

## MACROLEPIDOPTERA.

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In this paper are included all the Lepidoptera except the Pterophoridae, Tortricina, and Tineina, which have been entrusted to Lord Walsingham. I propose to give a complete enumeration of all the species hitherto observed in the Hawaiian islands, describing the very numerous new species, and also redescribing those species of which our former imperfect knowledge has been enlarged by the acquisition of new material; and also to discuss some general considerations arising from the study of these forms.

I have not thought it necessary to quote the synonymy of the species, or to give references, except in so far as these have actual relation to the Hawaiian Islands. The accurate record of localities is in the case of this fauna so important for purposes of comprehension, that I have thought it best to particularise the number of specimens obtained from each locality, so as to indicate the value of the available evidence. On the other hand, the season of capture seems to depend in most cases only on the presence of the collector, and the impression derived from the records is that many species are probably obtainable throughout the year.

## § 1. General considerations on the Macrolepidoptera.

In the following enumeration 292 species are recorded, of which number exactly 200 are now described for the first time; these are assigned to 49 genera, of which 6 are new.

*Relation of Genera and Species.*

Of the 292 species, 31 occur also in other regions, the remaining 261 (or 89 per cent.) are endemic. Future discoveries are more likely to increase this percentage than to diminish it.

Of the 49 genera, only 10 (or 20 per cent.) are endemic, the other 39 occur elsewhere. The endemism of the species is therefore four and a half times as great as that of the genera. It appears to me that this ratio, in the case of a highly endemic fauna, is an index of the same significance as is the proportion of species to genera in a highly apodemic fauna. If, as an example of the latter, we take the Lepidopterous fauna of the British Isles, as enumerated in my Handbook of British Lepidoptera, we find 2061 species and 458 genera, the ratio being  $4\frac{1}{2}$  to 1 exactly. I interpret this index as a measure of the comparative periods of time required to produce specific and

generic characters, signifying with considerable precision (for I find the same result in such other faunas as are available for calculation) that on an average it takes four and a half times as long to produce a genus as to produce a species.

In the Hawaiian fauna, however, the proportion of species to genera is unusually high, being 6 to 1, and it may be asked why this is so. It appears probable that, owing to the extremely limited character of the fauna, and the relatively very small number of genera available in the first instance as a base of development, the generic competition has not been sufficiently severe to promote a high rate of modification: whilst the variety of situations presented under similar but slightly different conditions (such as those depending on altitude, rainfall, and insular separation), is highly favourable for specific development. I shall show presently that even the existing endemic genera are not all on the same footing.

#### COMPARISON OF FAMILIES WITH OTHER REGIONS.

Only 12 families are represented in this portion of the fauna, and two of these, the Galleriidae and Pyralididae, only by species of undoubtedly artificial introduction; thus only 10 are truly native, all of them being of world-wide distribution. In the corresponding portion of the British fauna there are no less than 34 families; yet all those families which are represented in Britain by more than 12 species are present in the Hawaiian Islands except the Arctiidae, Sterrhidae, and Notodontidae, and none which are represented by less; so that, except for those three families, the results are in accordance with the law of chance. The New Zealand fauna so much resembles the Hawaiian in its broad outlines that it may be worth while to compare them in tabular form.

	<i>New Zealand.</i>	<i>Hawaiian Islands.</i>
Arctiidae	4	0
Hypsiidae	1	0
Caradrinidae	59	38
Plusiidae	7	13
Hydriomenidae	93	17
Sterrhidae	1	0
Orthostixidae	2	0
Monocteniidae	4	0
Selidosemidae	25	33
Sphingidae	1	7
Nymphalidae	6	5
Satyridae	4	0
Lycaenidae	4	2
Pieridae	1 (?)	0
Phycitidae	3	7
Galleriidae	1	1
Crambidae	49	8
Pyraustidae	76	159

	<i>New Zealand.</i>	<i>Hawaiian Islands.</i>
Pyralididae	2	2
Psychidae	2	0
Hepialidae	9	0

All the Hawaiian families are therefore found in New Zealand, the Galleriidae and Pyralididae being introduced in both alike, and 8 other families are also represented there, but only by a very few species, amounting altogether to 8 per cent. of the total, or an average of 1 per cent. each, whilst the ten other native families average over 9 per cent. each. The single species of Sterrhidae is an abundant Australian insect, and not improbably artificially introduced thence; the small size and weak flight of members of this family may account for their not crossing wide seas. The Noto-dontidae are absent from both faunas; they are notoriously seldom seen on the wing, and may therefore be habitually incapable of prolonged flight.

#### GEOGRAPHICAL DISTRIBUTION OF GENERA AND SPECIES.

For the consideration of this subject I shall group the genera not by their mutual affinities but by their constitution, as follows: (*a*) wholly<sup>1</sup> apodemic (none of these contains more than two species), (*b*) apodemic, with one endemic species, (*c*) apodemic, with from 2 to 6 endemic species, (*d*) apodemic, with from 9 to 13 endemic species, (*e*) apodemic, with 24 to 57 endemic species, (*f*) endemic, with 1 or 2 species, (*g*) endemic, with 14 to 30 species.

##### (*a*) *Apodemic genera, of one species, or of two species, neither endemic.*

There are 17 of this class, comprising 22 species.

Nine (*Plodia*, *Ephestia*, *Ephestiodes*, *Meliphora*, *Euchromius*, *Nymphula*, *Hymenia*, *Hellula*, *Pyralis*), with 11 species, have been artificially introduced by man, mostly as larvae feeding on preserved foods or cultivated plants, and are now apparently established as residents; all of them have similarly extended their range over most of the warmer regions of the globe (except *Ephestiodes*, which is hitherto only recorded from America), so that their place of origin is sometimes unknown, and is in any case unimportant for the present purpose.

Two (*Heliothis*, *Nomophila*), with 2 species, and also *Spodoptera exigua* and *Sphinx convolvuli*, are practically cosmopolitan, being found in suitable localities almost everywhere, and are further known to be possessed of very great powers of flight, having all been met with in the open sea, sometimes many hundreds of miles from the nearest land. These may have come in from any direction, though *Sphinx convolvuli* is considered to be the American form (*cingulata*).

<sup>1</sup> *Endemic* denotes that a species or genus is apparently confined to these islands. I define *apodemic* as the opposite of endemic; it signifies that a form occurs outside the islands as well as in them.

*Hypocala*, *Anosia*, *Plusia biloba*, and *Sphinx celeus*, are American insects, all powerful flyers; *Anosia* in particular has within recent memory extended its range over the whole Pacific to Australia and New Zealand.

*Simplicia robustalis*, *Spodoptera mauritia*, and *Plusia chalcites* are very wide-ranging species in S. Asia, the Malay Archipelago, and Australia, the two latter occurring also in Africa, and the last-named likewise in New Zealand and Europe; the two latter are of powerful flight, but the *Simplicia* may prove, when its habits are made known, to be artificially introduced.

This class represents the effect of present-day influences. I think it probable that the 4 cosmopolitan species actually came from America, and in that case there would be a large preponderance of the American element. *Hypocala* has a well-marked local form besides the normal American type, and *Heliothis* also shows a tendency to form a local race, so that these two approach the character of the next class.

(b) *Apodemic Genera, with one endemic species.*

This class includes 7 genera and 12 species.

*Caradrina* is best omitted from consideration; the single species (in one specimen) cannot be positively assigned to the genus, which is however widely distributed in the northern hemisphere.

*Cosmophila* is distributed throughout the tropical and subtropical regions of the world. It is represented by one apodemic species, which occurs also in Fiji, S. Asia, and Africa, but assumes here the character of a tolerably well-marked geographical race; and one endemic species, which may reasonably be regarded as a development of the foregoing.

*Hydriomena* is a very large genus of universal distribution, but mainly characteristic of temperate regions. The single endemic species is not sufficiently near any other to allow of its affinity being positively stated; but I am disposed to regard it as being of an Asiatic (Himalayan and Japanese) type.

*Dasyuris* consists, so far as is yet definitely known, of one Arctic species (Greenland, Labrador, Lapland), two Australian, and five from New Zealand. The Hawaiian species is not particularly close to any of these, though generally similar; geographically it is an interesting link. The facts would seem to indicate a New Zealand origin.

*Vanessa* is represented by three apodemic species and one endemic. Of the apodemic, *V. cardui* is cosmopolitan, being perhaps the best traveller of all the Lepidoptera, and may have entered from any side; *V. huntera* is American, *V. atalanta* European and American, but both have probably alike come from America. The endemic species is intermediate between *cardui* and *atalanta*, and its nearest ally is *V. callirrhoe* in the Canary Islands; hence it is probable that both these are the insular descendants of a former wide-ranging American species, which was also the ancestor of the continental *cardui* and *atalanta*.



*Lycaena* exhibits one apodemic species, the very widely distributed *L. baetica*, which occurs in many Pacific islands, Australia, Asia, Africa, and Europe; and one endemic species, by no means very close to any other, but belonging to the group of *L. argiolus* (Europe and N. Asia).

*Prionopteryx* includes at present 7 American species, 2 African, and one Australian; the single Hawaiian species is sufficiently remote from any of these, but probabilities are much in favour of an American origin.

Summarising these, and excluding ambiguous forms, the apodemic species (present-day) show 2 Asiatic and 2 American; the endemic (earlier) indicate 2 Asiatic, 1 New Zealand, and 2 American species.

(c) *Apodemic genera, with 2—6 endemic species.*

These number 8 genera, with 29 species.

*Hypenodes* is a characteristically Indo-Malayan genus, though certain species range into Europe, Africa, Australia, and New Zealand. Of the five endemic species, one (much the commonest) is closely allied to the wide-ranging *H. costistrigalis*; the other four are presumably derivatives of this, but are in part rather curiously diverse, showing sufficient structural modification to permit of subgeneric separation if desired. The mutual relations of these species are however difficult to understand, and the genus presents many obscure problems.

*Xanthorhoe* is a very large and cosmopolitan genus, though relatively more prominent in New Zealand than elsewhere. The four endemic species are probably but not obviously of common origin; they are of an early type, and may have most affinity to some Australian and New Zealand forms, but it is uncertain.

*Deilephila* includes one apodemic and four endemic species, one of the latter being of doubtful generic reference and therefore best neglected for the present. The apodemic species is the cosmopolitan *D. lineata*, an insect of exceptionally powerful flight, which might have come from either side. The three other endemic species form a single group, doubtless from a common ancestor, rather markedly distinct from any other, but perhaps related most to *D. galii*, which is widely spread in Europe, C. Asia, and N. America.

*Homoeosoma* is a generally distributed genus. The two endemic species (extremely similar but structurally distinct) must be modifications of a single ancestor, and approach very closely *H. vagella*, which is very common in Australia, and scarce in New Zealand.

*Talis* includes at present 28 Australian species, 1 New Zealand, 4 Indo-Malayan, 2 African, 3 European, and 2 C. and S. American. The 6 Hawaiian species (probably there are more to be discovered) form a closely connected group of single origin, which seem to resemble most the small and inconspicuous Australian *T. gelastis*, though they

show little similarity to the main body of Australian species. It is however also possible that the connection is with the Indo-Malayan forms. The distribution of this genus is curious, and it was perhaps once more generally prevalent.

*Margaronia* is universally distributed in tropical and subtropical regions, but is most characteristic of the Indo-Malayan fauna. The two endemic species (quite independent, and belonging to different groups of the genus) are both of Indo-Malayan affinity.

*Mecyna* is a limited but cosmopolitan genus. There are two endemic species, of which one is the local representative of the universally distributed *polygonalis* group, being apparently nearest to the New Zealand form, *M. deprivalis*; but here it certainly appears probable that the New Zealand representative is derived from the Hawaiian and not *vice versa*, as it shows no immediate relationship to the Australian form. In this case the origin of the Hawaiian form must be referred to North America. The other species is of somewhat uncertain affinity, but may possibly be a derivative of the first.

*Loxostege* is characteristic of the northern hemisphere, though stragglers occur as far as Australia. The three endemic species form a connected group, not very near to any other, but possibly inclining rather to the North American type.

In this class, therefore, apart from one doubtful and one apodemic cosmopolitan form, 9 primary species are indicated, of which three are certainly Indo-Malayan, 3 probably American, and 3 probably Australian.

(d) *Apodemic genera, with 9—13 endemic species.*

In this class are comprised 4 genera, with 42 species.

*Leucania* is a large and quite cosmopolitan genus; some of the species are great wanderers, and many, perhaps most, of the species feed in the larval state on grasses, and therefore find suitable food everywhere; the genus is relatively prominent in New Zealand. The 9 Hawaiian species belong to two quite independent and dissimilar groups; the first 4 species form an endemic group which is rather strikingly distinct from anything known to me, and must be classed as of wholly unknown origin; the apodemic *L. unipuncta* is spread over sufficiently warm regions of the whole globe, and its original home is doubtful; whilst the remaining 4 endemic species form a connected group so closely approaching *L. unipuncta* that they must be held to have been derived from it.

*Eucymatoge* includes about 20 Australian, Asiatic, and European species. It is however also interesting as being the undoubted parent of the very extensive genus *Tephroclystis*, characteristic of the Northern hemisphere but more especially Europe, and the also considerable *Chloroclystis*, which is principally Indo-Malayan, Australian, and New Zealand. Hence it is relatively a rather old genus, which would seem to

have been largely replaced throughout its range by its improved descendants. The 10 endemic Hawaiian species form a single group, probably of Asiatic origin.

*Omiodes* is a genus of moderate extent, spread over the tropical and subtropical regions of the whole globe. The 13 endemic species form one connected group, in which the characteristic elongation of the patagia is less marked than usual, and the type may therefore be regarded as comparatively early. Their origin would seem to be Asiatic.

*Pyrausta* is a very large genus, especially characteristic of the Northern hemisphere, though a certain number of species are found in the Southern. The 10 endemic species constitute a single group, but two of them show a certain structural modification which might be termed subgeneric. In their general character they so much resemble the species of the allied genus *Phlyctaenia*, that it seems fair to presume they are an early type, recalling the common ancestor of *Phlyctaenia* and *Pyrausta*; and as *Phlyctaenia* is characteristic of Europe and N. Asia, we may suppose that they are probably of Asiatic origin.

