated with white; costa with white obscure strigulae arranged in pairs; two ill-defined white angulated strigulae crossing wing near base; two or three short oblique white strigulae near together on inner margin before middle; an irregularly sinuate snow-white streak crossing wing from near costa at three-fourths to anal angle, angulated inwards about middle, preceded on inner margin by a small somewhat triangular dark fuscous anteriorly whitish-margined spot; in this white streak are several faint leaden-metallic spots on its posterior edge,

and there is an obscure leaden-metallic line near hindmargin; cilia white, outer half grey irrorated with blackish. Hindwings very thinly scaled, grey; cilia grey.

This small species is of peculiar appearance, and very distinct from any other, being characterised by its small size, very narrow forewings, dark colouring, and the pure white transverse streak posteriorly.

Three specimens taken at rest on a fence near Sydney, in October. In repose the apex of the forewings is obliquely bent in round the abdomen, as though deformed; a habit which is not perceptible in any other species of the genus, but is similar to that noticed in the case of *Helictophanes uberana*.

6. *Streps. fluidana*, n. sp.

4"-5". ♂. Head and thorax white, more or less sprinkled with ochreous and grey. Palpi white, second joint tufted, tuft dark grey towards extremity. Antennæ grey, in male thickened and notched at about one-fourth from basal joint. Abdomen ochreous-whitish, indistinctly suffused with grey towards base of segments. Legs white, anterior and middle tibiæ and all tarsi ringed with dark fuscous. Forewings narrow, costa slightly arched, apex produced, hindmargin sinuate, obliquely rounded beneath; grey, densely irrorated with white, and more or less suffused posteriorly with reddish-ochreous; along the costa the grey alternates with the white to form coarse oblique strigulæ; a more or less distinct narrow central longitudinal white streak from base, almost reaching anal angle, but posteriorly dilated and suffused, sometimes crossed by ill-defined strigulæ; sometimes a dark grey spot on submedian fold before middle; a row of four or five sharply-defined linear black dots near lower half of hindmargin, preceded and followed by a silvery-metallic line, the second metallic line extending to costa before apex; apex and hindmargin beyond this line reddish-ochreous: cilia white on

costa, grey on hindmargin, with a black spot at apex, and a white basal spot on middle of hindmargin. Hindwings thinly scaled, grey; cilia grey-whitish, with a faint grey line near base; veins 3 and 4 on a very long stalk.

♀. Head, palpi, &c., as in male; thorax partially suffused with reddish-ochreous. Forewings more elongate than in male, wholly reddish-ochreous, sprinkled with grey-whitish; costa very narrowly white, and posteriorly with short oblique white strigulæ; two or three blackish scales on inner margin; the silvery-metallic lines and black dots above anal angle as in male; cilia as in male. Hindwings as in male.

Easily distinguished from its allies by the reddish-ochreous partial suffusion towards hindmargin in male, and the wholly reddish-ochreous forewings of female; nearest to *S. sollicitana*, but differing from it and the other allied species by the absence of any white costal or subcostal streak.

Larva undescribed; feeding in spun-up shoots of *Leptospermum lanigerum* (*Myrtaceæ*), in October (and doubtless other months).

Abundant amongst its foodplant, flying out in numbers when disturbed, round Sydney, and at Bulli, and Blackheath on the Blue Mountains, from August to March.

7. *Streps. sollicitana* n. sp.

♂ ♀. $3\frac{1}{2}$ "-5". Head and thorax white, sides suffused with grey. Palpi white, second joint tufted beneath, tuft more or less suffused with grey towards extremity. Antennæ dark grey, in male thickened and notched at about one-fifth or one-sixth from basal joint. Abdomen grey, segmental margins and anal tuft of male silvery-whitish. Legs whitish, anterior and middle tibiæ and all tarsi ringed with dark fuscous. Forewings very narrow, costa slightly arched, apex rather produced, hindmargin sinuate, rather oblique; rather dark grey, densely irrorated with white; along the costa the dark grey alternates with the white to form

oblique coarse strigulæ; a rather broad white longitudinal streak rather above middle from base to middle of disc, dilating gradually, ill-defined at extremity; a rather narrow white longitudinal streak beneath costa from middle to apex, generally interrupted at half its length by a very oblique grey line; a slender blackish-grey oblique streak from inner margin at one-third, reaching half across wing, forming a small spot above submedian fold; between this and base are several blackish-grey transverse strigulæ, not crossing the white longitudinal streak; a faint silvery-metallic mark above anal angle, and a faint silvery-metallic line near hindmargin; a small black apical spot, above which is a snow-white spot in cilia: cilia dark grey, with a blackish spot at apex, and a white spot at base on middle of hindmargin. Hindwings rather thinly scaled, grey, apex dark grey; cilia light grey, with a dark grey line near base; veins 3 and 4 coincident.

