# FURTHER NOTES ON SOME MOTHS FROM LORD HOWE AND NORFOLK ISLANDS IN THE SOUTH AUSTRALIAN MUSEUM.

BY A. JEFFERIS TURNER, M.D., F.E.S.

**Summary**

A preliminary note on some moths taken by Mr. A. M. Lea on these islands appears in these Transactions (vol. xli., 1917). My departure to England prevented me from dealing with them more thoroughly at the time, but has enabled me to obtain valuable help from Mr. Edw. Meyrick, F.R.S., Sir Geo. Hampson, and Mr. L. B. Prout in determining some of them. Some corrections will be made in the former lists, all new species described, where this can be done, and the relationships of the fauna in each case will be discussed.

# FURTHER NOTES ON SOME MOTHS FROM LORD HOWE AND NORFOLK ISLANDS IN THE SOUTH AUSTRALIAN MUSEUM.[1]

By A. JEFFERIS TURNER, M.D., F.E.S.

[Read October 10, 1918.]

A preliminary note on some moths taken by Mr. A. M. Lea on these islands appears in these Transactions (vol. xli., 1917). My departure to England prevented me from dealing with them more thoroughly at the time, but has enabled me to obtain valuable help from Mr. Edw. Meyrick, F.R.S., Sir Geo. Hampson, and Mr. L. B. Prout in determining some of them. Some corrections will be made in the former lists, all new species described, where this can be done, and the relationships of the fauna in each case will be discussed.

At first sight the collections appeared disappointing, for they consisted mainly of well-known and widely distributed species; but a closer examination showed the presence of a considerable percentage of new species, for the most part small and inconspicuous, but of great interest. It must be remembered that Mr. Lea was mainly bent on collecting Coleoptera, and that the moths obtained were chance captures, including a large proportion taken at light. The latter might be expected to consist mainly of species feeding on common weeds and garden plants, for the most part not endemic, and some at least artificially introduced. The collections, however, establish the existence on each island of an endemic lepidopterous fauna, and there can be no doubt that by systematic collecting many interesting species would be added to the list.

## Lord Howe Island.

Corrections and additions to former list:—

ARCTIADAE—For *n. gen.*(?) *et. sp.* (page 53) substitute *Ilema*, n. sp.

GEOMETRIDAE—For *Boarmia inflexaria*, Snel. (page 53), substitute *Cleora inflexaria*, Snel. For *Cidaria*(?). sp. (page 53), substitute *Xanthorhoe*(?) n. sp.

TINEIDAE—*Hyponomeuta*, sp., is referable to *paurodes*, Meyr., previously known only from Queensland. Add two new species of *Blastobasis* and one of a new genus *Eretmobela*.

The following species, six in number, were taken on the island several years ago, and presented to me by Mr. G. A. Waterhouse; not one of them is endemic.

ARCTIADAE—*Utetheisa pulchella*, Lin.,(?) or *pulchelloides*, Hmps.(?) One female example, which might be referable to either of these widely distributed species, which can be distinguished only by the secondary sexual characters of the male. The latter occurs in the Kermadec Islands and New Zealand.

NOCTUIDAE—*Ophideres fullonica*, Lin. Three examples. Common on the Queensland coast and throughout the Eastern tropics. Has also been taken in New Zealand. *Dasypodia cymatodes*, Gn. One female example. A common species in Queensland and New South Wales.

SPHINGIDAE.—*Sphinx convolvuli*, Lin. Two examples. Common throughout the Eastern Hemisphere.

GEOMETRIDAE—*Urolitha bipunctifera*, Wlk. One female example. Also from Queensland and New South Wales. I believe the larva feeds on the mango, and it may have been introduced.

PYRALIDAE.—*Botyodes asialis*, Gn. One example. Widespread throughout the Eastern tropics, including New Guinea. I have no record for Queensland, though it should occur there.

## Family ARCTIADAE.

ILEMA HAPLOA, n. sp. (ἁπλοος, simple).

♂, 24-28 mm. Head, palpi, and thorax brown. Antennae brown; in male with short ciliations ($\frac{1}{2}$) and longer bristles (1). Abdomen whitish-brown. Legs brown. Forewings narrow-elongate, somewhat dilated posteriorly; costal margin bent over to form a strong costal fold on under-surface from base to $\frac{2}{3}$; pale brown; cilia pale brown. Hindwings with 6 and 7 coincident; whitish-ochreous; cilia whitish-ochreous.