The features of this class, which must be of a considerable age, agree, so far as they can be deciphered, in pointing to a predominant Asiatic influence.

(e) *Apodemic genera, with 24—57 endemic species.*

These include 3 genera and 106 species.

*Agrotis* is a very large and dominant genus of world-wide distribution, but most largely developed in Northern temperate regions. Two apodemic species occur, *A. saucia* being common to Europe and N. America, and *A. ypsilon* ranging throughout the Northern hemisphere and extending into the Southern; the former must be reckoned American, the latter uncertain. Besides these there are 23 endemic species, not nearly related to the two already mentioned, but apparently all connected together; it is however difficult to affirm this, as change would seem to have taken place on much the same lines as in other regions, and there is great similarity between the species of different regions. The Hawaiian species as a whole certainly approach nearest to those of N. America, some of the forms being so close that at first I thought they might be identical; hence it seems very probable that their origin is American.

*Phlyctaenia* is a large genus, especially characteristic of Europe and N. Asia, but with a few species elsewhere. There are 24 endemic species, forming a connected group, whose origin must be esteemed undoubtedly Asiatic.

*Scoparia* includes, so far as known to me, about 30 European species, 12 Asiatic, 3 African, 3 Madeira, 6 St Helena, 8 N. American, 9 S. American, 24 Australian, and 65 New Zealand. To these must now be added no less than 57 Hawaiian, all endemic, and undoubtedly all belonging to a single group, presumably traceable to a single ancestral form. This multiplicity of species is considered by Mr Perkins to be partly

due to the very great variety of suitable situations afforded, assuming, as is most probably the case, that the larval food consists of lichens. Probably a humid insular climate is particularly favourable to them, provided it is also sufficiently cool; the latter condition can be secured by increased altitude, but a low-lying tropical island would not be favourable. After making allowance for such local circumstances, however, there remains an excess of development of the genus in New Zealand and the Hawaiian Islands, which does not seem explicable merely by favourable conditions. Early occupation of the ground must have been the other factor in this result, and probably at something like the same period in both island-groups, and this would imply a common origin. Now the Hawaiian species are characterised by an unusual tendency to narrowness of forewings, and by generally showing a few long hairs in the cell of the hindwings; both which characters are also repeated in a section of the New Zealand species, and not in those of any other region. The New Zealand species as a whole display a much greater variety of size and facies than any others, and must be regarded as primitive in type and unspecialised. Two or three Australian species of similar character doubtless claim a New Zealand origin. The Patagonian *S. chordactis*, however, and one or two other species from neighbouring portions of South America, which are undoubtedly closely related to peculiar New Zealand types, are not so easily explained, but must be classed with the considerable body of other evidence showing an ancient interchange of fauna and flora between South America and New Zealand. An elevation of 1100 or 1200 fathoms in the bed of the South Pacific Ocean would be required, to allow of this being easily effected; it is a large demand, but cannot be said to be impossible. My present opinion, on the available evidence, is that *Scoparia* originated in the New Zealand region, probably at that time considerably extended. The Hawaiian Islands must then have received their original species from New Zealand direct, and I should suppose that Christmas Island must have been on the line of transmission, and would probably still possess allied species as evidence thereof.

These three genera are then respectively American, Asiatic, and New Zealand.

(f) *Endemic genera, with 1 or 2 species.*

A class comprising 7 genera and 9 species.

*Nesamiptis* contains two nearly related species; it is most allied to *Hypena*, which is extensive and very generally distributed, but apparently approaches especially the type of some North American species.

*Progonostola* is almost certainly an endemic derivative of *Xanthorhoe*.

*Sisyrophyta* is undoubtedly an offshoot of *Scotorythra*.

*Tritocleis* is at present of quite uncertain affinity, and must be neglected.

*Genophantis* is certainly nearest to the monotypic Australian *Crocodypora*, which

also occurs in New Zealand. It therefore stands on quite the same footing as *Homoeosoma*.

*Promylaea* is clearly an offshoot of *Mestolobes*.

*Protaulacistis* is undoubtedly closely allied to *Orthomecyna*, but is in some respects more primitive, and may therefore be regarded as a collateral development.

Excluding the doubtful one, 4 of the above are therefore of native origin, 1 Australian, and 1 American.

(g) *Endemic genera, with 14—30 species.*

These number 3 genera and 72 species.

*Scotorythra* contains 30 species. It is distinguished from all genera of the Selidosemidae known to me (except its derivative *Sisyrophyta*) by the peculiar antennal character; in other respects it has a general alliance to the cosmopolitan genus *Selidosema*, but is of a somewhat more primitive type, and without the characteristic fovea. It is therefore probably earlier in origin than *Selidosema*, but I cannot indicate any nearer relationship with other genera.

*Mestolobes* includes 28 species, and *Orthomecyna* 14. They are collateral genera, obviously nearly allied together, yet with differences which imply that they were derived not one from the other, but from a common ancestor. They belong to the group of *Scoparia* and *Heliothela*, more especially approaching the latter and *Eclipsiodes*, but I consider that they cannot properly be regarded as derived from either of these, but rather from an earlier ancestral form. The monotypic Malayan *Dasyscopa* resembles them in the presence of a subdorsal hairy groove in the hindwings, but appears notwithstanding to be only an offshoot of *Scoparia*. *Heliothela* contains only a very few species, but is almost cosmopolitan, though with a leaning to the Southern hemisphere; *Eclipsiodes* is Australian.

The origin of the three large endemic genera is therefore unknown. But if, as inferred above, *Scoparia* originated in the South Pacific, there is presumptive evidence for supposing that the other genera collaterally derived from its parent form must have originated there too; and the distribution of *Heliothela* and *Eclipsiodes* rather tends to confirm this supposition. If this be granted, why should not *Scotorythra*, whose origin cannot be traced elsewhere, but may be presumed from its specific development to date from about the same period, be descended from an extinct form inhabiting the same region? For it must be clearly understood that these large endemic genera could not have originated in the Hawaiian Islands themselves, for want of possible ancestors; they must be derived from apodemic forms, but such as from competition of improved types, or other causes, have not survived elsewhere.

## ARRANGEMENT OF GENERA IN ORDER OF TIME.

From a consideration of the foregoing analysis we can now with considerable probability group the genera under successive periods of time, and indicate the nature of the geographical influences of each period, beginning with the most ancient.

*First Period.*

To this belong 7 genera, viz. *Sisyrophyta*, *Scotorythra* (Selidosemidae), and *Scoparia*, *Promylaea*, *Mestolobes*, *Orthomecyna*, *Protaulacistis* (Pyraustidae), with 133 species. Probably all these must be traced to a South Pacific origin, and the former existence of a considerable land-area (now submerged) between New Zealand and South America is postulated.

*Second Period.*

Here are referred 5 genera, viz. *Agrotis* (except 2 species), *Eucymatoge*, *Omiodes*, *Pyrausta*, and *Phlyctaenia*, with 80 species. Of these the first only is American in origin, the other four Asiatic. Possibly this period may coincide in time with the considerable extension of the Hawaiian Islands to the north-west which seems to have once existed.

*Third Period.*

This includes 18 genera and 48 species. Of the genera 6 are probably Australian or New Zealand in origin (*Dasyuris*, *Progonostola*, *Xanthorhoe*, *Homoeosoma*, *Genophantis*, *Talis*), 5 Asiatic (*Hypenodes*, *Cosmophila*, *Hydriomena*, *Lycaena*, *Margaronia*), and 5 North American (*Nesamiptis*, *Vanessa* (1 species), *Prionopteryx*, *Mecyna*, *Loxostege*), showing a nearly balanced equality of influence which implies circumstances much as at present. *Leucania* and *Deilephila* (4 species) are of doubtful import.

*Fourth Period.*

This is represented by 29 species, contained in 21 genera, viz. *Agrotis* (2 species), *Deilephila* (1 species), *Vanessa* (3 species), *Lycaena* (1 species), and the 17 genera recited above as wholly apodemic. Excluding 9 of these genera, which are presumably of artificial introduction, and 7 other species which are practically cosmopolitan, there remain only 11 species, of which 5 are certainly and 2 probably of American origin, and 4 presumably Asiatic. The preponderance of the American element (I think a majority of the cosmopolitan species probably also came from that side) seems to be explained by the fact that almost all these species possess great powers of flight, and find little obstacle in mere distance, but are by no means independent of the wind; this effect is therefore traceable to the influence of the N.E. Trade-winds.

It is to be observed that none of the genera of the first and second periods, except *Agrotis*, and only about half the genera of the third period can be esteemed strong on the wing; these must therefore in general have proceeded by way of intermediate islands. Moreover, nearly all the genera of decided American origin, in whatever period, possess this characteristic of strong flight, and as the trade-winds must always have existed, there seems no reason to suspect the previous existence of any intermediate islands between Hawaii and N. America.

## INTER-ISLAND DISTRIBUTION OF SPECIES.

The following statistics relate only to the 261 endemic species. No doubt further exploration would extend the inter-island range of some species, but probably new species of restricted range would be discovered in an equal proportion, so that the general results may be taken as fairly representative.

Of 4 species taken by Mr Blackburn the localities have not been recorded; I suppose 3 to be from Maui and 1 from Oahu, but they are not included hereafter; the total may then be taken as 257.

Of these 173, or more than two-thirds (67 per cent.), are confined each to a single island. The whole number of species occurring in each island, the number of peculiar species, and the proportion between the two numbers, are given in the following table:

	<i>Total number.</i>	<i>Peculiar species.</i>	<i>Percentage.</i>
Hawaii	128	65	51
Maui	66	26	39
Lanai	32	5	16
Molokai	49	12	24
Oahu	51	17	33
Kauai	97	48	49

Of the remaining 84 species, 36 have been taken both in Hawaii and Kauai, at opposite ends of the group, and usually in one or more of the intermediate islands; they may therefore be counted as ranging throughout the group. The distribution of the others is as follows:

Hawaii, Maui	9
Hawaii, Maui, Lanai	1
Hawaii, Maui, Molokai	3
Hawaii, Lanai	4

Hawaii, Molokai	7
Hawaii, Oahu	3
Maui, Lanai	2
Maui, Lanai, Molokai, Kauai	1
Maui, Molokai	1
Maui, Molokai, Oahu	1
Maui, Molokai, Oahu, Kauai	1
Maui, Molokai, Kauai	1
Maui, Oahu, Kauai	1
Maui, Kauai	2
Lanai, Molokai	2
Lanai, Molokai, Oahu	1
Lanai, Oahu	1
Lanai, Oahu, Kauai	1
Molokai, Kauai	2
Oahu, Kauai	4

These figures do not seem to lead to very much. The high percentage of peculiar species in Hawaii and Kauai is apparently only what might be expected from their position at the extremities of the group, since interchange of species proceeds in their case on one side only, whilst in the intermediate islands it proceeds on both sides.

There are certain well-marked instances of representative species in the different islands. Thus in *Scoparia* there are six species (nos. 7—12) which are easily distinguishable from all the rest by the entire black subterminal fascia, yet also separated by well-marked characters from one another; five of these are confined respectively to the five islands Hawaii, Maui, Molokai, Oahu, and Kauai; the sixth is a Kauai species, but differs from all the other five in being yellow instead of white. *Scoparia halmaea* is the Kauai representative of *S. meristis*. *Orthomecyna alloptila*, *chrysophanes*, and *albicaudata* are mutually representative in Hawaii, Kauai, and Lanai respectively. *O. exigua*, which occurs in Hawaii, Maui, and Molokai, is represented in Lanai by *O. cupreipennis*, and in Kauai by *O. mesochasma*. *Scotorythra aruraea*, from Hawaii, is represented in Oahu by *O. caryopis*, in Kauai by *O. isospora*, and probably in Maui by *O. corticea*.

On the other hand there are some curious instances of allied species, which might have been expected to belong to different localities, but which are found occurring side by side. Such for example are the two species of *Sisyrophyta*, which are very similar except in the peculiar secondary sexual characters of the males, the females being superficially almost indistinguishable; both of these are common in the same localities in Hawaii, though it is true that one also occurs in Molokai. So also *Scoparia struthias*, *triacma*, and *cryerodes*, which are so similar that I took them at first for one variable species—perhaps I should add that there is really no doubt of their distinctness—all occur commonly together in the same locality, and are confined to the same island. *Omiodes demaratalis* and *monogramma* are another very closely



related pair, inhabiting the same localities in Oahu and Kauai. It seems to me that possibly the comparative slackness of competition in the Hawaiian Islands may account for this coexistence of two or three similar related forms, of which under severer conditions one would probably have been improved up to the point of completely ousting the others, or perhaps the weaker would have been superseded by a species of a different group.

## CHARACTERISTICS OF THE FAUNA.

*(a) Absence of primitive forms.*

There are no genera of very early type, such as would help to fill up gaps between previously known forms. The conditions might probably have been favourable for the preservation of such genera, if they had ever reached the islands, but they do not seem to have reached them. The genera of the first two periods designated above are early rather than late; they belong to the earlier half of the Lepidoptera, but that is all that can be said for them. Perhaps the islands, old as they must be geologically, are still not old enough for this.

*(b) Prevalent close relationship of species.*

In those genera where the species are numerous, they are also generally very difficult to understand. Had the specimens been without locality-labels, I do not think it would have been possible to have separated the species satisfactorily; but when arranged in geographical series, the differences, if any, became apparent. This state of things would seem to imply that the elimination of species has not been carried so far as in other regions where there is a sharper competition, which would have tended to increase the divergence, whilst at the same time destroying the intermediates. The climax of difficulty is reached in *Scotorythra*, where many of the species are also very variable, whilst the sexes often differ considerably and are hard to match, and the secondary sexual characters, which often afford a good distinction in the males, are not available in the females. It is of course essential that the sexes of these species should be able to recognise one another with ease, and the visible differences which exist are sometimes so slight or so little obvious that it hardly seems credible that they can be appreciated by the insects themselves; in such cases it would appear necessary to suppose that the sense of smell has to supply the deficiency. The expansible hair tufts on the genital organs of almost all Lepidoptera are probably scent-producing structures connected with this purpose. On the other hand, if the insects themselves do not

appreciate slight visible differences, how are these differences preserved from loss? It seems difficult to imagine that the numerous white and black species of the *jucunda* group of *Scoparia*, which are no doubt well concealed by their colouring amongst the lichens, derive any advantage in this respect from the slight characters of marking in which they differ from one another; and if there were not some influence tending to the maintenance of these characters, variation in that particular would be unrestricted and they would disappear. In an ordinary fauna this difficulty does not usually present itself.