Allied to *S. fluidana*, but without any ochreous colouring, and with a white subcostal streak from middle to apex.

Six specimens taken amongst low scrub near Sydney and Parramatta, in October, December, and January.

8. *Streps. zopherana*, *n. sp.*

♂ ♀. 5"-6". Head, palpi, and thorax grey, more or less irrorated with white, head sometimes almost wholly white; palpi not tufted. Antennæ dark fuscous, in male somewhat thickened and notched at about one-eighth from basal joint. Abdomen dark grey, segmental margins silvery-whitish. Legs whitish, anterior and middle tibiæ and all tarsi sharply banded with dark fuscous. Forewings very narrow, costa slightly arched, apex produced, hindmargin sinuate, very oblique; dark grey, irrorated with whitish; 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 strigulae between that and apex; middle of disc somewhat suffused with blackish; an ill-defined black spot in disc above anal angle; generally a row of about three ill-defined black spots 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 extremity; cilia pale grey, with an indistinct darker line near base; veins 3 and 4 coincident.

Distinguished from all others by the white subcostal streak from base to apex, but variable in intensity of colouring.

Four specimens taken in the scrub near Sydney in December; I found the species very abundant amongst, I believe, *Leptospermum ericoides*, near Dunedin, and also took it at Hamilton and Wellington, in New Zealand during January. The New Zealand specimens do not differ from the Australian; the species is evidently at home in New Zealand, but appears to be scarce in Australia, and it is possible that it may have been artificially introduced thither.

9. *Streps. plinthinana*, n. sp.

♂. 6". Head and thorax white, with a few grey scales. Palpi rather elongate, somewhat tufted beneath, white, the hairs greyish-tinged towards extremities. Antennae grey, in male notched at about one-eighth from basal joint. Abdomen ochreous-grey. Legs whitish, anterior and middle tibiae and all tarsi suffusedly banded with dark fuscous. Forewings narrow, costa gently arched, apex produced, hindmargin sinuate, rather oblique; dark reddish-fuscous, coarsely irrorated and suffused with white, especially towards anal angle; a broad well-defined white streak along costa from base to apex, posteriorly attenuated, crossed by an oblique dark reddish-fuscous fascia-like streak before middle; costal edge strigulated finely with brownish-grey, one or two of

the strigulæ towards apex crossing the white streak; some irregularly placed blackish scales beneath the white streak posteriorly: cilia light reddish-fuscous, becoming whitish towards anal angle, extremities greyish-tinged, with a dark fuscous apical spot, costal cilia white. Hindwings thinly scaled, grey; cilia light grey, with a faint darker line near base.

Nearly allied to *S. zopherana*, but forewings somewhat broader, and characterised by the general reddish tint, and costal, not subcostal, white streak.

One specimen taken at Parramatta in November.

10. *Streps. obeliscana n. sp.*

♂ ♀. 5"-6". Head dull white, greyish-tinged on sides. Palpi elongate, not tufted, white, sometimes externally greyish-tinged. Antennæ grey, in male slightly thickened, and notched at about one-tenth from basal joint. Thorax grey, suffused with white on back. Abdomen whitish, tinged with ochreous grey towards base of segments. Legs whitish, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous-grey. Forewings narrow, costa gently arched, hindmargin sinuate beneath apex, very oblique; rather light grey, slightly brownish-tinged, irrorated with whitish, especially towards inner margin; a broad white costal streak from base to apex, attenuated posteriorly, sharply-defined beneath, costal edge irrorated and sometimes in male suffused with brownish-grey towards base, towards apex with slender oblique brownish-grey strigulæ, of which two or three cross the white streak; the lower margin of the white streak is indented by a short tooth of the groundcolour before middle, beyond this irregularly margined by a blackish line; a sharply-defined small black spot above anal angle, beyond which is a small oval space preceded and followed by a silvery-metallic line, and sometimes enclosing two or three black dots; cilia brownish-grey, mixed with whitish towards anal angle,

with a blackish apical spot, costal cilia white. Hindwings thinly scaled, in male whitish-grey, in female pale grey; cilia in male white, in female whitish, with a faint darker line near base.

Distinguished from all by the broad uninterrupted white costal streak from base to apex, and light grey groundcolour.

Abundant amongst *Leptospermum* scrub, generally in sandy places, round Sydney and at Parramatta, from August to December.

11. *Streps. sicariana n. sp.*

♂. 7". Head white, with one or two grey scales. Palpi elongate, not tufted, white mixed with grey beneath, terminal joint dark grey. Antennæ grey, in male slightly thickened, and notched at about one-tenth from basal joint. Thorax white. Abdomen light silvery-grey, anal tuft whitish. Legs whitish, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous-grey. Forewings moderately narrow, costa gently arched, hindmargin slightly sinuate beneath apex, very oblique; dark fuscous-grey, dorsal half suffusedly white sprinkled with grey; a sharply-defined fusiform white streak along costa from before middle to apex, acutely attenuated at each extremity, suffusedly margined beneath with blackish, costal edge with slender oblique brownish-grey strigulæ, of which two or three towards apex cross the white streak; an oblique blackish mark above submedian fold before middle; cilia white, extremities of hindmarginal cilia mixed with grey, with a black apical spot, and a dark grey smaller spot a little below it. Hindwings thinly scaled, grey; cilia whitish, with a faint grey line near base.