Although of plain inconspicuous colouring this species appears to be not very closely related to any other in the genus. Eight male examples.

CALAMIDIA PAMPHAEA, n. sp. (παμφαιος all dusky).

♂, 31 mm. Head, thorax, and abdomen fuscous-brown. Palpi in male very long (5), ascending; terminal joint longer than second, spathulate; fuscous-brown. [Antennae broken.] Legs fuscous-brown. Forewings elongate, narrowly oval; brown closely irrorated with fuscous; an ill-defined median fuscous spot at $\frac{2}{3}$; cilia fuscous-brown with pale apices. Hindwings and cilia pale fuscous.

Very near the Australian *C. hirta*, Wlk., but much darker and of uniform coloration. Two male examples.

PHILENORA EUPHILETA, n. sp. (*εὐφίλητος*, well beloved).

♂, 15 mm. Head and thorax white. Palpi dark fuscous. Antennae pale fuscous; in male shortly ciliated ($\frac{1}{2}$). Abdomen pale ochreous. Legs ochreous; anterior pair with some pale-fuscous suffusion. Forewings elongate-triangular, costa gently arched, more strongly towards apex, apex rounded, termen obliquely rounded; white; costal edge ochreous; a large fuscous blotch in disc beneath middle, where it extends from $\frac{1}{4}$ to $\frac{1}{2}$, extending nearly to dorsum, where it is only half as long; a large pale-fuscous terminal suffusion not reaching apex; cilia pale ochreous. Hindwings and cilia pale ochreous.

One example. The type is wasted and the description of the forewings is probably therefore inexact, but the species is very distinct.

## Family GEOMETRIDAE.

### Subfamily LARENTIANAE.

XANTHORRHOE(?) APHANTA, n. sp. (*ἀφαντος*, inconspicuous).

♀, 24 mm. Head ochreous-whitish. Palpi $2\frac{1}{2}$; ochreous-whitish. Antennae ochreous-whitish. Thorax, abdomen, and legs ochreous-whitish with some pale-brownish irroration. Forewings triangular, costa straight to $\frac{2}{3}$, thence slightly arched, apex round-pointed, termen slightly bowed, moderately oblique; ochreous-whitish; markings fuscous-grey mixed with brownish, a moderate basal patch, its outer margin transverse, dentate; a slight suffusion beyond this; a broad median band, its anterior edge from $\frac{1}{3}$ costa to mid-dorsum, concave, wavy; posterior edge from $\frac{2}{3}$ costa to $\frac{3}{4}$ dorsum, wavy, with a single, prominent, rather obtuse, median tooth; towards costa the middle part of median band is paler and contains a transverse linear blackish discal mark; three rippled lines beyond median band, the last edged posteriorly by an interrupted dentate whitish line; a terminal series of blackish dots; cilia ochreous-whitish. Hindwings whitish with some greyish suffusion; a terminal series of dark-fuscous dots.

An inconspicuous species of ordinary *facies*. The type being a female, it is impossible to be sure that it may not belong to the genus *Cidaria*. One example.

### Subfamily ACIDALIANAE.

BRACHYCOLA(?) MICROSTICTA, n. sp.
(*μικροστικτος*, minutely speckled).

♀, 34 mm. Head, antennae, and thorax ochreous-whitish. Palpi in female 4, slender, terminal joint $\frac{1}{2}$

second; ochreous-whitish, upper edge of second joint purple-brown. Abdomen ochreous-whitish with four suffused dark-fuscous transverse bars on dorsum. Legs ochreous-whitish. Forewings triangular, costa very slightly arched, apex acute, slightly produced, termen slightly bowed; oblique; ochreous-whitish with very scanty, fine, dark-fuscous irroration; a postmedian series of minute dark-fuscous dots on veins; a terminal series of dark-fuscous dots between veins; cilia ochreous-whitish. Hindwings with termen slightly bowed; colour and markings as forewings. Underside as upper but faintly tinged with rosy, and dots paler.

Here, also, it is impossible to be certain of the genus in the absence of the male. One example.