(c) *Tendency to variability.*

An unusual proportion of species show strong variability, which in perhaps 15 or more species becomes excessive. It is impossible to give precise figures on this point, that would be of any real value, as many of the species only exist in one or two specimens. The variation of such insects as *Hyphenodes altivolans* and *Eucymatoge monticolans* is quite phenomenal, and the proportion of highly variable forms is certainly much larger than in an ordinary fauna. In New Zealand, however, highly variable species of the same character are found in perhaps much the same proportion. Such species seem to resemble nebulae, which time, or a modification of circumstances, will break up and condense into groups of stars. I conceive that species in this state of potential multiplication are more plentiful in thinly stocked regions, such as the Hawaiian Islands and New Zealand, because the number of unoccupied stations for species acts as an apparent incentive by removing a real check. In other words, species are being formed relatively much more frequently in such regions, and therefore these afford the most favourable opportunity for studying the process. In confirmation of this view, it may be noted that the 57 species of *Scoparia* are remarkably constant, not one being even moderately variable, on the available evidence; in this genus specific development has already proceeded so far that suitable stations (assuming restriction to a lichen-feeding habit) are probably almost all occupied.

(d) *Tendency to dull colouring.*

It might perhaps be expected that a group of tropical islands, enjoying abundant sunshine and possessed of a luxuriant vegetation, would be remarkable for the bright colouring of its Lepidoptera, but the case is quite the reverse. Considered as a whole, the general effect is exceptionally sombre. This is in some part attributable to the accidental constitution of the limited fauna, of which the principal genera are such as are usually inconspicuously coloured in all regions; thus *Agrotis* habitually assumes the obscure tints of the dead leaves and rubbish amongst which the species conceal them-

selves by day, and *Scoparia* the mottled black and white, or grey effects of the lichens which it frequents in all stages. Families, such as the Arctiadae or Zygaenidae, which are generally brightly coloured, do not happen to occur in the islands at all. But after making due allowance for these circumstances, it appears that there is a real local tendency to a dusky suffusion, which often obscures brighter pigments, even when they are perceptibly present. The best evidence of this is furnished by the local forms of apodemic species; thus the local race of *Hypocala andremona* is so much overspread with dark suffusion that it has been regarded as a distinct species; and there is a native race of *Heliothis armigera*, in which the suffused dark terminal band of the hindwings is considerably extended. *Margaronia cyanomichla* belongs to a group of the genus of which all the other members are sharply and clearly marked with prismatic-white fasciae, but itself has these markings more or less obscurely suffused with dusky-violet. Many species of various genera, when examined with a lens, show a not inconsiderable admixture of crimson, green, yellow, or blue scales, but so combined with other dark scales that there is little or no appearance of these colours in the general effect; such are *Hypenodes cyanias*, several species of *Eucymatoge*, *Mestolobes*, and even *Scoparia*. It seems to me probable that this tendency is connected with the superabundant moisture of the climate, and is due to influences exerted in the pupal stage, but it is sufficient here to call attention to it as an existing fact.

#### IMITATIVE COLOURING.

The question of the assimilation of the colouring of a species to the rocks or plants which it frequents, can only be adequately treated by the collector, who has seen the insect amongst its natural surroundings. But there seem to be two or three cases of apparent mimicry—the assumption by a species of a facies foreign to its own genus but closely resembling that of an unrelated genus—which require to be noticed here, though they can only be adequately explained by observations made on the spot. These are as follows:

*Hypenodes epichalca* and *H. cyanias* (although not at all resembling one another) are so like species of *Phlyctaenia* in general appearance that at first I had grouped them with that genus, and was much surprised, on a structural examination, to discover their true position. There is no exact imitation, but *H. epichalca*, which is yellow and black, has a strong general resemblance to *Phlyctaenia chalcophanes*, and occurs in the same locality, and at the same season; and *H. cyanias*, which is really partially coloured with violet-blue but does not show it to the naked eye, is very similar to *P. ennychioides*, a dark purplish-fuscous species which is found with it.

*Phlyctaenia heterodoxa* is quite unlike all its congeners, and has assumed the facies of *Omiodes demaratalis*; the character of the lines and spots has been entirely altered,

the black orbicular dot and straight pale second line being faithfully reproduced. This species is from Maui, and I have no record of *O. demaratalis* from that island, yet as it is one of the commoner species, and is known from Hawaii, Oahu, and Kauai, it does probably occur in the other islands as well.

In each of these three cases the supposed mimicking species is apparently comparatively scarce, and the mimicked one undoubtedly common. But there is at present no evidence to show that the latter is in any way distasteful or otherwise protected, without which the proof breaks down; future collectors are therefore invited to experiment in this direction. It must be remembered that it is also quite possible that the members of each pair of similar species are coloured alike merely in similar adaptation to identical surroundings.

*Dorsal scale-projection of forewings.*

Finally, I may note that in many of the Pyraustidae there is an unusual tendency to increased development of the dorsal scale-projection towards the base of the forewings, which is normally inconspicuous. In some species it becomes so prominent that I at first thought it might be of value as a classificational character; but finding that it occurred in various genera, yet was often conspicuous in one and obsolete in another of closely allied species, I was forced to the conclusion that it was of no importance as a test of relationship. It is therefore probably an adaptive modification, depending on external circumstances.

§ 2. Systematic account of the Macrolepidoptera.

CARADRININA.

CARADRINIDAE.

LEUCANIA *Ochs.*

HEAD rough-scaled. Eyes hairy. Antennae in ♂ ciliated. Thorax with or without slight anterior crest. Abdomen not crested.

- |    |   |    |
|----|---|----|
| 1. | Forewings with first and second lines entire .....                          | 2. |
|    | "                    "                    reduced to dots or obsolete ..... | 5. |
| 2. | First line very oblique, to about middle of dorsum .....                    | 3. |
|    | "          not very oblique, to about $\frac{2}{3}$ of dorsum .....         | 4. |

- |    |   |                         |
|----|---|-------------------------|
| 3. | Forewings more or less rosy or red-tinged .....                   | (4) <i>euclidias</i> .  |
|    | "    not red-tinged .....   | (3) <i>niphadopa</i> .  |
| 4. | Orbicular and reniform white .....                                | (2) <i>compsias</i> .   |
|    | "    "    not white .....   | (1) <i>anthracias</i> . |
| 5. | Reniform marked by a white dot .....                              | 6.                      |
|    | "    not white-marked .....                                       | (6) <i>typhlodes</i> .  |
| 6. | Forewings with oblique subapical shade reaching second line ..... | (9) <i>unipuncta</i> .  |
|    | "    without subapical shade reaching second line .....           | 7.                      |
| 7. | Hindwings rosy-tinged .....                                       | (7) <i>pyrrhias</i> .   |
|    | "    not rosy-tinged .....  | 8.                      |
| 8. | Forewings strigulated with fuscous .....                          | (8) <i>amblycasia</i> . |
|    | "    not strigulated .....  | (5) <i>macrosaris</i> . |

(1) *Leucania anthracias*, sp. nov.

♂. 34—35 mm. Head and thorax fuscous or reddish-fuscous, darker posteriorly, pale-sprinkled. Base of abdomen with dense lateral tufts concealed in basal cavities. Forewings dark fuscous, slightly or strongly mixed with dull crimson, thinly whitish-sprinkled; subbasal, first, and second lines obscurely dark-edged, first hardly defined, second moderately curved; median shade obscurely darker; orbicular and reniform blackish-outlined, orbicular small, round, pale, dark-centred; subterminal line bisinuate, formed of obscure whitish-ochreous spots, sometimes nearly obsolete except at tornus. Hindwings pale fuscous. (Plate IV. fig. 1.)

2 specimens; 1 Oloa, Hawaii, in September; 1 Haleakala, Maui, at 9000 feet, in October.

(2) *Leucania compsias*, sp. nov.

♂♀. 33—36 mm. Head and thorax whitish-ochreous, sometimes partially or wholly mixed with dark fuscous. Base of abdomen densely hairy, in ♂ with dense lateral tufts concealed in basal cavities. Forewings rather dark brown or fuscous, sometimes much mixed with ferruginous, basal and median areas sometimes much suffused with whitish-ochreous; subbasal, first, and second lines whitish-ochreous or white, edged with dark fuscous, waved, first nearly straight, rather oblique, running to dorsum at  $\frac{2}{5}$ , second moderately unevenly curved; a suffused darker median shade, right-angled in middle; orbicular small, transverse, somewhat constricted in middle, white; reniform forming an inverted U, white, sometimes connected beneath with orbicular by a white spot; subterminal line whitish, waved, terminal area beyond this sometimes wholly suffused with whitish. Hindwings in ♂ pale fuscous, in ♀ fuscous; a pale subterminal line more or less distinctly indicated. (Plate IV. fig. 2.)

5 specimens; 3 Kilauea, Hawaii, in August; 2 Oloa, Hawaii, at 2000 feet, in September and November. A variable species.

(3) *Leucania niphadopa*, sp. nov.

♀. 34—35 mm. Head and thorax rather dark fuscous, pale-sprinkled. Forewings rather dark fuscous, faintly purplish-tinged; first and second lines hardly paler, obscurely dark-edged, first straight, oblique, running to near middle of dorsum, second gently curved on upper  $\frac{2}{3}$ ; orbicular small, round, white; reniform represented by two transversely placed finely connected small white spots, followed by two white dots between which is an irregular white spot partially suffused with ochreous-yellow; an obscure darker praesubterminal shade. Hindwings rather light fuscous.

2 specimens, Olaa, Hawaii, at 2000 feet, in November.

(4) *Leucania euclidias*, sp. nov.

♂ ♀. 28—36 mm. Head and thorax light rosy-ochreous or light crimson-fuscous, seldom fuscous. Base of abdomen densely hairy, in ♂ with dense lateral tufts concealed in basal cavities. Forewings varying from pale rosy-ochreous to deep red, partially or wholly suffused with fuscous, with slight purplish reflections, rarely more or less irrorated with white; subbasal line seldom partly whitish; first and second lines pale or seldom whitish, dark-edged, first straight, very oblique, running to about middle of dorsum, second nearly straight; orbicular round, small or dot-like, clear white or seldom ochreous-yellow, dark-edged, or often reduced to a dark fuscous dot; reniform represented by an oblique transverse linear usually clear white mark, seldom only paler or ochreous-yellowish, sometimes doubled, seldom divided into two spots, in one specimen connected beneath with orbicular by a clear white streak; subterminal line pale or whitish, slightly sinuate, usually preceded by a dark band. Hindwings in ♂ rather light fuscous, somewhat mixed with pale ochreous, suffused with whitish-ochreous towards costa and termen; in ♀ wholly rather dark fuscous. (Plate III. figs. 1—1 *h.*)

87 specimens; 16 Olaa, Hawaii; 3 Kilauea, Hawaii; 2 Kona, Hawaii, at 3000 feet; 41 Haleakala, Maui, at 5000 feet; 4 Kaholuamano, Kauai; 19 Mts. Waimea, Kauai; 1 Lihui, Kauai, at 1500 feet; 1 Lanai, 2000 feet; in February, and from April to November. Exceedingly variable.

(5) *Leucania macrosaris*, sp. nov.

♂. 34—37 mm. Head and thorax light brownish-ochreous, slightly rosy-tinged. Abdomen with lateral dense tufts of very long pale brownish-ochreous hairs attached to a long chitinous filament, rising from basal cavities. Forewings brownish-ochreous,

reddish-tinged; first and second lines formed by series of indistinct dark fuscous dots, second rather strongly curved; lower end of reniform forming a clear white dot, followed by a fuscous dot. Hindwings pale greyish-ochreous.

2 specimens; 1 Kona, Hawaii, at 1500 feet; 1 Oloa, Hawaii; in June.

(6) *Leucania typhlodes*, sp. nov.

♂. 35 mm. Head and thorax red-brownish-ochreous. Abdomen densely hairy towards base, with dense expansible pale brownish-ochreous tufts at base beneath, and also in lateral basal cavities. Forewings pale brownish-ochreous, suffused throughout with light dull reddish, with some scattered indistinct fuscous strigulae; lower end of reniform represented by a cloudy dark fuscous suffusion; second line represented by a curved series of very obscure dark fuscous dots. Hindwings pale greyish-ochreous, somewhat rosy-tinged.

1 specimen, Oloa, Hawaii, in July.

(7) *Leucania pyrrhias*, sp. nov.

♂♀. 39—46 mm. Head and thorax brown-reddish irrorated with whitish-ochreous. Abdomen densely hairy towards base, in ♂ with dense expansible brownish-ochreous tufts at base beneath, and also in lateral basal cavities. Forewings pale brownish-ochreous, densely suffusedly strigulated throughout with brown-reddish; veins posteriorly ochreous-whitish, sprinkled with dark fuscous; costal edge sometimes white; first and second lines formed by series of indistinct dark fuscous dots, second rather strongly curved; lower end of reniform forming a small white dot, followed by a dark fuscous suffusion. Hindwings light rosy-ochreous. (Plate IV. fig. 3.)

9 specimens; 4 Mts. Waimea, Kauai, at 4000 feet; 5 Kaholuamano, Kauai; from April to June.

(8) *Leucania amblycasis*, sp. nov.

♂♀. 38—41 mm. Head and thorax whitish-ochreous, somewhat brownish-tinged, thorax posteriorly with a few blackish specks. Abdomen in ♂ with very long dense expansible pale ochreous lateral tuft attached to a broad spoon-shaped chitinous process rising from basal cavities, and dense yellowish expansible tufts in middle of base beneath. Forewings pale brownish-ochreous, indistinctly strigulated with fuscous or grey; dark fuscous dots near base in middle and on costa, indicating subbasal line; first and second lines indicated by series of dark fuscous dots, second partially double,

moderately curved; lower edge of reniform forming a white dot, edged with dark fuscous and followed by a small dark fuscous suffusion; in ♀ orbicular and reniform obscurely defined, pale yellowish-ochreous; a wedge-shaped faint darker suffusion on termen beneath apex, not reaching second line. Hindwings light greyish-ochreous, irregularly suffused with fuscous, becoming darker fuscous posteriorly.