Allied to *S. obeliscana*, but very distinct from that species through its larger size, dark colour, and the white costal streak extending only from before middle to apex.

One specimen taken in dry scrub near Sydney in February.

17. HENDECASTICHA *n. g.*

Thorax smooth. Antennæ in male ciliated, with an excavated notch near base. Palpi moderate, porrected, second joint densely rough-haired above and below, terminal joint nearly concealed. Posterior tibiæ fringed with hairs above. Forewings elongate, narrow, costa in male with a basal fold, nearly straight, hindmargin sinuate. Hindwings elongate-trapezoidal, broader than forewings. Forewings with 11 veins, vein 7 running to costa, secondary cell indicated, upper basal fork of vein 1 nearly obsolete. Hindwings with veins 3 and 4 coincident, 5 approximated to 4 at base, 6 and 7 stalked.

Nearly allied to *Strepsicerus*, but distinguished from it and the other genera of the group by the possession of only 11 veins in the forewings, the normal veins 7 and 8 being probably coincident; in the neuration of the hindwings it resembles *Bathrotoma*.

The only species is from New Zealand.

1. Hend. æthaliana *n. sp.*

♂ ♀. $3\frac{3}{4}$ "- $4\frac{3}{4}$ ". Head, palpi, thorax, and abdomen dark fuscous, sprinkled with ashy-whitish. Antennæ dark fuscous, in male notched a little above basal joint. Legs whitish-grey, all tibiæ and tarsi suffusedly banded with dark fuscous-grey. Forewings narrow, costa hardly arched, hindmargin slightly sinuate, very oblique; dark fuscous, coarsely irrorated with grey and ashy-whitish scales, especially on basal half and before apex, tending to form irregular transverse lines; sometimes there is an irregular ochreous suffusion towards inner margin before middle, and above anal angle: cilia dark fuscous sprinkled at base with ashy-whitish. Hindwings dark fuscous; cilia dark fuscous, with a blackish line at base.

I took this species rather commonly in January amongst rank grass and herbage on some swampy ground near Hamilton on the Waikato, New Zealand; its small size and dark colouring make it very inconspicuous on the wing.

FAM. III. CONCHYLIDÆ.

Lower median vein of hindwings not pectinated; vein 2 of forewings rising from posterior fourth of lower margin of cell.

This family appears to be very scantily represented in the Australian region by a few peculiar genera; none of the previously described genera have yet occurred. The four genera with which I am acquainted may be thus distinguished:

A. Veins 3 and 4 of hindwings remote at origin 1. *Heliocosma*.

B. Veins 3 and 4 of hindwings stalked or from a point.

1. Palpi very long 2. *Paramorpha*.

2. Palpi moderate.

a. Forewings in male with a raised membranous ridge near base 4. *Coscinoptycha*.

b. Forewings in male without membranous ridge 3. *Oistophora*.

1. *HELIICOSMA*, *n. g.*

Thorax smooth. Antennæ in male thickened, laterally compressed, pubescent. Palpi very long, straight, porrected, second joint roughly haired, attenuated, terminal joint long, exposed. Posterior tibiæ fringed with hairs above. Forewings elongate, somewhat dilated, costa in male simple, slightly arched, bent before apex, hindmargin obliquely rounded; surface with rough scales. Hindwings broader than forewings, rounded-ovate. Forewings with veins 7 and 8 separate, 7 running to hindmargin, secondary cell indicated, vein 1 furcate at base. Hindwings with 8 veins, 3 and 4 remote at origin, 5 parallel to 4, 6 and 7 remote at origin, nearly parallel.

Larva sixteen-legged, case-bearing, feeding on flowers.

The species of this genus in superficial appearance nearly resemble *Conchylis*, but the genus differs widely from all others of the family in the remoteness of veins 3 and 4 of the hindwings

- at origin, these veins being from a point or stalked in all other described genera; it resembles *Paramorpha* in the structure of the palpi, and has the rough scales on the surface of the forewings in common with all the other Australian genera, and with the European *Phtheochroa*. The case-bearing habit of the larva is at present unique amongst *Tortricina*.

The two species are readily known:

- a. Forewings carmine, with white markings . . 1. *rhodopnoana*.
- b. Forewings whitish, with ochreous markings 2. *incongruana*.