## Family PYRALIDAE.

### Subfamily PYRALINAE.

MACALLA PHOENOPASTA, n. sp.
(*φοινοπαστος*, sprinkled with dark red).

♂, 36 mm. Head and thorax reddish-brown irrorated with whitish. Palpi in male dilated and very long, erect; ochreous-brown irrorated with whitish. Antennae fuscous; in male moderately ciliated ($\frac{1}{2}$); antennal process in male large, reaching to middle of thorax; reddish-brown mixed with whitish, upper edge partly fuscous. Abdomen ochreous mixed with fuscous and whitish. Legs whitish mixed with dark red and fuscous, posterior pair paler. Forewings elongate-triangular, costa moderately arched, apex rounded-rectangular, termen slightly rounded, slightly oblique; in male with a short transversely linear glandular swelling on upper side of costa at $\frac{2}{3}$; whitish irregularly mixed with dark-red and greenish scales; a dark-fuscous transverse line at $\frac{1}{4}$ from lower edge of cell nearly to dorsum, margined posteriorly with reddish; a very ill-defined whitish line from costa at $\frac{4}{5}$ to dorsum before tornus, margined posteriorly with reddish, which towards dorsum forms an incomplete dentate line; some dark-fuscous streaks on veins before apex; three fuscous spots on termen beneath apex; cilia whitish. Hindwings fuscous; paler towards base; cilia whitish.

This belongs to a small Australian group within the genus, characterized by the costal gland in the male. It comprises *costigeralis*, Wlk.; *concisella*, Wlk.; *demotis*, Meyr. (which, however, I have not seen); and *prasina*, Warr. One male example.

Subfamily PYRAUSTINAE.

MECYNA INSULICOLA, n. sp. (?)

*(Insulicolus,* inhabiting an island).

♀, 35 mm. Head and thorax fuscous with some ochreous-whitish admixture. Palpi 4; fuscous, basal half of under-surface white. Antennae fuscous. Abdomen ochreous-yellow, paler beneath. Legs whitish suffused with reddish-ochreous; anterior pair more reddish. Forewings elongate-triangular, costa straight to $\frac{2}{3}$, thence strongly arched, apex rectangular, termen nearly straight, only slightly oblique; fuscous irrorated with whitish, more densely so in posterior part of disc; an ill-defined oblong dark-fuscous spot on mid-dorsum; a large transversely oval dark-fuscous spot beneath midcosta; an interrupted dark-fuscous line represented by dots on veins from $\frac{2}{3}$ costa, bent inwards below middle to join dorsal spot; terminal area tinged with dark red; cilia fuscous mixed with dark red. Hindwings ochreous-yellow, a dark-fuscous apical blotch prolonged by a narrowing process to mid-termen, containing some reddish scales; cilia ochreous, bases fuscous on apex of wing. Underside ochreous with large reddish blotch prolonged along costa and termen on both wings; forewings with an oblique fuscous mark on end of cell. One example.

This species presents a difficulty. It is very distinct from the Australian *M. ornithopteralis*, Gn. (which, however, is almost, if not quite, identical with the European *M. polygonalis)*, in which there is always a complete dark terminal band on the hindwings. On the other hand, it is very nearly similar to some examples of the American *M. reversalis*, but unless this species has been artificially introduced (which seems barely possible) it can hardly be identical. The most satisfactory way of dealing with the difficulty would probably be to regard all four forms as one species.

## Family TINEIDAE.

### Subfamily OECOPHORINAE.

ELAEONOMA PHAEOPASTA, n. sp. (φαιοπαστος, darkly sprinkled).

♂ and ♀, 15-17 mm. Head and palpi ochreous-whitish. Antennae ochreous-whitish; in male with extremely long ciliations (8). Thorax pale fuscous. Abdomen pale fuscous, apices of segments and tuft ochreous-whitish. Legs ochreous-whitish with a few pale-fuscous scales. Forewings not dilated, costa moderately arched, apex round-pointed, termen oblique, scarcely rounded; ochreous-whitish with patchy fuscous irroration more marked in male, especially in

posterior part of disc; three well-marked fuscous discal dots, first in disc at $\frac{1}{3}$, second on fold slightly beyond first, third in disc before $\frac{2}{3}$; cilia ochreous-whitish. Hindwings and cilia grey.