7 specimens; 2 Molokai, in May; 3 Lanai, at 2000 feet, in February; 1 Mts. Waimea, Kauai, at 4000 feet, in June; 1 Haleakala, Maui, at 5000 feet, in May.

(9) *Leucania unipuncta* Haw. (*extranea* Guen.).

3 specimens; 2 Kona, Hawaii, at 4000 feet, in July; 1 Haleakala, Maui, at 5000 feet, in April. Occurs also native in America, New Zealand, Australia, S. Asia, and as a casual immigrant probably throughout the warmer regions of the world.

AGROTIS *Ochs.*

Head rough-scaled. Eyes glabrous. Antennae in ♂ ciliated, often acutely bidentate or bipectinated with apex simple. Thorax usually with more or less developed anterior and posterior crests. Abdomen not crested. Tibiae all spinose.

1. Antennae in ♂ at most serrulate .....2.
- "   "   acutely bidentate or bipectinated .....8.
2. Forewings with veins conspicuously pale .....(19) *neurogramma*.
- "   "   not conspicuously pale .....3.
3. Hindwings grey-whitish, with purple reflections .....(2) *saucia*.
- "   fuscous .....4.
4. Forewings at least partly brown-reddish .....5.
- "   at most faintly rosy-tinged .....7.
5. Forewings with terminal area markedly pale .....(21) *cinctipennis*.
- "   "   not pale .....6.
6. Reniform marked posteriorly with a whitish-ochreous crescentic spot ... (20) *selenias*.
- "   not so marked .....(22) *chersotoides*.
7. Forewings shorter, claviform strongly marked, broader .....(16) *mesotoxa*.
- "   longer, claviform faintly indicated, narrower .....(15) *crinigera*.
8. Antennae in ♂ bipectinated .....9.
- "   "   bidentate with triangular processes .....12.
9. Forewings with dark submedian streak from base to middle .....10.
- "   without such streak .....11.
10. Forewings with dark spots between bases of veins 2—7 .....(4) *arenivolans*.
- "   without such spots .....(3) *microreas*.
11. Hindwings grey-whitish .....(1) *ypsilon*.
- "   fuscous .....(6) *cremata*.
12. First and second lines wholly absent .....13.
- "   "   more or less indicated .....16.



13. Lower margin of cell marked with a whitish streak .....14.  
 " " not marked with whitish streak .....15.  
 14. Orbicular and reniform combined, present .....(9) *dislocata*.  
 " " wholly absent.....(8) *aulacias*.  
 15. Forewings fuscous, spots black-edged.....(7) *perigramma*.  
 " red-brown, spots not black-edged .....(23) *ceramophaea*.  
 16. Claviform dash-like, blackish .....(14) *spoderopa*.  
 " not dash-like .....17.  
 17. Forewings with defined blackish submedian streak (at least outlined) from  
 base to middle .....18.  
 " without such streak .....19.  
 18. First and second lines entire, dark fuscous .....(5) *panoplias*.  
 " " indicated by dots or indistinct .. .....(10) *xiphias*.  
 19. Forewings with veins black .....(11) *melanoneura*.  
 " " not black.....20.  
 20. Median line absent .....21.  
 " present.....22.  
 21. Orbicular distinct .....(12) *tephrias*.  
 " obsolete .....(13) *photophila*.  
 22. Orbicular dot-like.....(17) *epicremna*.  
 " not dot-like .....23.  
 23. Median line curved.....24.  
 " bent in middle .....(18) *baliopa*.  
 24. Forewings ochreous or brown, orbicular fuscous .....(24) *psammophaea*.  
 " fuscous, orbicular pale, dark-centred .....(25) *austalea*.

(1) *Agrotis ypsilon* Rott. (*suffusa* Hüb.).

11 specimens; 3 Kona, Hawaii, at 1500—4000 feet; 1 Kilauea, Hawaii; 1 Haleakala, Maui, at 5000 feet; 1 Kaholuamano, Kauai; 1 Waianae Mts., Oahu, at 2000 feet; 1 Kaala Mts., Oahu, at 1000 feet; 2 Lanai, at 2000 feet; 1 Molokai, at 3000 feet; from February to September; apparently established and common generally. Occurs also throughout the northern hemisphere.

(2) *Agrotis saucia* Hüb.

3 specimens; 2 Haleakala, Maui, at 5000 feet; 1 Mts. Waimea, Kauai, at 4000 feet; in May. Occurs also in N. America, W.C. and S. Europe, and N. Africa.

(3) *Agrotis microreus*, sp. nov.

♂ ♀. 22—26 mm. Head and thorax brown mixed with black, patagia with an oblique whitish streak. Antennae in ♂ moderately bipectinated. Forewings ferruginous-brown, much mixed with black, disc in ♀ light ochreous; veins partially suffused with white, especially lower margin of cell, 1 *b*, and 6; orbicular, reniform, and a

broad streak beneath cell from base to middle darker. Hindwings dark fuscous, darkest terminally. (Plate IV. fig. 4.)

2 specimens, Kilauea, Hawaii, in September. Differs from all the rest by its small size and dark fuscous hindwings.

(4) *Agrotis arenivolans* Butl.

*Agrotis arenivolans* Butl. Ent. Mo. Mag. xv. p. 269.

♂ ♀. 38—52 mm. Head and thorax light brownish sprinkled with whitish and dark fuscous, thorax broadly streaked longitudinally with dark and pale. Antennae in ♂ shortly bipectinated. Forewings fuscous, whitish-sprinkled; veins sometimes forming white streaks; a thick streak beneath cell from base to beyond middle, attenuated and acute at each end, and five elongate spots between bases of veins 2—7 (fourth shortest and sometimes much reduced) dark fuscous, blackish-edged; orbicular and reniform edged with pale or whitish, usually dark-outlined, orbicular small, oval, usually preceded and followed by elongate dark fuscous spots; in one specimen beneath and beyond these dark markings the ground is wholly suffused with ochreous-whitish; sometimes a dark fuscous dorsal streak from about middle to tornus; an irregular terminal series of long wedge-shaped sometimes partly confluent dark fuscous spots, darker-edged, shortest below apex and below middle, longest in middle. Hindwings fuscous.

3 specimens; 2 Kona, Hawaii, at 4000 feet, in July; 1 Haleakala, Maui, at 10,000 feet, in April. Also one received from Mr Blackburn, and the original types in the British Museum, which are said to be from Maui, taken flying by day on sandhills near the sea. It varies in intensity of marking.

(5) *Agrotis panoplias*, sp. nov.

♂. 39 mm. Head and thorax fuscous irrorated with white. Antennae bidentate with rather long triangular processes. Forewings fuscous irrorated with white, veins dark fuscous; subbasal line dark fuscous, interrupted; first and second lines dark fuscous, first irregularly angled, beneath costa acutely, second slightly waved; a dark fuscous posteriorly dilated streak beneath cell from base to middle; orbicular and reniform fuscous, dark-outlined, approximated, connected by a narrow dark streak, lower edge of reniform confluent with two small dark fuscous spots between bases of veins 2—4; a dark suffusion towards costa before apex, one towards termen above middle, and one above tornus. Hindwings fuscous, lighter at base, darker posteriorly. (Plate IV. fig. 5.)

1 specimen, Kona, Hawaii, at 4000 feet, in July.

(6) *Agrotis cremata* Butl.

*Spaelotis cremata* Butl. Ent. Mo. Mag. xvii. p. 8, Ann. Mag. N. H. (5) vii. 1881, p. 321.

♂ ♀. 40—43 mm. Antennae in ♂ shortly bipectinated. Forewings light brownish, irrorated with whitish and sprinkled with black; subbasal, first, and second lines pale, dark-edged, first dentate, especially acutely inwards above middle; median cloudy, faint; orbicular and reniform faintly pale-edged, hardly defined, sometimes separated by a small spot of blackish scales; subterminal line interruptedly dark-edged, especially anteriorly. Hindwings rather light fuscous, darker posteriorly.

No specimens of this distinct species were taken; I have therefore described the two original types in the British Museum collection, which were bred from pupae obtained in September in sandhills, Maui. Larva described in Ent. Mo. Mag. xix. 56.

(7) *Agrotis perigramma*, sp. nov.

♂. 36—39 mm. Head and thorax fuscous, irrorated with fuscous-whitish. Antennae bidentate with rather long triangular processes. Forewings fuscous, finely irrorated with whitish and dark fuscous, appearing ashy-fuscous; veins marked with darker lines; spots outlined with black, orbicular oval, reniform roundish, sometimes connected with orbicular by some black scales and followed by a small spot of black scales, claviform large, elongate, extending to not far from base; traces of an irregular darker terminal shade. Hindwings light fuscous, becoming rather dark fuscous posteriorly.

2 specimens, Kilauea, Hawaii, in August.

(8) *Agrotis aulacias*, sp. nov.

♂ ♀. 32—38 mm. Head and thorax brownish-ochreous or brown. Antennae in ♂ bidentate with short triangular teeth. Forewings fuscous or ochreous-brown, sometimes slightly whitish-sprinkled; slender whitish streaks along lower margin of cell and vein 1*b*; remaining veins also often more finely and indistinctly whitish. Hindwings fuscous. (Plate IV. fig. 6.)

13 specimens, Haleakala, Maui, at 8000—10,000 feet, in April and May. Also one received from Mr Blackburn, probably from the same locality.

(9) *Agrotis dislocata* Walk.

*Leucania dislocata* Walk. Cat. ix. p. 112.

♂ ♀. 34—37 mm. Head and a marginal band along front of thorax light ochreous-brown, rest of thorax whitish-fuscous. Antennae in ♂ bidentate with triangular processes. Forewings light fuscous, more or less irrorated with white, and sometimes darker-sprinkled; veins marked with dark fuscous lines, except lower margin of cell, which is white; interior of cell paler and more ochreous, usually marked with a black dot towards base; orbicular and reniform combined into an elongate posteriorly abruptly dilated mark, fuscous, outlined with black; a darker fuscous black-outlined streak beneath cell from base to middle, somewhat dilated posteriorly; a pale ochreous longitudinal suffusion beneath this from base to near tornus; sometimes short undefined blackish dashes or dark-outlined marks between bases of veins 2—6. Hindwings fuscous.

7 specimens; 3 Kona, Hawaii, at 1500—4000 feet, in June; 1 Kaholuamano, Kauai, at 4000 feet, in April; 3 Lanai, at 2000 feet, in February. Also several others received from Mr Blackburn and in the British Museum collection, apparently from Oahu.

(10) *Agrotis xiphias*, sp. nov.

♂ ♀. 33—36 mm. Head dark fuscous, sometimes mixed or suffused with whitish. Thorax fuscous to fuscous-whitish, anterior half of collar sharply dark fuscous, with a triangular blackish blotch on each side of back behind collar, sometimes extended as a streak to posterior margin. Antennae in ♂ bidentate with triangular teeth. Forewings brownish or fuscous, more or less irrorated or sometimes much suffused with whitish; a thick black streak, sometimes edged with pale yellowish, beneath cell from base to middle, seldom only indicated by black outline; sometimes two small black spots between bases of veins 2—4; orbicular and reniform black, or light or dark fuscous black-outlined, connected by a narrow black spot, orbicular pear-shaped, sometimes preceded by a black mark; second line indicated by a series of dark dots; subterminal pale, obscure, partially edged with darker suffusion. Hindwings rather light fuscous. (Plate IV. fig. 7.)

14 specimens, Haleakala, Maui, at 5000 feet (except one at 9000), in April, May, and October. Variable in intensity of marking.

(11) *Agrotis melanoneura*, sp. nov.

♂. 36 mm. Head brown, mixed with dark fuscous. Thorax pale greyish-ochreous irrorated with fuscous, anterior half of collar dark fuscous. Antennae bidentate with triangular teeth. Forewings pale ochreous mixed with light brownish, veins

marked with blackish lines; basal area suffusedly mixed with dark brown and black; first line indistinctly blackish-edged; orbicular and reniform dark fuscous, edged with pale ochreous, partially black-outlined, connected by an elongate dark fuscous spot; claviform oval, fuscous, black-outlined; second line edged by series of undefined blackish-fuscous dots; subterminal pale, obscure, edged anteriorly with dark fuscous suffusion on costa and in middle, posteriorly by dark fuscous suffusion extending to termen. Hindwings fuscous-whitish irrorated with fuscous; a fuscous crescentic discal mark, and indistinct subterminal shade.

1 specimen, Kona, Hawaii, at 4000 feet, in July.

(12) *Agrotis tephrias*, sp. nov.

♂ ♀. 34—40 mm. Head and thorax brownish sprinkled with whitish, collar often with a dark transverse median streak and anterior half paler, patagia with an oblique white streak behind collar. Antennae in ♂ bidentate with triangular teeth. Forewings fuscous, sometimes ferruginous-tinged, irrorated with whitish except in disc, which is darker-mixed; first and second lines obscurely whitish, dark-edged, sometimes very undefined; orbicular rather small, oval, whitish, sometimes dark-centred, dark-outlined; reniform whitish-edged; claviform slender, dark fuscous, undefined, crossing first line and sometimes extended to base; subterminal line obscurely whitish, edged anteriorly with darker suffusion. Hindwings light greyish-ochreous, posteriorly fuscous-tinged.

8 specimens; 3 Kaholuamano, Kauai, in April; 5 Mts. Waimea, Kauai, at 4000 feet, in May and June.

(13) *Agrotis photophila* Butl.

*Leucania photophila* Butl. Ent. Mo. Mag. xv. p. 269; *Spaelotis lucicolens* ib. xvii. p. 7; Ann. Mag. N. H. (5) vii. 1881, p. 321.