1. *Hel. rhodopnoana*, *n. sp.*

♀. 7½". Head and palpi whitish-ochreous. Antennæ light brownish-ochreous. Thorax light ochreous-brown, shoulders tinged with carmine. Abdomen ochreous-grey, extremity ochreous. Legs ochreous-grey, anterior coxæ and femora carmine. Forewings rather narrow, triangular, costa straight, bent before apex, hindmargin slightly sinuate, oblique; bright carmine, deeper posteriorly, becoming ochreous-orange along inner margin towards base; a narrow oblique silvery-white anteriorly blackish-margined streak from inner margin at one-third, nearly reaching costa, its extremity uniting with apex of a slender ill-defined white streak from base beneath costa; a second narrow oblique silvery-white anteriorly black-margined streak from inner margin just beyond middle, reaching nearly to costa, the ground colour tinged with orange along its anterior edge; from middle of its posterior edge proceeds a much slenderer white anteriorly blackish-margined streak to inner margin a little before anal angle; between first and second white oblique streaks is a tuft of raised scales near inner margin, a slender crescentic outwardly concave white blackish-margined mark beneath costa a little before apex, and another similar rather larger mark beneath it and anal angle, not quite touching either; a silvery-white streak from apex along hindmargin, ending in a small dilated silvery-white anteriorly blackish-margined spot below middle of hindmargin: cilia

carmine, with a white spot beneath apex and another below middle of hindmargin, between these two spots the basal third is carmine, central third white, apical third grey, extremities above apex dark grey. Hindwings pale ashy-grey, cilia whitish.

An extremely beautiful and distinct species, of which the male is as yet unknown.

One specimen taken by Mr. G. H. Raynor near Melbourne in November.

2. *Hel. incongruana*, Walk.

(*Conchylis incongruana*, Walk., Brit. Mus. Cat., 363; *Eromene apertella*, ibid. Suppl., 1762.)

♂ ♀. 5"-8". Head, palpi, and thorax white, more or less suffused on sides with light brownish-ochreous. Antennæ whitish-ochreous, in male dilated and laterally compressed. Abdomen whitish-ochreous. Legs whitish, anterior and middle tibiæ and tarsi obscurely infuscated. Forewings moderately narrow, dilated, triangular, costa bent towards apex, hindmargin nearly straight, oblique; whitish, faintly and irregularly suffused with pale ochreous; a short ochreous-orange streak along costa at base; generally an ill-defined reddish-ochreous spot on submedian fold near base; a slender (in male almost linear) strongly marked ochreous-orange fascia parallel to hindmargin, running from slightly beyond middle of costa to middle of inner margin, which it does not quite reach, posteriorly black-margined, on its anterior edge towards inner margin are two tufts of raised scales; sometimes two or three blackish scales on inner margin before anal angle, and in disc above it; a short cloudy oblique blackish apical streak; in female a moderately narrow ferruginous hindmarginal band, extending along hindmargin from apex to anal angle, enclosing a small white spot on hindmargin below middle, anterior margin somewhat sinuate; between it and central fascia is often a cloudy ferruginous suffusion in disc, but in male both this and the hindmarginal band are wholly absent: cilia in male

whitish, along base ochreous, extremities and a line before middle blackish, broadly interrupted below apex and beneath middle of hindmargin with whitish; cilia in female similar, but ochreous replaced by orange, and there is a dark ferruginous spot at apex, and an orange spot at anal angle. Hindwings in male pale grey, in female whitish-grey; cilia whitish.

In general appearance recalling the European *Conchyliis straminea*, Hw.; the dissimilarity of the sexes is so singular that I long accounted them as distinct species.

The larva lives in a portable case composed of fragments of petals of the flowers on which it feeds, adding fresh pieces towards the mouth as it grows; these are at first white, but quickly become withered, and the whole case has a ragged appearance; the larva feeds on flowers of *Lysinema pungens* and *Epacris* sp. (*Epacrideæ*) in August; from those found an imago was bred in October.

A common species, occurring round Sydney, and at Blackheath on the Blue Mountains, and also at Melbourne, in dry sandy scrub amongst its foodplants, from October to March.

(NOTE.—*Conchyliis diemeniana*, Z., Hor. Soc. Ent. Ross. 1877, 138, if correctly referred to this family, would probably belong to *Heliocosma*; but I am inclined to doubt whether the species is referable to this neighbourhood at all; I have not however seen a specimen, nor does the description come near any of the *Tortricina* known to me. Zeller's description is taken from a single female type from Tasmania, without palpi, and the neuration does not seem to have been made out; it is therefore impossible to quote the species under any generic head, but it is very unlikely to be a true *Conchyliis*. It may be briefly described as slaty-fuscous, with the head, thorax, and basal third of forewings pale yellow.)