But for the stalking of veins 2 and 3 of the forewing this might pass for one of the *convictella* group of the genus *Eulechria*. Three examples.

BLASTOBASIS EPISEMA, n. sp. (ἐπισημος, distinctly marked).

♂, 17 mm. Head whitish-ochreous. Palpi whitish-ochreous; in male with second and terminal joints much enlarged, the latter obtuse. Antennae with basal joint dilated to form a small eyecap with a well-developed pecten on its lower edge; whitish-ochreous; ciliations in male 2. Thorax whitish-ochreous, anterior edge fuscous. Abdomen fuscous, basal segment, apices of segments, tuft, and underside whitish-ochreous. Legs fuscous with some whitish-ochreous admixture; posterior pair mostly whitish-ochreous. Forewings narrow, lanceolate; whitish-ochreous; markings dark fuscous; a well-marked V-shaped fascia from $\frac{1}{3}$ costa obliquely outwards, then acutely bent back to mid-dorsum; a dot above tornus, and a second between this and $\frac{2}{3}$ costa; a series of dots on apical part of costa and on termen; cilia whitish-ochreous. Hindwings lanceolate; pale grey; cilia ochreous-grey. One example.

BLASTOBASIS DYSSEMA, n. sp. (δυσσημος, badly marked).

♂ and ♀, 14-18 mm. Head whitish-ochreous. Palpi whitish-ochreous; in male with second and terminal joints much enlarged, the latter obtuse. Antennae with basal joint enlarged and pectinate; pale fuscous; ciliations in male 2. Thorax fuscous. Abdomen fuscous; underside, and in male tuft ochreous-whitish. Legs pale fuscous; posterior pair mostly ochreous-whitish. Forewings narrow, lanceolate; ochreous-grey, in female pale fuscous; a minute longitudinal fuscous mark in middle of disc, and another before it on fold; a fuscous dot above tornus, and another between it and $\frac{3}{4}$ costa; cilia whitish-ochreous, in female pale fuscous. Hindwings lanceolate; pale grey; cilia ochreous-grey. Five examples.

## Family TINEIDAE.

### Subfamily GRACILARIANAE.

*Gracilaria*, n. sp. One of the group allied to *xylophanes*, Turn., but distinct. Unfortunately during the journey to England both forewings became detached and lost, so that it is impossible to give a description.

Subfamily LYONETIANAE.

*Erechthias*, sp. One example not in a fit state for determination.

Subfamily TINEINAE.

Gen. ERETMOBELA, nov.

(ἐρετμοβελος, with paddle-shaped weapons—palpi).

Head smooth-scaled; side-tufts closely appressed. Labial palpi long, recurved; second joint moderate, with rough spreading short hairs anteriorly, and three or four long hair-like bristles from apex posteriorly; terminal joint longer than second, stout, obtuse, flattened, and dilated antero-posteriorly. Maxillary palpi obsolete. Antennae shorter than forewings; apices of joints dilated. Forewings with eleven veins, 2 and 3 stalked from angle of cell, 4 approximated to them at origin, 5 and 6 separate and parallel, 7 and 8 coincident and running to costa, 9 separate, 10 from upper angle of cell, 11 from $\frac{5}{6}$. Hindwings with 2 from $\frac{2}{3}$, 3, 4, 5, 6, 7 separate and parallel, forking vein in cell well marked.

Mr. Meyrick informs me that this genus is allied to *Setomorpha*, though differing in neuration.

ERETMOBELA PHAEOSEMA, n. sp. (φαιοσημος, dusky marked).

♀, 16 mm. Head brown-whitish mixed with fuscous. Palpi ochreous-whitish; external surface of terminal joint fuscous. Thorax fuscous, extreme apex posteriorly narrowly whitish-ochreous. [Abdomen broken.] Legs dark fuscous; middle and posterior coxae ochreous-whitish; tarsi and apex of tibia sharply annulated with ochreous-whitish. Forewings moderate, posteriorly somewhat constricted, costa strongly arched to middle, thence only slightly, apex round-pointed, termen obliquely rounded; ochreous-whitish irrorated with fuscous; markings dark fuscous; a dot on costa at $\frac{1}{4}$, an elongate mark on costa before middle, a large spot on $\frac{3}{4}$ costa, with a costal dot midway between the two preceding; irregular but well-defined dorsal blotches at $\frac{1}{4}$ and middle; a median discal dot at $\frac{1}{3}$ and a second at $\frac{2}{3}$; a terminal line dilated at tornus and interrupted above tornus; cilia fuscous obscurely barred with ochreous-whitish. Hindwings grey; cilia ochreous-whitish, on costa and dorsum grey. One example.