♂. 35—40 mm. Antennae in ♂ bidentate with long triangular processes. Forewings light greyish-ochreous sprinkled with fuscous; subbasal, first, and second lines indicated by more or less distinct blackish dots, first and second sometimes forming undefined waved lines; posterior edge of reniform sometimes indicated by black scales; traces of a darker praesubterminal shade; a terminal series of dark fuscous dots. Hindwings light greyish-ochreous, posteriorly infuscated.

No specimens of this species were taken; I have described the two typical specimens in the British Museum; these were taken at light near Honolulu, Oahu, and the species is stated to be rare.

(14) *Agrotis spoderopa*, sp. nov.

♂ ♀. 38—40 mm. Head and thorax light greyish-ochreous or brownish. Antennae in ♂ bidentate with triangular processes. Forewings light fuscous or brownish, suffusedly irrorated with whitish, sometimes reddish-tinged in disc; subbasal line indicated on costa by dark margins; first line indistinctly dark-edged, twice angulated; second indicated by a fine dark fuscous acutely waved-dentate line, strongly curved; orbicular and reniform obscurely pale-edged, orbicular small, oval, sometimes with posterior projection; claviform dash-like, blackish or dark fuscous, tending to be extended as an undefined plical line to base; subterminal line indicated by indistinct irregular darker anterior margin. Hindwings greyish-ochreous. (Plate IV. fig. 8.)

6 specimens, Haleakala, Maui, at 5000 feet, in March and April. Also one received from Mr Blackburn.

(15) *Agrotis crinigera* Butl.

*Spaelotis crinigera* Butl. Ann. Mag. N. H. (5) VII. 1881, p. 321.

♂ ♀. 49—54 mm. Head and front of thorax brownish, rest of thorax light fuscous. Antennae in ♂ filiform. Forewings long, rather narrow; light fuscous, darker-sprinkled, sometimes partially faintly rosy-tinged; subbasal and first lines obscurely pale, dark-edged, first irregularly waved-dentate, very acutely on vein 1*b*; median thick, cloudy, dark fuscous, slightly curved; second with dark inner edge acutely waved-dentate, outer faint or obsolete, regular; orbicular oval, dark-centred, dark-outlined; reniform dark-suffused, including three obscure paler transverse marks, resting on posterior edge of median line; claviform faintly indicated, narrow, elongate; subterminal line sometimes faintly paler, faintly darker-edged anteriorly. Hindwings light fuscous.

3 specimens; 2 Waialua, Koolau range, Oahu, in March; 1 Lanai, at 2000 feet, in February. There are five specimens in the British Museum collection; the species is recorded by Mr Blackburn from Oahu, Maui, and Hawaii, and said to be uncertain in appearance but sometimes to occur in thousands, usually near sea-level.

(16) *Agrotis mesotoxa*, sp. nov.

♀. 44—46 mm. Head and thorax brown. Forewings relatively markedly shorter than in *A. crinigera*; brown, sprinkled with dark fuscous, and sometimes slightly with whitish; lines as in *A. crinigera*, but median rather more curved, second only

slightly waved, subterminal more strongly dark-margined, forming a conspicuous pale elongate dot above middle; spots as in *A. crinigera*, but claviform strongly marked, dark-outlined, shorter and broader basally. Hindwings fuscous.

2 specimens, Kona, Hawaii, at 4000 feet, in July and August.

(17) *Agrotis epicremna*, sp. nov.

♂ ♀. 40—45 mm. Head and thorax grey-whitish mixed with black and ochreous. Antennae in ♂ bidentate with rather long triangular processes. Forewings fuscous, darker-mixed, partially slightly reddish-tinged; subbasal, first, and second lines hardly paler, edged on one side by waved partially interrupted blackish lines; median irregular, cloudy, blackish; orbicular dot-like, cloudy, blackish; reniform mostly suffused with blackish; subterminal line pale, interrupted, edged on both sides by series of suffused dark spots. Hindwings light fuscous, terminally broadly suffused with darker. (Plate IV. fig. 9.)

5 specimens, Haleakala, Maui, at 9000—10,000 feet, in May and October.

(18) *Agrotis baliopa*, sp. nov.

♂ ♀. 39—43 mm. Head and thorax grey-whitish mixed with blackish, sometimes partially yellowish-tinged. Antennae in ♂ bidentate with rather long triangular processes. Forewings light fuscous, blackish-sprinkled, sometimes partially slightly reddish-tinged; subbasal, first, and second lines obscurely pale or partially whitish, edged on one side by waved blackish lines; median cloudy, darker, bent in middle; orbicular and reniform whitish-edged, black-outlined, orbicular roundish; claviform suboval, sometimes slightly whitish-edged, black-outlined; subterminal line pale or whitish, interrupted, edged on both sides by series of small dark fuscous spots. Hindwings light fuscous, in ♀ sometimes darker posteriorly.

9 specimens; 8 Haleakala, Maui, at 6000—10,000 feet, in April and May; 1 Kilauea, Hawaii, in August.

(19) *Agrotis neurogramma*, sp. nov.

♂. 44 mm. Head and thorax brown-reddish mixed with black, centre of thorax whitish-sprinkled, edge of collar whitish. Antennae serrulate. Forewings brown-reddish, suffusedly mixed with black; veins marked with whitish-ochreous lines; subbasal, first, and second lines pale, black-edged; median dark, cloudy, bent in middle; orbicular and reniform finely edged with whitish-ochreous, separated by a subquadrate

blackish spot, orbicular oblique-oval, preceded by a similar blackish spot; subterminal line pale, broadly edged with blackish suffusion. Hindwings whitish-ochreous, fuscous-tinged, more infuscated terminally, veins and a crescentic discal mark fuscous; a dark fuscous terminal line. (Plate IV. fig. 10.)

1 specimen, Kilauea, Hawaii, in August.

(20) *Agrotis selenias*, sp. nov.

♂ ♀. 42—48 mm. Head and thorax brown-reddish sprinkled with black. Antennae in ♂ hardly serrulate. Forewings brown-reddish, sprinkled with black; subbasal and first lines black-edged; orbicular oblique-oval, sometimes partially edged with whitish-ochreous, black-outlined, separated from reniform by a subquadrate dark reddish-fuscous spot; claviform indistinctly dark-outlined; median line only distinct on costa; reniform anteriorly edged with a few whitish-ochreous scales and black outline, posteriorly marked with a clear whitish-ochreous crescentic spot; second line indistinctly dark-edged, waved, interrupted; subterminal obscurely pale, edged anteriorly with some indistinct small dark spots, on costa by one larger and more distinct. Hindwings rather light fuscous or whitish-fuscous, darker posteriorly; a darker crescentic discal mark.

16 specimens; 9 Kaholuamano, Kauai, at 4000 feet, in April; 6 Mts. Waimea, Kauai, at 4000 feet, in May and June; 1 Olaa, Hawaii, in September.

(21) *Agrotis cinctipennis* Butl.

*Apamea cinctipennis* Butl. Ann. Mag. N. H. (5) VII. 1881, p. 323.

♂ ♀. 38—40 mm. Head and thorax red-brown mixed with black, thorax sometimes more or less sprinkled with white. Antennae in ♂ hardly serrulate. Forewings brown-reddish, strigulated with dark fuscous, sometimes partially mixed with whitish-ochreous; subbasal and first lines blackish-edged; orbicular rather oblique-oval, grey or white, with faint darker central dot; reniform partially edged with whitish-ochreous or white, black-outlined, sometimes separated from orbicular by quadrate spot of blackish suffusion; claviform short, indistinctly dark-outlined; second line dark-edged, sometimes partly indistinct; subterminal whitish-ochreous, anteriorly sharply defined and edged with dark fuscous suffusion, posteriorly not dark-edged, terminal area light brown-reddish, mixed or almost wholly suffused with whitish-ochreous. Hindwings light fuscous, posteriorly darker.

4 specimens; 1 Olaa, Hawaii, at 2000 feet, in November; 1 Haleakala, Maui, at 5000 feet, in April; 1 Kaholuamano, Kauai, in April; 1 Waianae Mts., Oahu, at 2000 feet, in April. Also one specimen in the British Museum collection.



(22) *Agrotis chersotoides* Butl.

*Apamea chersotoides* Butl. Ann. Mag. N. H. (5) VII. 1881, p. 322.

♂♀. 31—40 mm. Head and thorax red-brown or dark fuscous, edge of collar and a broad irregular median streak from collar to posterior margin often grey-whitish or whitish-ochreous. Antennae in ♂ hardly serrulate. Forewings brownish-ochreous, variably suffused with brown-reddish, costa from base to subterminal line often broadly suffused with dark reddish-fuscous, more broadly anteriorly, in ♀ often extending over whole wing, sometimes a costal streak of lighter suffusion from base to second line; subbasal and first lines blackish-edged; orbicular and reniform rather dark slaty-fuscous or sometimes reddish, partly edged with whitish-ochreous and blackish-outlined, connected by a quadrate darker spot; claviform small, oval, partly indistinctly blackish-outlined; second line indistinctly dark-edged, sometimes with dots only, well-marked on costa; subterminal pale, obscure, partially indistinctly darker-edged. Hindwings whitish-fuscous, becoming fuscous posteriorly.

13 specimens; 5 Kona, Hawaii, at 4000 feet; 6 Mts Waimea, Kauai, at 4000 feet; 2 Kaholuamano, Kauai; from April to September. Also two examples in the British Museum, from Maui. Varies very considerably in colouring.

(23) *Agrotis ceramophaea*, sp. nov.

♂. 38 mm. Head and thorax red-brown. Antennae bidentate with triangular teeth. Forewings red-brown; orbicular, claviform, and reniform fuscous, orbicular and reniform connected by a small quadrate dark reddish-fuscous spot, laterally edged finely with whitish-ochreous. Hindwings light fuscous.

1 specimen, Kilauea, Hawaii, in September.

(24) *Agrotis psammophaea*, sp. nov.

♂♀. 35—38 mm. Head and thorax brownish-ochreous or brown, somewhat sprinkled with pale and blackish, anterior half of collar sharply blackish-fuscous. Antennae in ♂ bidentate with triangular teeth. Forewings varying from pale brownish-ochreous to brown, sometimes sprinkled with black or much suffused with dark fuscous; subbasal and first lines partially dark-edged; spots fuscous or dark fuscous, black-outlined, orbicular and reniform sometimes connected by a small blackish-fuscous spot or bar, claviform elongate-oval; median line cloudy, darker, curved; second dark-edged, margins usually dotted; subterminal obscurely pale, partially and irregularly edged with spots of dark suffusion. Hindwings light fuscous. (Plate IV. fig. 11.)

8 specimens, Haleakala, Maui, at 5000 feet, in May. Variable in intensity.

(25) *Agrotis austalea*, sp. nov.

♂♀. 32—38 mm. Head and thorax pale brownish to fuscous, often whitish-sprinkled, collar often with a median transverse blackish line, seldom with anterior half blackish-fuscous. Antennae in ♂ bidentate with triangular teeth. Forewings light or seldom rather dark fuscous, sometimes slightly ochreous or reddish-tinged, more or less irrorated with whitish, and somewhat sprinkled with black; subbasal and first lines blackish-edged; orbicular pale, more or less distinctly dark-centred, partly black-outlined; claviform short, semi-oval, sometimes fuscous, black-outlined; reniform more or less dark, anteriorly pale-edged, blackish-outlined, connected with orbicular by a small blackish-fuscous spot; median line cloudy, darker, curved; second forming a more or less distinct series of dark fuscous marks and two series of blackish dots; subterminal obscurely pale, more or less edged with dark fuscous suffusion, especially posteriorly, and preceded on costa by a well-marked sub-triangular spot. Hindwings fuscous, somewhat lighter anteriorly, with a darker crescentic discal mark.

14 specimens; 13 Kona, Hawaii, at 4000 feet, from July to September; 1 Mts. Waimea, Kauai, at 4000 feet, in June. Varies considerably in colouring.

HELIOTHIS *Ochs.*(1) *Heliothis armigera* Hüb. (*conferta* Walk.).

5 specimens; 2 Kona, Hawaii, at 2000—4000 feet, in July; 2 Wailuku, Maui; 1 Lanai, at 2000 feet, in February. Also recorded by Mr Blackburn from Haleakala, Maui, and Honolulu, Oahu. Variable here as elsewhere, inclining to a rather large and deeply coloured form, recorded by Butler under the name of *conferta* Walk., which is however merely a synonym. Occurs also generally throughout the world except in cold regions.

SPODOPTERA *Guen.*(1) *Spodoptera mauritia* Boisd. (*ingloria* Walk.).

17 specimens; 12 Kona, Hawaii, at 1500—4000 feet, from June to September; 2 Wailuku, Maui; 2 Lanai, at 2000 feet, in February; 1 Waiialua, Koolau range, Oahu, in March. Also several sent by Mr Blackburn from Oahu. Occurs also in Australia, S. Asia, and Africa.

(2) *Spodoptera exigua* Hüb. (*flavimaculata* Harv.).*Caradrina venosa* Butl. Ent. Mo. Mag. xvii. 7.

5 specimens; 3 Kona, Hawaii, at 4000 feet, in July and August; 2 Lahaina, Maui. Also recorded by Mr Blackburn from Honolulu, Oahu. It occurs throughout the warmer regions of the whole world.

## CARADRINA Ochs.

Head rough-scaled. Eyes glabrous. Thorax sometimes slightly crested. Abdomen not crested.

The following species, only represented by one ♀ specimen in indifferent preservation, cannot be certainly referred generically; it is however so distinct from any other Hawaiian insect that it cannot be passed over.

(1) *Caradrina exanimis*, sp. nov.

♀. 23 mm. Head and thorax whitish. Abdomen elongate. Forewings rather narrow, termen very oblique; whitish-ochreous, with scattered dark fuscous scales between veins; veins white; cilia whitish irrorated with fuscous. Hindwings whitish.

1 specimen, Kona, Hawaii, at 1500 feet, in September.

## PLUSIADAE.

## SIMPLICIA Guen.

(39) *Simplicia robustalis* Guen. (*caeneusalis* Walk.).