2. PARAMORPHA, n. g.

Thorax smooth. Antennæ of male strongly ciliated. Palpi very long, straight, porrected, second joint roughly haired,

attenuated, terminal joint long, exposed. Posterior tibiæ fringed with hairs above. Forewings elongate, narrow, costa in male simple, moderately arched, apex acute, hindmargin oblique; surface with raised scales. Hindwings rounded, elongate-ovate, broader than forewings. Forewings with veins 7 and 8 separate, 7 running to hindmargin, secondary cell absent, upper fork of vein 1 obsolete. Hindwings with 6 veins, 3 and 4 stalked from posterior angle of cell, 5 from upper angle of cell to apex, 6 free.

This genus has a peculiar facies from the remarkably narrow and elongate forewings; in the structure of the palpi it resembles *Helioscosma*, but the singular neuration of the hindwings causes it to be classed with *Oistophora* and *Coscinoptycha* as forming a peculiar and abnormal group, probably confined to the Australian region.

The two species (one Australian, the other from New Zealand) may be easily distinguished;

- a.* Forewings faint whitish-grey 1. *aquilana*.
b. Forewings densely irrorated with dark grey . . 2. *adruptella*.

1. *Par. aquilana n. sp.*

♂ ♀. $5\frac{1}{4}''$ - $6\frac{1}{4}''$. Head, antennæ, thorax, and abdomen white. Palpi white, beneath sharply dark fuscous. Legs whitish, anterior tibiæ and tarsi greyish-tinged. Forewings very narrow, costa gently arched, hindmargin nearly straight, very oblique; white, almost wholly suffused with faint pale grey except towards anterior half of costa, and with very fine scattered dark grey scales; five sharply defined very oblique short black strigulæ on costa between middle and apex, and one shorter (sometimes absent) on costa before middle; a large sharply defined black dot in disc at two-thirds from base, followed by some raised scales; a small tuft of raised scales before this, another below it, two others in a straight line between this lower one and the base at equal distances, and sometimes another obliquely above and beyond the anterior of these, each of these

tufts generally immediately preceded by a small black dot; sometimes a faint grey angulated transverse line from four-fifths of costa to anal angle; a sharp black line along hindmargin: cilia white, faintly suffused with grey, with two indistinct grey lines. Hindwings whitish-grey; cilia whitish, with two very faint grey lines.

Readily known by its pale whitish colouring and black dots.

The imago frequents damp or swampy ground, flying low amongst the herbage; it occurs tolerably commonly round Sydney and Parramatta, and at Blackheath on the Blue Mountains (3,500 feet), in September, and again in February and March.

2. Par. *ad reptella* Walk.

(*Gelechia ad reptella* Walk., Brit. Mus. Cat. 654).

♂ ♀. $6\frac{1}{2}$ "- $6\frac{3}{4}$ ". Head, palpi, and thorax pale grey irrorated with whitish; palpi beneath sharply dark fuscous. Antennæ, abdomen, and legs whitish, anterior and middle pair infuscated. Forewings very narrow, costa gently arched, somewhat bent before middle, hindmargin straight, very oblique; light grey, more whitish towards base of costa, distinctly ochreous-tinged, and thickly irrorated with dark grey; a suffused black spot in disc at two-thirds 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; two or three tufts of raised scales towards submedian fold; a very indistinct angulated transverse dark grey line from three-fourths of costa to anal angle; an ill-defined blackish line along hindmargin; cilia grey, with light points, and two indistinct dark grey lines. Hindwings whitish, towards apex pale grey; cilia whitish, with a suffused faint grey line near base.

Larger than *P. aquilana*, with the costa of forewings distinctly bent, and the groundcolour appearing much darker from the

close irroration of dark grey scales, and distinctly ochreous-tinged; the black dots are also differently arranged.

Three specimens taken in the swampy forest near Cambridge and Hamilton, on the Waikato, New Zealand, in January. Walker's type is unset, but certainly referable to this species.

3. *OISTOPHORA n. g.*

Thorax smooth. Antennæ of male hardly thickened towards base, very finely ciliated. Palpi moderate, porrected, second joint very roughly haired above and below towards apex, terminal joint concealed. Posterior tibiæ thinly haired above. Forewings elongate, narrow, costa in male simple, moderately arched, apex acute, hindmargin oblique; surface with tufts of rough scales. Hindwings broader than forewings, apex rather produced; a very large expansible tuft of long hairscales towards base beneath lower median vein. Forewings with veins 7 and 8 separate, 7 running to hindmargin, secondary cell absent, upper basal fork of vein 1 obsolete (?). Hindwings with 6 veins, 3 and 4 short-stalked from posterior angle of cell, 5 from upper angle of cell to apex, 6 free.

Related to *Paramorpha*, but abnormal in facies; distinguishable by the short palpi, and especially by the large expansible tuft of hairs on the hindwings in both sexes.