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Mr. Lea obtained 32 species; adding the six obtained through Mr. Waterhouse we have a total of 38. Among them are 25 known species and 13 are endemic species, which have just been described. Of the 25 there are 16 which

have a wide distribution, and 5 of these extend to New Zealand. These 16 species throw no light on the relationship of the local fauna; 2 of them *(Hieroxestis omoscopa* and *Trichophaga tapetiella)* are certainly introduced, and possibly this is true of some of the others. Nine species are known to occur only in Lord Howe Island and Australia *(Dasypodia cymatodes, Dichromia quinqualis, Hypena sylpha, Urolitha bipunctifera, Cleora inflexaria, Epicrocis subsignalis, Scenedra decoratalis, Diplopseustis perieresalis, Hyponomeuta paurodes)*, except that one of them *(C. inflexaria)* extends also to New Guinea, and another *(D. perieresalis)* also to New Zealand.

Of the 13 endemic species 5 admit of no definite statement of their geographical affinities. They are:—

*Xanthorhoe*(?) *aphanta*
*Mecyna insulicola*
*Gracilaria*, n. sp.
*Erechthias*(?), sp.
*Eretmobela*, n. gen. *et* sp.

There remain 8, which are clearly of Australian affinity. They are:—

*Ilema haploa*
*Calamidia pamphaea*
*Philenora euphileta*
*Brachycola*(?) *microsticta*
*Macalla phoenopasta*
*Elaeonoma phaeopasta*
*Blastobasis episema*
*Blastobasis dyssema*

The conclusion to be drawn is simple. Lord Howe Island is in its lepidopterous fauna merely a detached and isolated fragment of Australia. To this it is necessary to make one qualification; the relation is to that part of the Australian fauna that has Indo-Malayan affinities, and not to that part that is peculiarly and distinctively Australian. A glance at the map will show that this conclusion might have been expected. Lord Howe Island lies about 350 miles from the Australian coast, nearly in the latitude of Port Macquarie, and is not in such close relation to any other land. The lepidopterous fauna, so far as known, shows no affinity to that of New Zealand.

## Norfolk Island.

Corrections and additions to former list:—

NOCTUIDAE—Delete *Ariathisa*, sp. (page 55), which was an erroneous determination, and substitute *Perigea capensis*, Gn. One example. Common in the Eastern tropics. Has also been taken in the Kermadec Islands.

GEOMETRIDAE—For *Boarmia*, n. sp. (page 55), substitute *Cleora*, n. sp.

TINEIDAE, Subfamily GELECHIANAE—Insert *Brachmia*, sp. One imperfect example, closely allied to *arotraea*, Meyr., from Ceylon and India. Subfamily TINEINAE—For *Tinea*, sp. (page 56), substitute *Tinea*, n. sp.

ARCTIADAE—*Nesiotica cladara*, n. gen. *et* sp. This has been already described.

## Family GEOMETRIDAE.

### Subfamily BOARMIANAE.

CLEORA IDIOCROSSA, n. sp. (ἰδιοκροσσος, with peculiar margin).

♀, 40 mm. Head grey-whitish. Palpi 2; grey-whitish. Antennae grey-whitish. Thorax and abdomen whitish-grey with a few darker scales. Legs grey-whitish irregularly speckled with fuscous; anterior and middle tarsi annulated with fuscous. Forewings with termen dentate; 10 and 11 separate; whitish-grey sparsely irrorated with fuscous; markings brownish-grey and fuscous; antemedian and median lines brownish-grey, suffused, ill-defined; a dark-fuscous dot on lower edge of cell posterior to antemedian line; a pale-centred fuscous median spot just posterior to median line; a well-marked dark-fuscous line from $\frac{3}{4}$ costa to $\frac{2}{3}$ dorsum, strongly but irregularly dentate, slightly projecting above middle; immediately posterior to this a brownish-grey shade; twin roundish subterminal fuscous spots above middle, and a short subterminal fuscous line from dorsum; an incomplete fuscous submarginal shade; a fine dark-fuscous terminal line thickened in indentations; cilia grey-whitish, towards tornus whitish. Hindwings somewhat elongate, termen strongly dentate; as forewings but without antemedian and median lines; subterminal line completely developed. Underside whitish with fuscous median circular spots, fine dentate postmedian line, and incomplete broad terminal band on each wing.