16 specimens, all ♀; 10 Oahu, Hawaii, at 2000 feet, in November and December; 3 Oahu, at 2000 feet, in September; 1 Kawailoe range, Oahu, at 1200 feet, in April; 1 Waianae Mts., Oahu, at 2000 feet, in April; 1 Lanai, at 2000 feet, in February. Also several sent by Mr Blackburn. Occurs throughout Australia, the Malay Archipelago, and India.

## HYPENODES Guen.

Head loosely scaled, with small frontal tuft. Antennae in ♂ ciliated, or bipectinated with apex filiform. Palpi very long, porrected, second joint thickened with rough projecting scales, terminal rather short, cylindrical. Thorax with appressed scales.

Abdomen with small crest near base. Tibiae smooth-scaled. Forewings: 7 separate, 9 and 10 out of 8. Hindwings: 5 parallel to 4.

- |   |                         |
|---|-------------------------|
| 1. Hindwings whitish .....  | 2.                      |
| "   fuscous or grey.....  | 3.                      |
| 2. Palpi about 6.....   | (1) <i>epichalca</i> .  |
| "   3 .....   | (4) <i>sarothrura</i> . |
| 3. Forewings mixed with violet-blue suffusion .....                   | (2) <i>cyantias</i> .   |
| "   not mixed with blue.....  | 4.                      |
| 4. Second line with upper $\frac{2}{3}$ rectangularly angulated ..... | (3) <i>oxygramma</i> .  |
| "   not so formed .....   | (5) <i>altivolans</i> . |

(1) *Hyphenodes epichalca*, sp. nov.

♂ ♀. 19—21 mm. Head and thorax pale yellow mixed with black. Palpi about 6. Antennae in ♂ moderately bipectinated, towards apex filiform. Forewings broader than in the other species; pale yellow sprinkled with black; lines thick, clear pale yellow, partially strongly edged with black, subbasal rather inwardly oblique, first angulated near costa, second forming a quadrate loop outwards in disc, subterminal sinuate; a series of black dots along posterior third of costa and termen. Hindwings ochreous-whitish; a grey discal dot; sometimes traces of grey postmedian and subterminal lines. (Plate IV. fig. 12.)

4 specimens; 3 Olaa, Hawaii, at 2000 feet, in November; 1 Kilauea, Hawaii, in August.

(2) *Hyphenodes cyantias*, sp. nov.

♀. 23 mm. Head and thorax dark fuscous. Palpi about 5. Forewings dark fuscous, suffusedly mixed except on margins with brilliant violet-blue; lines partially marked with yellow-ochreous, interruptedly edged with blackish and irregularly placed tufts of raised scales, subbasal inwardly oblique, first angulated near costa, second irregular, forming a quadrate loop outwards round a dull ochreous blackish-edged discal spot, subterminal sinuate; a terminal series of blackish spots alternating with dark spots in cilia. Hindwings light fuscous; a darker discal spot. (Plate IV. fig. 3.)

1 specimen, Olaa, Hawaii, in September.

(3) *Hyphenodes oxygramma*, sp. nov.

♀. 12 mm. Head and thorax pale ochreous mixed with brownish. Palpi about 4. Forewings pale ochreous, irrorated with fuscous and dark fuscous; subbasal line

blackish, well-marked, reaching from costa half across wing, posteriorly pale-edged; first and second lines blackish, externally edged with whitish-ochreous, first sinuate outwards below costa and below middle, second with upper  $\frac{2}{3}$  forming a rectangular angulation outwards; subterminal whitish-ochreous, edged with dark fuscous, irregularly dentate. Hindwings grey. (Plate IV. fig. 14.)

1 specimen, Kaholuamano, Kauai, in April. This example does not show the abdominal crest, but it may have been abraded.

(4) *Hyphenodes sarothrura*, sp. nov.

♂. 19 mm. Head and thorax glossy golden-fuscous, thorax posteriorly suffused with coppery-purplish. Palpi about 3. Abdomen roughly tufted with whitish hairs on sides from middle to apex. Forewings golden-fuscous, base coppery-tinged; an oblique ochreous-yellow costal mark near base, edged on each side with blackish; first line ochreous-yellow, edged posteriorly with black and then in disc with white, thrice sharply dentate; a short oblique pale ochreous-yellow streak from middle of costa; a thick irregular black longitudinal streak in disc from first to second line; second line ochreous-yellow, anteriorly blackish-edged, posteriorly broadly suffused with white, below middle rectangularly broken inwards; subterminal line on lower half white, waved, interrupted, above absorbed in suffusion of second; three whitish dots on posterior portion of costa; a terminal series of small dark fuscous spots. Hindwings with veins 3 and 4 short-stalked; fuscous-whitish; a faint fuscous transverse discal mark.

1 specimen, Oloa, Hawaii, in July.

(5) *Hyphenodes altivolans* Butl.

*Scoparia altivolans* Butl. Ent. Mo. Mag. xvii. p. 9. *Hyphenodes altivolans* Butl. Ann. Mag. N. H. (5) vii. 1881, p. 325.

♂ ♀. 11—22 mm. Forewings varying from pale brownish-ochreous to dark fuscous, with slight purplish reflections, sometimes whitish-sprinkled; a variable black dot beneath costa near base, sometimes connected with costa, sometimes followed by a yellow-ochreous dot; first line more or less blackish-marked, sometimes yellow-ochreous, angulated above middle, twice or thrice dentate; second more or less pale or sometimes yellow-ochreous, irregular, oblique, more or less sinuate outwards in middle, more or less blackish-edged on one or both sides, often followed by a partial band of pale ochreous mixed with whitish, especially towards costa; median line sometimes indicated by a pale mark on costa; a variable black discal spot, round or crescentic or

curved-linear or reduced to two dots or wholly absent, sometimes edged with pale or white posteriorly, often connected with second line by a blackish longitudinal suffusion; subterminal fine, whitish, interrupted, bisinuate; all lines sometimes (but seldom) wholly absent. Hindwings from rather light to rather dark grey.

113 specimens; 12 Kona, Hawaii, at 1500—4000 feet; 11 Oloa, Hawaii, at 2000 feet; 10 Hilo, Hawaii, at 2000 feet; 1 Kilauea, Hawaii; 6 Haleakala, Maui, at 5000 feet; 20 Mts. Waimea, Kauai, at 4000 feet; 24 Kaholuamano, Kauai, at 4000 feet; 18 Waianae Mts., Oahu, at 2000 feet; 1 Panoa Valley, Oahu; 1 Kaala Mts., Oahu; 8 Molokai, at 3000 feet; 1 Lanai, 3000 feet; from January to December, apparently throughout the islands up to 5000 feet. Also about 20 specimens received from Mr Blackburn, from Mauna Loa, Hawaii, and other localities. An excessively variable species, differing not only in colour and intensity of marking, but the lines themselves appear to vary greatly in form owing to the obsolescence of certain portions and the confluence of others, the first and second lines sometimes appearing almost straight; the dark spots often look like tufts, but there are no real tufts as in *H. cyanias*. The lighter specimens are usually ♂, the darker ♀, but this is not always the case. *H. croceipicta* Hamps., from Ceylon, approaches it closely, but seems distinct. The European *H. costistrigalis* Steph. seems constantly separable by the whitish hindwings, otherwise it does not differ perceptibly from light-coloured Hawaiian examples. The form *exsularis* Meyr., occurring in New Zealand and Australia, has also whitish hindwings, and is therefore distinct from *altivolans*, but perhaps identical with *costistrigalis*.

#### NESAMIPTIS, gen. nov.

Head loosely scaled, with frontal tuft. Antennae in ♂ ciliated, with longer setae at each joint. Palpi in ♂ rather long, in ♀ very long, porrected, second joint thickened with rough projecting scales, terminal very short, almost concealed. Thorax with appressed scales. Abdomen without crest. Tibiae with appressed scales. Hindwings: 5 parallel to 4.

Type *N. plagiota*. Differs from *Hypena* especially by the absence of any crest on abdomen.

First line strongly and evenly curved .....(2) *obsoleta*.  
 „ straight on lower half, obsolete above.....(1) *plagiota*.

#### (1) *Nesamiptis plagiota*, sp. nov.

♂♀. 30—32 mm. Head and thorax fuscous, whitish-sprinkled. Antennae in ♂ with fascicles of long cilia, setae very long. Forewings fuscous or pale brown, strigulated with dark fuscous and irrorated with whitish; a black dot towards costa at

$\frac{1}{3}$ ; first line whitish-ochreous or light yellow-ochreous, often strongly edged posteriorly with blackish-fuscous, straight, running from  $\frac{1}{4}$  of dorsum very obliquely outwards to middle of disc, where it ceases; second line whitish or whitish-ochreous, thick, straight, slightly more oblique than termen, edged anteriorly with dark fuscous or blackish-fuscous; lower half of median band sometimes darker, or yellowish-tinged, or wholly blackish; reniform indicated by a blackish dot; an oblique darker shade from apex, preceded by a whitish suffusion; lower  $\frac{2}{5}$  of subterminal line faintly pale, sometimes preceded by a dark or blackish-fuscous streak. Hindwings fuscous or light fuscous; a darker discal dot. (Plate IV. fig. 15.)

9 specimens; 8 Waianae Mts., Oahu, at 3000 feet, in April; 1 Mts. Waimea, Kauai, at 4000 feet, in May. Varies much in colouring.

(2) *Nesamiptis obsoleta* Butl.

*Hypena obsoleta* Butl. Ent. Mo. Mag. xiv. p. 47; ib. xvii. p. 9; id. Ann. Mag. N. H. (5) vii. 1881, p. 324. *Hypena insignis* Butl. Ent. Mo. Mag. xiv. p. 48; ib. xvii. p. 9.

♂♀. 22—30 mm. (one exceptional specimen 34 mm.). Head and thorax fuscous or brown, more or less irrorated with whitish. Antennae in ♂ shortly and evenly ciliated, setae moderate. Forewings brown or fuscous, sometimes ferruginous-tinged, variably irrorated with whitish and strigulated with dark fuscous; first and second lines whitish or whitish-ochreous or yellow-ochreous or obsolete, first strongly and evenly curved, second slightly irregular, sinuate inwards on lower half, included median band sometimes partly blackish-edged, or wholly suffused with dark fuscous, or with a discal blotch or whole dorsal half blackish; reniform sometimes indicated by a dark fuscous transverse mark; usually a darker praesubterminal suffusion, marked on costal half with a series of dark fuscous spots, sometimes obsolete; usually an oblique darker shade from apex, preceded by a pale suffusion. Hindwings dark grey; a darker discal dot. (Plate III. figs. 2, 2 a—2 g.)

130 specimens; 29 Kona, Hawaii, at 2000—4000 feet; 6 Olaa, Hawaii, at 2000 feet; 1 Mts. Waimea, Kauai, at 4000 feet; 11 Kaholuamano, Kauai; 31 Waianae Mts., Oahu, at 1500—1700 feet; 19 Waialua, Koolau range, Oahu; 3 Kaala Mts., Oahu; 29 Lanai, at 2000 feet; 1 Molokai, at 4000 feet; from February to May, in July, and from September to November. Also several specimens in British Museum collection. Mr Blackburn records the species from Maui, as well as other islands. Exceedingly variable in colour and intensity of marking.

COSMOPHILA *Boisd.*

Head loosely scaled, with short frontal tuft. Antennae in ♂ ciliated, with longer setae on each joint. Palpi rather long, curved, ascending, second joint thickened with

dense appressed scales, terminal rather long, cylindrical, obtusely pointed. Thorax with posterior crest. Abdomen without crest. Tibiae with appressed scales. Hindwings: 5 nearly parallel to 4.

Subbasal line black, triangular .....(1) *noctivolans*.  
 ,, not black .....(2) *sabulifera*.

(1) *Cosmophila noctivolans* Butl.

*Toxocampa noctivolans* Butl. Ent. Mo. Mag. xvii. p. 8.

♂♀. 28—33 mm. Head and thorax varying from fuscous-whitish or whitish-ochreous to reddish-ochreous or dark fuscous. Forewings with termen obtusely projecting on vein 4; varying from pale ochreous to rather dark fuscous, usually more or less reddish-tinged, sometimes partially whitish-suffused, often darker-strigulated; subbasal line forming a triangular black mark (rarely unicolorous), pale-edged, its anterior edge being straight and posterior edge acutely angulated; first and second lines slender, pale or whitish, included median band sometimes wholly suffused with dark fuscous, usually more or less black-marked on edges, anterior edge strongly concave, with a strong acute projection above dorsum, posterior edge indented immediately beneath costa, below this with a short rectangular projection, and a similar one in middle, lower half curved inwards; orbicular represented by a minute white dot; lower edge of reniform usually indicated by a whitish dot, sometimes upper edge also marked by a similar dot; a more or less distinct praesubterminal series of cloudy darker spots, interrupted above middle; subterminal line seldom distinctly pale, irregularly dentate. Hindwings rather dark grey. (Plate IV. fig. 16.)

23 specimens; 14 Kaholuamano, Kauai; 5 Mts. Waimea, Kauai, at 4000 feet; 1 Wailuku, Maui; 3 Waianae Mts., Oahu, at 2000 feet; from April to June. Also one specimen in British Museum, taken by Mr Blackburn on Haleakala, Maui, at 4000 feet. Varies considerably in colour and intensity.

(2) *Cosmophila sabulifera* Guen.

*Gonitis sabulifera* Guen. Noct. vi. 404; *G. hawaiiensis* Butl. Trans. Ent. Soc. Lond. 1882, 32.

Varies from light brownish or reddish-ochreous to dark brown; in one specimen the median band is wholly deep red-brown mixed with black. Besides the different character of the subbasal line, the species differs from *C. noctivolans* in the different form of the first and second lines, and the larger size.

15 specimens; 4 Oloo, Hawaii, at 2000 feet, in November; 4 Kaholuamano,



Kauai, in April; 6 Mts. Waimea, Kauai, at 4000 feet, in May and June; 1 Panoa Valley, Oahu. Also several specimens received from Mr Blackburn, who took the species near Honolulu, Oahu. Occurs likewise in Fiji, S. Asia, and Africa.

HYPOCALA *Guen.*(1) *Hypocala andremona* Cram.

*Hypocala velans* Walk. Cat. XIII. 1177.