1. *Oist. pterocosmana n. sp.*

♂ ♀. 8"-8½". Head and thorax white, slightly mixed with ochreous. Palpi white, beneath sharply dark fuscous. Antennæ whitish-ochreous. Abdomen whitish, anal tuft of male ochreous. Legs whitish, anterior and middle tibiæ and tarsi suffusedly banded with dark fuscous. Forewings very narrow, costa bent towards apex, hindmargin straight, very oblique; ochreous-whitish, irregularly irrorated with dark fuscous; costal edge blackish towards base; five short very oblique cloudy blackish strigulæ on costa between middle and apex, and one still shorter

before middle; a tuft of raised scales beneath costa near base; two black dots obliquely placed in disc close to base; four or five tufts of raised scales in disc between one-fourth and middle, each preceded by a black or dark fuscous dot; two raised tufts transversely placed in disc beyond middle, preceded by cloudy blackish dots; a cloudy interrupted angulated blackish line from three-fourths of costa to anal angle; a sharply defined black line along hindmargin, tending to be interrupted on the veins: cilia whitish, with two broad indistinct grey lines. Hindwings whitish-grey or pale grey; cilia grey-whitish.

Two specimens, taken at Sydney and Melbourne respectively, in October.

4. *COSCINOPTYCHA* *n. g.*

Thorax smooth. Antennæ of male much thickened, dentate, strongly ciliated, basal joint swollen, of female slender, simple. Palpi moderate; porrected, second joint roughly haired above and below towards apex, terminal joint in male concealed, in female exposed. Posterior tibiæ smooth above. Forewings elongate, narrow, costa in male simple, nearly straight, bent before apex, hindmargin oblique; surface with tufts of raised scales, and in male with a membranous longitudinal ridge towards base. Hindwings broader than forewings, apex elongate, almost acute. Forewings with veins 7 and 8 separate, vein 7 running to hindmargin, secondary cell absent, upper basal fork of vein 1 obsolete. Hindwings with 6 veins, 3 and 4 in male from a point or short-stalked, in female long-stalked from posterior angle of cell, 5 from upper angle of cell to apex, 6 free.

This peculiar genus is well defined by the curious swollen bladder-like ridge on the forewings of male, the strongly dentate and ciliated antennæ of male, the rather short palpi, and the smooth posterior tibiæ; it is very abnormal in appearance.

1. *Cosc. improbana* n. sp.

♂ ♀. $6\frac{3}{4}$ "- $7\frac{1}{2}$ ". Head silvery-white. Palpi white, basal two-thirds of second joint sharply dark fuscous beneath. Antennæ in male fuscous, basal joint white; in female whitish. Thorax white, somewhat mixed with fuscous. Abdomen whitish. Legs whitish, anterior and middle tibiæ and tarsi broadly banded with dark fuscous. Forewings very narrow, costa somewhat bent close to base and a little before apex, almost sinuate in middle, hindmargin nearly straight, very oblique; white, in male with an irregular ochreous-grey suffusion towards margins; about seven irregularly placed black linear spots on costa; in male a raised longitudinal bladder-like membranous ridge, extending in disc from near base to two-fifths, its costal half clothed with white scales, dorsal half naked, pellucid, and shining; in female this is absent, but there is a small irregular blackish spot in disc at two-fifths; a grey cloudy spot on inner margin at two-fifths, extending half across wing, in male containing a transverse blackish mark, in female obscurely mixed with blackish; a rather broad grey transverse central suffusion, containing in male a short longitudinal black linear mark near middle, in female a small roundish black spot and some scattered black scales; a row of indistinct linear blackish spots along hindmargin: cilia whitish, suffused with grey, obscurely barred with darker. Hindwings thinly scaled, whitish, apex greyish-tinged; cilia whitish, faintly greyish-tinged round apex.

Of this curious species, which for some time I did not recognise as belonging to the *Tortricina*, I have three specimens (two males and one female), beaten from bushes of *Kunzea capitata* near Sydney, in December.

For convenience of reference, a list is here subjoined of the species described by Walker in the British Museum Catalogues under the head of *Tortricina*; the number given refers to the page of the Catalogue, and after each species is given its proper generic

and specific name, as determined in the present and preceding papers.

Teras retractana, Walk., p. 288=*Cacæcia postvittana*, Walk.,
according to type, but not
by description, which is un-
identifiable.

„ *responsana*, Walk., p. 297=*Cacæcia responsana*.

„ *postvittana*, Walk., p. 297= „ *postvittana*.

„ *dotatana*, Walk., p. 298= „ *postvittana*.

„ *mersana*, Walk., p. 298=*Capua* sp., but too worn to be
recognisable.

„ *scitulana*, Walk., p. 298=*Cacæcia postvittana*.

„ *basialbana*, Walk., p. 299= „ *postvittana*.

„ *similana*, Walk., p. 300=*Anisogona similana*.

„ *secretana*, Walk., p. 300=*Cacæcia postvittana*.

„ *solana*, Walk., p. 300=*Dichelia solana*.

„ *miserana*, Walk., p. 301=*Cacæcia miserana*.