A very distinct species of the *acaciaria* group, easily distinguished from its allies by the strongly dentate termen of both wings. Mr. Prout writes "near *samoana*, Butl., termen slightly less oblique and postmedian line less outbent at veins." One example in fair condition.

## Family PYRALIDAE.

### Subfamily PYRALINAE.

ENDOTRICHA DYSCHROA, n. sp. (δυσχροος, deficient in colour).

♂, 20 mm. Head and thorax pale fuscous slightly purplish-tinged. Palpi pale fuscous, beneath whitish. Antennae grey-whitish; ciliations in male slightly over 1.

Abdomen ochreous-whitish with some grey irroration; a minute median dorsal crimson dot on antepenultimate segment. Legs ochreous-whitish irrorated with fuscous. Forewings elongate-triangular, costa nearly straight but slightly sinuate, apex pointed, termen slightly rounded, moderately oblique; whitish, closely irrorated with fuscous, slightly purplish-tinged; a series of ill-defined ochreous-whitish dots on posterior half of costa; a fuscous subcostal dot at $\frac{2}{3}$; an ill-defined pale transverse median line; a better-marked pale subterminal line from 9/10 costa to tornus; traces of a fine fuscous terminal line; cilia purple-whitish. Hindwings whitish with some fuscous suffusion; a faint pale line from tornus towards middle; a very fine fuscous terminal line; cilia purple-whitish.

Three male examples all worn, but there seems to be no doubt as to their constituting a new species.

Subfamily PYRAUSTINAE.

DIASEMIA DELOSTICHA, n. sp.
($\delta\eta\lambda o\sigma\tau\iota\chi o\varsigma$ with conspicuous lines).

♂ and ♀, 16-20 mm. Head fuscous-brown. Palpi $3\frac{1}{2}$; fuscous, beneath whitish. Antennae fuscous; ciliations in male $\frac{2}{3}$. Thorax dark fuscous; margins whitish-brown, except for a dark-fuscous spot on base of patagia. Abdomen dark fuscous, apices of segments whitish. Legs brown-whitish; anterior pair except coxae fuscous. Forewings narrowly-triangular, costa straight to $\frac{4}{5}$, thence arched, apex pointed, termen sinuate, oblique; dark fuscous; a reddish-brown subcostal bar from base to $\frac{3}{5}$, indented beneath at middle of disc; an ill-defined whitish basal dorsal area; an irregular whitish median area, thinly scaled like the preceding; a very distinct, inwardly curved, slightly wavy, whitish line from $\frac{3}{4}$ costa to tornus, posteriorly suffusedly edged with reddish-brown; a whitish apical suffusion curved inwards towards tornus; cilia fuscous irregularly barred with white. Hindwings with termen strongly sinuate; dark fuscous; a whitish basal area containing a dark-fuscous subcostal spot; a white fascia from mid-costa to dorsum before tornus, slightly angled outwards in middle; a white line from $\frac{3}{4}$ costa to beneath middle of termen, bent inwards in middle; cilia white with a dark-fuscous sub-basal line, and dark-fuscous bars at apex and above middle of termen.

Nearly allied to *D. grammalis*, Dbld., from New Zealand, but in that species the posterior line of forewings terminates in dorsum well before tornus. Both species are nearly related to the European *D. litterata*, Scop. Evidently abundant, 62 specimens secured.

SCOPARIA TRITOCIRRHA, n. sp.
(τριτοκιρρός, three times pale yellow).