2 specimens; 1 Kona, Hawaii, at 1500 feet, in August; 1 Kaala Mts., Oahu, at 500 feet, in January: the former an example of the dark suffused variety indicated by Walker under the name *velans*, the latter quite normal. Other examples taken by Mr Blackburn, near Honolulu, Oahu, and on Maui. Occurs also in the warmer regions of America. I regard the form *velans* as a native race (Mr Perkins thinks he once saw it flying commonly without the type), and typical specimens as recent immigrants.

PLUSIA *Ochs.*(1) *Plusia biloba* Steph.

3 specimens; 2 Kona, Hawaii, at 4000 feet, in July; 1 Haleakala, Maui, at 5000 feet, in March; and a single forewing from Lanai, at 2000 feet, in January. Occurs also in the warmer parts of America, from Florida to Peru.

(2) *Plusia chalcites* Esp. (*verticillata* Guen.).

11 specimens; 3 Kona, Hawaii, at 1400—3000 feet; 4 Oloa, Hawaii, at 2000 feet; 3 Waianae Mts., Oahu; 1 Lanai, at 2000 feet; in February, April, June, and from September to December. Occurs also in New Zealand, Australia, S. Asia, S. Europe, and Africa.

## NOTODONTINA.

## HYDRIOMENIDAE.

EUCYMATOGE *Hüb.*

Face with short cone of scales. Antennae in ♂ ciliated. Palpi rough-scaled. Abdomen crested throughout. Forewings: areole double. Hindwings: 8 anastomosing with cell to beyond middle.

1. Groundcolour green.....2.  
 ,, not green .....3.

- |   |                            |
|---|----------------------------|
| 2. Forewings with discal dot obscured in striation, termen subsinuate ..... | (8) <i>orichloris</i> .    |
| "                    "          conspicuous, termen not sinuate .....       | (7) <i>prasinombra</i> .   |
| 3. Hindwings with termen nearly straight, subdentate .....                  | (4) <i>staurophragma</i> . |
| "                    "          strongly but often unevenly rounded .....   | 4.                         |
| 4. Face and palpi partly or wholly dull crimson .....                       | 5.                         |
| "                    "          not crimson .....                           | 6.                         |
| 5. Groundcolour white .....   | (5) <i>niphoreas</i> .     |
| "                    light dull crimson .....                               | (6) <i>rhodopyra</i> .     |
| 6. Abdomen with subbasal reddish band .....                                 | 7.                         |
| "                    without reddish band .....                             | 8.                         |
| 7. Forewings with discal spot conspicuous .....                             | (9) <i>craterias</i> .     |
| "                    "          obsolete .....                              | (3) <i>dryinombra</i> .    |
| 8. Wings more or less whitish-striated .....                                | (10) <i>monticolans</i> .  |
| "                    not whitish-striated .....                             | 9.                         |
| 9. Wings dark fuscous .....   | (1) <i>phaeocausta</i> .   |
| "                    dark grey, black-marked .....                          | (2) <i>scoriodes</i> .     |

(1) *Eucymatoge phaeocausta*, sp. nov.

♂♀. 15—17 mm. Head, thorax, and abdomen dark fuscous, with a few pale ochreous-yellowish scales, sides of face with a fine oblique pale ochreous-yellowish line. Forewings elongate-triangular, termen very obliquely bowed; dark fuscous, thinly irregularly sprinkled with pale ochreous-yellowish, with indistinct darker striae angulated above middle; margins of median band indicated by more marked pale irroration, especially in ♀. Hindwings with termen rounded, waved; dark fuscous, in ♀ with a few pale ochreous-yellowish scales; a postmedian series of minute white dots on veins, in ♂ partially obsolete.

2 specimens, Molokai; ♂ above 4000 feet, in June, ♀ in forest above Pelekunu, in August.

(2) *Eucymatoge scoriodes*, sp. nov.

♂. 15—17 mm. Head, thorax, and abdomen blackish, face with a few ochreous scales, thorax and abdomen sprinkled with whitish, abdomen with a black subbasal band. Forewings rather elongate-triangular, termen obliquely bowed; dark grey, more or less thinly sprinkled with pale greyish-ochreous, with indistinct black striae more or less accompanied by whitish scales on veins; edges of median band more strongly black-marked, posterior rounded-prominent above middle, a median stria sharply angulated near costa; in one specimen an elongate pale yellow-ochreous spot in middle of disc. Hindwings with termen unevenly rounded, waved; dark grey, with striae and whitish scales as in forewings, but less marked. (Plate IV. fig. 7.)

4 specimens, Haleakala, Maui, at 7000—8000 feet, in May.

(3) *Eucymatoge dryinombra*, sp. nov.

♂♀. 16—20 mm. Head, thorax, and abdomen brownish-ochreous, with a few dots of dark fuscous scales, or sometimes suffusedly irrorated with dark fuscous, abdomen with fuscous-reddish subbasal band black-marked on sides. Forewings elongate-triangular, termen very obliquely bowed; light brownish-ochreous, sometimes irrorated with fuscous or dark fuscous, with faintly indicated darker striae; second and fifth fasciae and sometimes whole dorsal area suffused with dull crimson irroration; edges of median band irregularly marked with dark fuscous on veins, forming small spots on costa, posterior irregularly curved-prominent, sometimes accompanied by whitish dots; subterminal line obscurely ochreous-whitish, most distinct in middle. Hindwings with termen rounded, unevenly subdentate; as forewings, but less strongly marked.

5 specimens; 4 Molokai, at 4000—4500 feet; 1 Olaa, Hawaii, darker throughout than the others; in July and September.

(4) *Eucymatoge staurophragma*, sp. nov.

♂♀. 21—26 mm. Head and thorax pale ochreous, face sometimes suffused with dull reddish, with two small blackish spots before antennae, palpi blackish. Abdomen whitish-ochreous, sometimes reddish-mixed, especially in ♀, usually with a black-reddish subbasal band, in ♂ with dorsal and sometimes lateral series of blackish dots and subapical ring. Forewings rather elongate-triangular, termen very obliquely bowed; pale ochreous or whitish-ochreous, sometimes partially or wholly suffused with dull reddish irroration; a subbasal stria indicated by two or three blackish dots; median band in one ♀ wholly suffused with dull reddish mixed with blackish, sharply contrasted with pale ground-colour, in others only margins indicated by series of black marks on veins, sometimes accompanied by minute white dots, posterior almost evenly curved, somewhat indented beneath costa; sometimes an obscure darker discal dot; sometimes a few white scales on veins in disc; subterminal line faintly pale or whitish, preceded above middle by two spots of dull reddish or blackish suffusion. Hindwings with apex prominent, termen nearly straight, subdentate; colour and markings much as in forewings, but less marked towards base. (Plate IV. fig. 18.)

9 specimens; 1 Kona, Hawaii, above 2000 feet, in September; 1 Kilauea, Hawaii, in August; 5 Olaa, Hawaii, in June, November and December; 2 Haleakala, Maui, at 5000 feet, in May. The species seems variable, but may be easily distinguished from all others by the peculiarly formed hindwings.

(5) *Eucymatoge niphoreas*, sp. nov.

♂. 16 mm. Head and thorax white, face and palpi black mixed with deep crimson. Abdomen whitish mixed with dark grey, partially suffused with brownish-ochreous except towards base and apex, with a subbasal band of dull crimson suffusion. Forewings somewhat elongate-triangular, termen bowed, oblique; white, with undefined striae of grey and black irroration, partly crimson on dorsum; small costal blotches at  $\frac{1}{4}$  and  $\frac{1}{2}$ , and a costal streak connecting former with base black mixed with crimson; a black transverse discal dot; posterior edge of median band formed by a fine interrupted blackish stria, angulated in middle, dentate on lower half, shortly followed by a parallel black stria, much stronger on upper half, especially on costa, and somewhat more curved; subterminal line dentate, whitish, margined with dull crimson shades, more broadly and deeply on upper half anteriorly, interrupted in middle. Hindwings with termen rounded; white, with well-defined black striae, mixed with crimson in disc; posterior edge of median band more strongly marked, obtusely angulated in middle; discal dot and subterminal line as in forewings, but less marked. (Plate IV. fig. 19.)

1 specimen, Kauai, at 4000 feet, in July.

(6) *Eucymatoge rhodopyra*, sp. nov.

♀. 23 mm. Head and palpi dull crimson. Thorax and abdomen fuscous tinged with dull crimson. Forewings triangular, termen sinuate beneath prominent apex, strongly bowed, oblique; light dull rosy-crimson, irrorated with fuscous, forming obscure darker striae; a dark fuscous transverse discal dot; posterior edge of median band dark fuscous, pale-edged posteriorly, especially on upper half, running from  $\frac{2}{5}$  of costa straight and obliquely outwards half across wing, where it is acutely angulated, thence to dorsum forming an obtuse angle inwards. Hindwings with termen rounded; colour and markings as in forewings, but less pronounced. (Plate IV. fig. 20.)

1 specimen, Kauai, at 4000 feet, in October.

(7) *Eucymatoge prasinombra*, sp. nov.

♀. 22 mm. Head, thorax, and abdomen light dull green, face with two black dots before antennae, abdomen with some black scales. Forewings rather elongate-triangular, termen obliquely bowed; light dull green, with numerous undefined striae of black and fuscous scales; a moderate transverse-oval black discal dot. Hindwings with termen unevenly rounded, slightly waved; colour and markings as in forewings.

1 specimen, Haleakala, Maui, at 5000 feet, in May.

(8) *Eucymatoge orichloris*, sp. nov.

♂ ♀. 21—24 mm. Head, thorax, and abdomen dull light yellowish-green, face with two black dots before antennae, collar spotted with blackish, thorax with transverse band of blackish suffusion, abdomen with an interrupted blackish subbasal band, and lateral series of black dots. Forewings rather elongate-triangular, termen slightly sinuate beneath apex, very obliquely bowed; dull light yellowish-green, with numerous blackish striae; edges of median band more strongly blackish-marked, posterior obscurely whitish-edged, rounded-prominent beneath costa and in middle; a small indistinct blackish discal dot, obscured in striation; subterminal line pale, preceded by a double suffused blackish spot above middle, above and below which are light patches. Hindwings with termen rounded, waved; colour and markings as in forewings. (Plate IV. fig. 21.)

12 specimens; 10 Oloa, Hawaii, at 2000 feet, in June and September; 1 Hilo, Hawaii, at 2000 feet, in December; 1 Lanai, at 2000 feet, in January.

(9) *Eucymatoge craterias*, sp. nov.

♂ ♀. 15—21 mm. Head, thorax, and abdomen fuscous mixed with dark fuscous and whitish-ochreous, face with sides or sometimes wholly ochreous-whitish, abdomen with ferruginous-reddish subbasal band mixed with black, apical segment in ♂ suffused with whitish. Forewings rather elongate-triangular, costa posteriorly moderately arched, termen obliquely rounded; whitish-ochreous, suffusedly irrorated with fuscous, obscurely striated with dark fuscous; basal area as far as median band more or less obscurely striated with whitish; edges of median band blackish-marked, strongly curved, posterior obtusely prominent beneath costa and in middle; a conspicuous black transverse discal dot; median band margined posteriorly by a strong white stria, followed by a whitish-ochreous stria, from which two obscurely pale or conspicuously whitish longitudinal patches extend to termen, one near beneath costa, the other in middle; in one specimen the lower half of the two postmedian striae forms a whitish blotch reaching to near termen; subterminal line sometimes distinctly whitish, sometimes preceded by a reddish tinge. Hindwings with termen unevenly rounded, waved; colour and markings as in forewings, but median band whitish-striated, the pale longitudinal posterior patches obsolete.

29 specimens; 15 Haleakala, Maui, at 5000 feet, in May; 12 Kona, Hawaii, at 3500—4000 feet, from June to August; 1 Oloa, Hawaii, in June; 1 Kilauea, Hawaii, in July. All the specimens from Hawaii are smaller, and have the pale markings, especially the longitudinal posterior patches, more conspicuous than in those from Maui,

in none of which are these latter at all prominent; the form from Hawaii is sufficiently distinct in appearance to rank as a geographical variety, which may be named *ditrecta*. The costa of the forewings is more arched than in the following species, and the anterior edge of median band more strongly curved.

(10) *Eucymatoge monticolans* Butl.

*Eupithecia monticolens* Butl. Ann. Mag. Nat. Hist. (5) VII., 1881, p. 320.

♂♀. 19—29 mm. Head, thorax, and abdomen white, sometimes ochreous-tinged, sometimes variously spotted or mixed with dark fuscous, abdomen sometimes with brown or black subbasal ring and dorsal and lateral series of spots. Forewings rather elongate-triangular, costa hardly arched, termen obliquely rounded; white or fuscous-whitish, sometimes fuscous-suffused or irrorated with dark fuscous or black, with numerous more or less distinct dark fuscous or blackish striae, which are sometimes partly suffused with ferruginous-brown; edges of median band more strongly black-marked, anterior gently curved, posterior very slightly prominent near costa and rather strongly rounded-prominent in middle, usually followed by two more distinctly whitish striae; discal spot roundish, black, large or dotlike or often wholly absent, in one dark specimen white; praesubterminal stria often more strongly black-marked, especially on two spots above middle, opposite which are also often two postsubterminal similar spots. Hindwings with termen rounded, waved; colour and markings as in forewings, but usually more uniformly and less distinctly striated, or striae sometimes nearly obsolete, not black-marked except on dorsum, discal dot indistinct or absent. (Plate III. figs. 3, 3*a*—3*i*.)

130 specimens; 13 Kona, Hawaii, at 3000—4000 feet; 5 Kilauea, Hawaii; 21 Olaa, Hawaii; 1 Hilo, Hawaii, at 2000 feet; 15 Haleakala, Maui, at 2000—9000 feet; 2 Lahaina, Maui, at 3000 feet; 8 Lanai, at 2000—2500 feet; 20 Molokai, at 3000—4000 feet; 29 Kaholuamano, Kauai, at 4000 feet; 16 Waimea Mts., Kauai, at 4000 feet; apparently therefore generally distributed throughout the group, and is on the wing all the year round. It is an extraordinarily variable species, yet easy of recognition, and shows no distinguishable geographical forms, but the largest and most striking specimens are from Maui, those from Molokai are rather small and uniform in appearance, those from Lanai are also small and darker or more brownish-tinged. I have modified for orthographical reasons Butler's specific name.