„ *canigerana*, Walk., p. 301= „ *miserana*.

„ *immersana*, Walk., p. 302=*Cryptoptila immersana*.

„ *obliquana*, Walk., p. 302=*Cacæcia obliquana*.

„ *excessana*, Walk., p. 303= „ *excessana*.

„ *oblongana*, Walk., p. 303= „ *oblongana*.

„ *inaptana*, Walk., p. 304= „ *oblongana*.

„ *incessana*, Walk., p. 304=*Arotrophora incessana*.

„ *spurcatana*, Walk., p. 305=*Cacæcia spurcatana*.

„ *biguttana*, Walk., p. 306= „ *biguttana*.

„ *conditana*, Walk., p. 306=*Pyrgotis conditana*.

„ *servana*, Walk., p. 306 ; type worthless and not identifiable.

„ *semiferana*, Walk., p. 306=*Capua semiferana*.

„ *priscana*, Walk., p. 307, } types worthless and unrecog-

„ *antiquana*, Walk., p. 307, } nisable.

„ *congestana*, Walk., p. 308. type too worn to be identified,
perhaps=*Cacæcia spurcatana* or *C. excessana*.

- Teras maoriana*, Walk., p. 308; type represented by one unrecognisable forewing.
- Pandemis secundana*, Walk., p. 310 = *Cacæcia postvittana*.
- „ *mediana*, Walk., p. 311 = *Anisogona similana*.
- „ *consociana*, Walk., p. 311 = *Cacæcia postvittana*.
- „ *gavisana*, Walk., p. 312 = *Pyrgotis gavisana*.
- Cacæcia metaxanthana*, Walk., p. 315 = *Acroceuthes metaxanthana*.
- „ *chrysophilana*, Walk., p. 315 = *Aristocosma chrysophilana*.
- Batodes jactatana*, Walk., p. 317 = *Cacæcia jactatana*.
- Dichelia reversana*, Walk., p. 321 = „ *postvittana*.
- „ *fedana*, Walk., p. 321 = „ *postvittana*.
- „ *sobriana*, Walk., p. 322 = „ *postvittana*.
- „ *retractana*, Walk., p. 322 = *Dichelia* (?) *retractana*.
- Tortrix magnana*, Walk., p. 330 = *Acropolitis magnana*.
- „ *polygraphana*, Walk., p. 330 = *Cacæcia polygraphana*.
- „ *canana*, Walk., p. 331 = *Acropolitis canana*.
- „ *impletana*, Walk., p. 331 = *Thrinophora impletana*.
- „ *dolosana*, Walk., p. 331 = *Acropolitis dolosana* (?).
- „ *velutinana*, Walk., p. 332; type headless and mangled, probably not belonging to the *Tortricina*, unrecognisable.
- „ *signigerana*, Walk., p. 332 = *Acropolitis signigerana*.
- „ (?) *innotatana*, Walk., 333; type lost, description unidentifiable.
- Lophoderus latiferanus*, Walk., p. 336, belongs to the *Ecophoridae* (*Tineina*).
- Sciaphila conjunctana*, Walk., p. 348 = *Asthenoptycha conjunctana*.
- „ *disputana*, Walk., p. 349 = *Dichelia disputana*.
- „ *rudisana*, Walk., p. 349 = *Acropolitis signigerana*.
- „ *basiferana*, Walk., p. 350 belongs to the *Tineidæ* (*Tineina*).
- „ *ejectana*, Walk., p. 350 = *Strepsiceros ejectana*.
- „ *absconditana*, Walk., p. 351; type worn, unidentifiable, perhaps = *Streps. ejectana*.
- „ *debiliana*, Walk., p. 351 = *Cacæcia miserana*.
- „ *sidneyana*, Walk., p. 352; type very worn, unrecognisable

Sciaphila inconcisana, Walk., p. 352; type worn to pieces, unrecognisable.

„ *projectana*, Walk., p. 352=*Acroceuthes metaxanthana*.

„ *comptana*, Walk., p. 353=*Scoliopecta comptana*.

„ *flexivittana*, Walk., p. 353=*Cacæcia jactatana*.

„ *transtrigana*, Walk., p. 354= „ *spurcatana*.

„ *turbulentana*, Walk., p. 355= „ *spurcatana*.

„ *fusiferana*, Walk., p. 355; type worn, unrecognisable.

„ *detrinata*, Walk., p. 356; worn, prob.=*Capua semiferana*.

„ *servilisana*, Walk., p. 356; mangled,=*Strepsiceros ejectana*

„ *spoliatana*, Walk., p. 356; type worn to pieces, unidentifiable.

„ *infimana*, Walk., p. 357; type very worn, unidentifiable.

„ *saxana*, Walk., p. 357=*Strepsiceros ejectana*.

Oliindia vetustana, Walk., p. 358; type doubtfully identifiable, not recognised.