♀, 14 mm. Head and palpi grey; labial palpi 2½. Antennae dark fuscous. Thorax fuscous. Abdomen grey. Legs fuscous irrorated, and tarsi annulated, with fuscous. Forewings narrowly triangular, costa straight to ⅔, thence arched, apex round-pointed, termen nearly straight, scarcely oblique; grey; a short longitudinal pale-yellowish line, edged above with blackish, from base of costa; a broader yellowish longitudinal line before middle beneath cell, also edged with blackish above; a narrowly-oval longitudinal yellowish median spot beyond middle, edged with blackish except on dorsal margin; from its upper-surface extend two short blackish processes towards costa; blackish dots on costa at ¼, middle, and before ¾; a faintly indicated whitish spot median line; a dark-fuscous line close to termen; terminal edge yellowish; cilia grey with a fuscous sub-basal line. Hindwings pale-grey; cilia whitish with a pale-grey sub-basal line.

An inconspicuous little species, yet very distinctly characterized by the slender yellowish longitudinal markings. Three examples.

## Family TORTRICIDAE.

### Subfamily TORTRICINAE.

CAPUA ARIDELA, n. sp. (ἀριδηλος, most conspicuous).

♂, 21 mm. Head white. Palpi 2; white, second joint with a broad subapical dark-fuscous bar on external surface. Antennae fuscous; in male dentate, ciliations ¼. Thorax whitish-grey; patagia with basal half black, apical half white. Abdomen whitish with fuscous irroration; legs whitish with fuscous irroration; anterior pair mostly fuscous; posterior pair nearly wholly whitish. Forewings strongly dilated posteriorly; in male with a strong costal fold extending to middle; silvery-white with scanty grey irroration and sparsely scattered pale-ochreous scales; markings black; a sub-basal line slightly prolonged along dorsum; costal fold with two transverse bars and again black at apex; a median streak from sub-basal line to ⅖, strongly ∽ curved; an irregular oblique band from costa before middle to dorsum beyond middle, touching median streak, and strongly bent outwards at point of junction; from the upper part of this band posteriorly is given off a strong square-ended process; an irregularly bent fascia from costa at ⅔ to tornus, giving off two processes to costa before apex; a subapical costal dot; a subapical terminal mark; cilia white,

bases barred with blackish. Hindwings whitish-grey, somewhat darker towards apex; cilia whitish with a faint grey sub-basal line.

Although conspicuous the coloration is probably protective on lichen-covered rocks. One example.

SCHOENOTENES CAPNOSEMA, n. sp.

(*καπνοσημος*, with dark markings).

♀, 17 mm. Head grey. Palpi 2½; fuscous, apices of second and terminal joints and whole of inner surface whitish. Antennae grey. Thorax grey, posteriorly tinged with brownish. Abdomen pale grey, towards apex darker. Legs fuscous; anterior and middle tarsi annulated with whitish. Forewings rather narrow, not dilated; whitish with silvery reflections, crossed by numerous fine, wavy, ochreous-brown transverse striae; numerous small tufts of raised scales; a prominent transverse ridge of raised scales from ¼ dorsum to beyond middle, edged posteriorly by a blackish line; a similar slightly oblique ridge from costa before middle to dorsum beyond middle, with a broad blackish line on posterior edge; a tuft in mid-disc at ⅔, preceded and followed by blackish spots; a slender blackish line from ⅘ costa to termen above tornus, angled outwards beneath costa; a slender interrupted blackish terminal line; cilia ochreous-whitish, on tornus grey. Hindwings and cilia grey. One example.

TORTRIX, sp.

Two examples in poor condition of ordinary facies and not determinable.

Subfamily EUCOSMINAE.

ACROCLITA MACROMA, n. sp.

(*μακρωμος*, with elongate shoulders).

♂, 12 mm. Head green-whitish. Palpi 2; pale fuscous. Antennae grey; in male slightly serrate, minutely ciliated. Thorax brown-whitish, in centre mixed with dark fuscous; patagia in male long, extending well behind thorax. Abdomen fuscous. Legs fuscous-whitish. Forewings in male with strong costal fold extending to ⅓; green with dark-fuscous markings; fold strigulated with dark fuscous; several dots and some scales in basal part of disc; a subcostal spot at ⅓; a narrow interrupted fascia from ⅔ costa to mid-dorsum; a second fascia from apex to ⅔ dorsum, giving off a short outwardly curved line to tornus; a fine terminal line; cilia green-whitish, apices partly dark-fuscous. Hindwings dark grey; cilia grey-whitish. One example.

## Family TINEIDAE.

### Subfamily GELECHIANAE.

BRACHMIA, sp.