Conchylis incongruana, Walk., p. 363=*Heliocosma incongruana*.

„ *ligniferana*, Walk., p. 363=*Strepsiceros ejectana*.

„ *divulsana*, Walk., p. 364; type in fragments, unidentifiable, perhaps=*Dich. fusciceps*.

„ *fuscicepsana*, Walk., p. 364=*Dichelia fusciceps*.

„ *tasmaniana*, Walk., p. 365= „ *tasmaniana*.

„ *notatana*, Walk., p. 365, probably belongs to the *Gelechiidæ* (*Tineina*).

„ *cepsana*, Walk., p. 366=*Dichelia fusciceps*.

„ *humerana*, Walk., p. 366= „ (?) *humerana*.

„ (?) *amænana*, Walk., p. 366=*Tortrix amænana*.

„ *vacuana*, Walk., p. 367=*Capua vacuana*.

„ *decisana*, Walk., p. 367, belongs to the *Ecophoridæ* (*Tineina*).

„ *mundulana*, Walk., p. 668=*Dichelia fusciceps*.

„ (?) *subfurcatana*, Walk., p. 368=*Tortrix subfurcatana*.

„ (?) *sparsana*, Walk., p. 369, belongs to the *Bombycina*.

„ *plagiataana*, Walk., p. 370=*Pyrgotis plagiataana*.

- Conchylis leucaniana*, Walk., p. 370=*Tortrix leucaniana*.
 „ *recusana*, Walk., p. 371=*Pyrgotis plagiatana*.
 „ *marginana*, Walk., p. 371= „ *gavisana*.
Penthina trifasciana, Walk., p. 377, belongs to the *Tineidæ* (*Tineina*)
 „ *indecretana*, Walk., p. 377=*Acropolitis signigerana*.
Pædisca immersana, Walk., p. 380=*Cacæcia postvittana*.
 „ *lignigerana*, Walk., p. 380=*Acropolitis lignigerana*.
 „ *confusana*, Walk., p. 381=*Arotrophora confusana*.
 „ *luci plagana*, Walk., p. 381=*Dichelia luci plagana*.
 „ *morosana*, Walk., p. 382; type worn and unrecognisable,
 probably belongs to *Tineidæ* (*Tineina*).
 „ *privatana*, Walk., p. 382=*Cacæcia jactatana*.
Grapholita parvulana, Walk., p. 391=*Eudemis botrana*.
 „ *extrusana*, Walk., p. 391, belongs to the *Pyralidina*.
 „ *decolorana*, Walk., p. 392,=*Capua decolorana*.
 „ *mutatana*, Walk., p. 393=*Capua vacuana*.
 „ *perspectana*, Walk., p. 393=*Holocola perspectana*.
Carpocapsa conficitana, Walk., p. 412=*Stigmonota conficitana*.
Tospitis transitana, Walk., p. 430, belongs to *Bombycina*.
Argua scabra, Walk., p. 448, probably belongs to *Geometrina*.
Uraba lugens, Walk., p. 448, belongs to *Pyralidina*.
Teras absumptana, Walk., p. 1780; type lost, description un-
 recognisable.
 „ *punctilineana*, Walk., p. 1780; type lost, description un-
 recognisable.
 „ *cuneiferana*, Walk., p. 1780=*Cacæcia obliquana*.
 „ *abjectana*, Walk., p. 1781; type lost, description unrecog-
 nisable.
 „ *pauculana*, Walk., p. 1781=*Tortrix leucaniana*.
 „ *contractana*, Walk., p. 1782; type lost, description unrecog-
 nisable.
 „ *constrictana*, Walk., p. 1785; type lost, description un-
 recognisable.

Gobæa copiosana, Walk., p. 1805 ; type lost, description unrecognisable.

The following descriptions, erroneously placed by Walker under various groups, refer truly to species of the *Tortricina*.

Scopula arcuatalis, Walk., = *Arotrophora arcuatalis*.

Tinea admotella, Walk., p. 485 = *Capua semiferana*.

Gelechia intactella, Walk., p. 652 = *Tortrix leucaniana*.

„ *ad reptella*, Walk., p. 654 = *Paramorpha ad reptella*.

Eromene transcissella, Walk., p. 1762 = *Arotrophora arcuatalis*.

„ *apertella* Walk., p. 1762 = *Heliocosma incongruana*.

ADDENDUM.

Holocola triangulana.

Whilst this paper was passing through the press, I have bred the above species from the larva. Larva moderate, cylindrical, slightly thickest in middle ; whitish-grey, faintly purplish-tinged ; head and a plate on second segment ochreous-brown : it feeds in a good deal of web and refuse amongst spun shoots of *Acacia decurrens*, (*Leguminosæ*). Pupa with a transverse row of small close oblique spikes on each abdominal segment, stronger posteriorly ; lying free where the larva fed. The larva was found in August, and the imago emerged early in November.

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