One male example, imperfect, pronounced by Mr. Meyrick to be closely allied to *Brachmia arotraea*, Meyr., from Ceylon and India.

### Subfamily TINEINAE.

TINEA CAPNITIS, n. sp. (καπνιτις, smoky).

♂, 17-18 mm. Head fuscous-whitish. Palpi 2½; fuscous, inner surface whitish. Antennae pale fuscous; in male with-joints enlarged at apices, minutely ciliated. Thorax fuscous. Abdomen ochreous-whitish, suffused with fuscous on dorsum. Legs fuscous; tibiae and tarsi annulated with ochreous-whitish; posterior pair almost wholly ochreous-whitish. Forewings moderate, not dilated, costa strongly arched, apex pointed, termen very obliquely rounded; ochreous-whitish rather densely irrorated with fuscous; absence of irroration leaves an obscure pale dorsal streak containing some fuscous scales near margin; very obscure fuscous discal dots at ⅓ and ⅔; cilia fuscous. Hindwings and cilia grey-whitish.

A very obscure species belonging to a cosmopolitan genus, of which many species are domestic in their habits and artificially introduced. I should not have ventured to describe it, but for the decided opinion of Mr. Meyrick, who kindly examined my examples, that it is both new and endemic. Two examples.

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The collection contains 33 species. Of these two are not determinable; one of these is a species of the genus *Tortrix*, the other a *Brachmia*, closely allied to *arotraea*, Meyr., from Ceylon and India. Of the remaining 31 there are 22 well-known species, 9 of which are endemic.

Of the 22 known species 15 are of wide distribution. All of these occur in Australia, six of them also on Lord Howe Island. Four of them are recorded from New Zealand and the Kermadec Islands and one from the Kermadec Islands only *(Perigea capensis)*. Of these 22 at least three *(Eucosma plebeiana, Polychrosis botrana, Hieroxestis omoscopa)*, and possibly others, have been artificially introduced. Two species *(Acidalia rubriaria* and *Crocydopora cinigerella)* occur both in Australia and New Zealand, but probably originated in the former. The remaining five—

*Chloroclystis laticostata* — *Corambus cuneiferellus*
*Xanthorrhoe sodaliata* — *Argyroploce illepida*
*Acidalia hypochra*

are Australian species, though the first occurs also in the Kermadec Islands.

Of the nine endemic species five are clearly of Australian affinity—

*Nesiotica cladara*, n. sp. *Schoenotenes capnosema*, n. sp.
*Cleora idiocrossa*, n. sp. *Acroclita macroma*, n. sp.
*Endotricha dyschroa*, n. sp.

Whether the genus *Cleora* (as distinguished from *Boarmia)* occurs in New Zealand may be regarded as an open question, but the Norfolk Island species is not allied to any found in New Zealand. *Nesiotica* is a new genus closely allied to a genus described from Queensland, and the group to which it belongs is not represented in New Zealand. The genera *Endotricha*, *Schoenotenes*, and *Acroclita* are well represented in Queensland, but do not occur in New Zealand. The genera *Scoparia* and *Capua* have numerous species in both Australia and New Zealand, and no stress can be laid on the two species described from Norfolk Island. Mr. Meyrick assures me that they are not closely allied to any New Zealand species. The genus *Tinea* is cosmopolitan. There remains only *Diasemia delosticha*, which is the only new species here described clearly of New Zealand affinity.

So far as these results go, the lepidopterous fauna of Norfolk Island shows only a slender connection with that of New Zealand, but a strong connection with that of Queensland. Why the connection should be with Queensland rather than with the southern half of the continent is explained by the map. The distance from Norfolk Island to the northern extremity of New Zealand is about 450 miles, to New Caledonia (the next nearest land mass) about 550 miles. Of the lepidopterous fauna of New Caledonia I know nothing, but the 500-fathom line shows a considerable extension of shallow water around that island, together with a much greater extension westward from the Australian coast just north of the tropic. This suggests strongly a former extension westward, bringing Australia and New Caledonia into close connection, not necessarily by dry land, but with only one or two comparatively narrow intervening straits. Measuring from the 500-fathom limits that of Norfolk Island becomes nearly equidistant from those of New Caledonia and New Zealand, the distance being about 350 miles.