HYDRIOMENA *Hüb.*

Face with conical tuft of scales. Antennae in ♂ ciliated. Palpi rough-scaled. Abdomen not crested. Forewings: areole double. Hindwings: 8 anastomosing with cell to beyond middle.

(1) *Hydriomena aphoristis*, sp. nov.

♂. 23—25 mm. Head, thorax, and abdomen dark fuscous, margins of abdominal segments sometimes finely whitish. Forewings triangular, costa posteriorly arched, termen obliquely rounded, waved; dark fuscous; a whitish-ochreous dot on costa at  $\frac{1}{4}$ ; median band limited by fine irregular whitish striae, forming stronger whitish-ochreous marks on costa, anterior nearly preceded and posterior nearly followed by very obscure yellow-ochreous striae; subterminal line fine, irregular, whitish, sometimes partially obsolete, forming a stronger mark on costa. Hindwings with termen waved; dark fuscous; traces of a fine whitish subterminal line. (Plate IV. fig. 22.)

2 specimens, Kilauea, Hawaii, in July and September.

XANTHORHOE *Hüb.*

Face with conical tuft of scales. Antennae in ♂ bipectinated, apex simple. Palpi rough-scaled. Forewings: areole double. Hindwings: 8 anastomosing with cell to beyond middle.

- |   |                         |
|---|-------------------------|
| 1. Forewings orange .....                               | (1) <i>ioxantha</i> .   |
| "    not orange .....                                   | 2.                      |
| 2. Hindwings with termen dentate .....                  | (4) <i>caustoscia</i> . |
| "    "    hardly waved .....                            | 3.                      |
| 3. Forewings with dark fuscous or blackish striae ..... | (2) <i>insularis</i> .  |
| "    ferruginous-ochreous striae .....                  | (3) <i>leucoxyia</i> .  |

(1) *Xanthorhoe ioxantha*, sp. nov.

♀. 30 mm. Head and thorax bright orange. Abdomen orange, segmental margins purplish. Forewings rather elongate-triangular, apex somewhat produced, termen oblique, slightly rounded, faintly sinuate beneath apex; bright orange; basal area ferruginous-mixed, with an angulated stria of blackish irroration at  $\frac{1}{6}$ ; edges of median band formed by fasciae of two or three subconfluent blackish striae suffused with ferruginous, two interior ferruginous striae meeting near costa, posterior edge dentate, with two stronger projections below middle; a small round blackish discal spot; a ferruginous suffusion towards termen except near costa, enclosing a terminal series of undefined subconfluent blackish-grey terminal spots. Hindwings elongate, termen strongly rounded; yellow-whitish, dorsal half obscurely yellow-suffused; a black discal dot; a dark grey postmedian transverse shade, thickest dorsally, angulated in middle; a dark grey terminal suffusion, towards dorsum anteriorly suffused with ferruginous. (Plate IV. fig. 23.)

1 specimen, Kaholuamano, Kauai, at 4000 feet, in April.

(2) *Xanthorhoe insularis* Butl.

*Larentia insularis* Butl. Ent. Mo. Mag. xv. p. 272.

♂, 30 mm.; ♀, 25—26 mm. Head, thorax, and abdomen white, mixed with dark fuscous, in ♂ more densely, abdomen with double dorsal series of black spots. Antennal pectinations of ♂ very short, tooth-like, terminating in fascicles of cilia. Forewings rather elongate-triangular, termen hardly rounded, very oblique; white, with indistinct striae of fuscous and black irroration, in ♂ largely suffused with fuscous and densely irrorated with dark fuscous; basal patch of four slightly curved striae, in ♂ dark fuscous, in ♀ blackish; median band formed of seven or eight striae, in ♂ dark fuscous, in ♀ blackish, anterior edge curved, somewhat indented below middle, posterior irregular, middle third forming an angular prominence; an inconspicuous black transverse discal dot; a more or less interrupted or obsolete blackish praesubterminal stria; a terminal blackish line interrupted to form numerous spots. Hindwings elongate, termen rounded, hardly waved; whitish, with numerous indistinct striae, in ♂ light fuscous, in ♀ grey.

2 ♀s, Haleakala, Maui, at 6000—8000 feet, above forest level, in May; Mr Perkins did not obtain a ♂, and I have therefore described one received from Mr Blackburn, taken in the same locality, and quite similar to the type specimen in the British Museum. The sexes are dissimilar in appearance, the ♂ being larger, greyer, and more obscure, the ♀ whiter and more sharply marked, but I think there is no doubt of their identity.

(3) *Xanthorhoe leucoxylo*, sp. nov.

♀. 34 mm. Head, thorax, and abdomen ochreous-whitish mixed with pale ochreous, abdomen with double dorsal series of suffused ferruginous-ochreous spots. Forewings somewhat elongate-triangular, termen gently rounded, oblique; ochreous-whitish, with indistinct ferruginous-ochreous striae; basal patch of four slightly curved suffused darker striae, costal edge dull crimson near base; median band of about six similar striae, anterior edge acutely indented beneath costa, posterior with middle third forming an angular prominence; a round black discal dot; subterminal line forming a series of small indistinct white spots, one at  $\frac{1}{4}$  from costa preceded by a small round blackish spot. Hindwings elongate, termen rounded, hardly waved; ochreous-whitish; a median band of several faint fuscous striae. (Plate IV. fig. 24.)

1 specimen, Waimea Mts., Kauai, at 4000 feet, in May.



(4) *Xanthorhoe caustoscia*, sp. nov.

♂♀. 39—42 mm. Head, thorax, and abdomen dark fuscous, somewhat whitish-sprinkled, in ♂ with a ferruginous spot between antennae, abdomen in ♂ mixed with dull crimson, especially towards base; thorax with well-developed central and posterior crests; antennal pectinations in ♂ rather long. Forewings somewhat elongate-triangular, termen rounded, oblique, strongly waved; fuscous, faintly reddish or purplish-tinged, with numerous waved dark fuscous striae; a somewhat darker basal patch, edge slightly curved; median band darker-suffused towards edges, anterior edge slightly curved, posterior edge somewhat rounded-prominent beneath costa and on middle third; subterminal line pale, interrupted, in ♀ forming several whitish dots, of which one in middle is conspicuous, edged anteriorly with darker spots. Hindwings with termen rounded, dentate; fuscous; a median band of several darker striae, very faint except towards dorsum; subterminal line similarly indicated.

2 specimens; 1 ♂ Haleakala, Maui, at 5000 feet, in May; 1 ♀ Lanai, at 3000 feet, in July.

## PROGONOSTOLA, gen. nov.

Face with conical scale-projection. Antennae in ♂ unipectinated, towards apex simple. Palpi rough-scaled. Forewings: areole double. Hindwings: 6 and 7 stalked, 8 anastomosing with cell to beyond middle.

Allied to *Xanthorhoe*, but differs from it and all other near members of the family in the uniseriate pectinations of the antennae of ♂.

(1) *Progonostola cremnopsis*, sp. nov.

♂♀. 30—36 mm. Head, thorax, and abdomen dark fuscous, somewhat pale-sprinkled; thorax with developed central and posterior crests. Forewings somewhat elongate-triangular, termen slightly rounded, oblique, strongly waved; fuscous, purplish-tinged, with numerous waved dark fuscous striae; median band preceded by two undefined obscure whitish-ochreous striae; a small transverse blackish-fuscous discal spot, followed by a stronger dark stria, beyond which is a more or less obscure whitish-ochreous wedge-shaped median suffusion; posterior edge of median band marked by a stronger dark stria, somewhat prominent beneath costa, and with middle third forming a short obtuse bilobed prominence, on costa followed by one or two whitish-ochreous strigulae; subterminal line faintly indicated with whitish-ochreous, only distinct on

costa. Hindwings with termen rounded, dentate; fuscous, with indistinct darker waved striae, edges of median band more strongly marked; subterminal line faintly whitish-ochreous. (Plate IV. fig. 25.)

14 specimens; 9 Oloa, Hawaii; 5 Molokai, at 3000 feet; in June, September, and November.

#### DASYURIS *Guen.*

Face rough-haired. Antennae in ♂ shortly ciliated. Palpi with long dense rough hairs. Thorax and coxae densely hairy beneath. Forewings: areole double. Hindwings: 6 and 7 stalked, 8 anastomosing with cell to beyond middle.

##### (1) *Dasyuris holombra*, sp. nov.

♂. 36—37 mm. Head, palpi, and thorax dark fuscous, thinly and finely whitish-sprinkled. Forewings broad-triangular, termen rounded, somewhat oblique; dark fuscous, ferruginous-tinged, with indistinct darker striae; median band more strongly dark-edged, limited by fine obscure striae of whitish irroration, posterior edge with moderate bilobed median prominence; a transverse blackish-fuscous median dot; subterminal line fine, obscure, formed of whitish irroration. Hindwings with termen rounded; dark ferruginous-fuscous; in one specimen a few whitish scales at tornus. (Plate IV. fig. 26.)

2 specimens, Haleakala, Maui, at 5000 feet, in April and May.

#### SELIDOSEMIDAE.

##### SISYROPHYTA, gen. nov.

Face with tuft of scales. Tongue developed. Antennae in ♂ bipectinated, simple towards base and on apical third. Palpi rough-scaled. Thorax hairy beneath. Abdomen in ♂ elongate, hairy beneath. Femora glabrous, posterior tibiae in ♂ elongate, dilated, containing hair-pencil in groove, posterior tarsi in ♂ reduced. Forewings in ♂ without fovea, more or less distorted, above with longitudinal supramedian groove, beneath more or less largely clothed with dense rough hairs; 10 sometimes out of 9, sometimes connected with 9, 11 sometimes out of 10 near base, sometimes running into or anastomosing with 12. Hindwings in ♂ above with median groove or streak of erect hairs.

Remarkable for the curiously developed secondary sexual characters of the ♂. The two species have much general similarity; the ♂s are obviously distinguished by the differences in these secondary sexual developments; the ♀s may be separated by the difference in size and neuration. Type *S. gomphias*.

(1) *Sisyrophyta gomphias*, sp. nov.

♂♀. 50—58 mm. Head and thorax brown. Abdomen pale brownish-ochreous. Forewings elongate-triangular, in ♂ with apex and upper part of termen curved over beneath so as to appear strongly rounded off, hardly oblique, in ♀ termen bowed, oblique; in ♂ above with deep compressed suprmedian groove, beneath with costal half clothed with very dense rough hair-scales; 11 out of 10 near base, running into or anastomosing with 12; brownish-ochreous or ochreous-fuscous, sometimes sprinkled with dark fuscous; first and second lines of blackish-fuscous dots, usually much approximated dorsally, lowest one of each sometimes confluent, first of three dots, curved, second of seven or eight dots, in ♂ strongly curved in disc, in ♀ somewhat bent below middle; a terminal series of blackish-fuscous dots. Hindwings with termen rounded, in ♂ with compressed longitudinal median groove; brownish-ochreous, paler basally, more fuscous-tinged posteriorly; sometimes a curved postmedian series of indistinct fuscous dots; cilia ochreous-whitish. (Plate IV. fig. 27.)

38 specimens; 34 Olaa, Hawaii, at 2000 feet; 3 Kona, Hawaii, at 2000—3000 feet; 1 Molokai, at 3500 feet; in June, September, November, and December.

(2) *Sisyrophyta ochetias*, sp. nov.

♂♀. 40—48 mm. Head and thorax brown. Abdomen light brownish-ochreous. Forewings elongate-triangular, narrower than in *S. gomphias*, in ♂ with apex, termen, and dorsum strongly and continuously rounded, in ♀ with termen bowed, oblique; in ♂ above with irregular suprmedian groove, beneath with median longitudinal fringe of long erect hairs, dorsal half below this wholly clothed with modified furry scales, with a marginal ridge of dense raised scales, costal area partially hairy; 10 sometimes out of 9, sometimes connected with 9, 11 separate; brownish-ochreous or ochreous-fuscous, more or less sprinkled with dark fuscous; first and second lines of blackish-fuscous dots, moderately approximated dorsally, first of three dots, hardly curved, second of seven or eight dots, in ♂ rather strongly curved in disc, in ♀ somewhat curved, sinuate inwards above middle; no terminal dots. Hindwings with termen rounded, in ♂ unevenly; in ♂ above with a median longitudinal streak-like patch of fine long erect hairs from near base to beyond middle, termen partially narrowly folded over, distorted; in ♂ pale ochreous, disc suffused with rather dark grey; in ♀ pale brownish-ochreous irrorated with fuscous.

16 specimens; 15 Olaa, Hawaii, at 2000 feet; 1 Hilo, Hawaii, at 2000 feet; in June, September, November, and December.

SCOTORYTHRA *Butl.*

Face with tuft of scales. Tongue developed. Antennae in ♂ bipectinated, simple towards base (on 4 or 5 joints above basal) and on apical third. Palpi rough-scaled. Thorax hairy beneath. Femora sometimes hairy beneath, posterior tibiae in ♂ more or less dilated, containing hair-pencil in groove, posterior tarsi in ♂ often reduced. Forewings in ♂ without fovea; 10 often connected with 9, 11 rarely out of 10 very near base, rarely absent, sometimes anastomosing with 12. Hindwings normal.

Type *S. arboricolans* Butl. This genus is endemic; the species are exceedingly puzzling, owing to their number, similarity, and similar variability. In the males the secondary sexual characters, such as the length of the abdomen (measured in terms of the breadth of the hindwings), the length of the antennal pectinations (estimated in terms of the breadth of the stalk), and the structure of the posterior legs (the tarsi being measured in terms of the length of the tibia), often afford valuable aid in their discrimination; but the females of allied species are often excessively similar.

In the neuration of the forewings, the origin of 11 out of 10 very near base, or its entire absence, appear to be individual abnormalities, which I have observed only in one instance of each, of no specific importance; the connection of 10 with 9 is frequent, but (as in *Selidosema* and allied genera) is also of no importance; the anastomosing of 11 with 12 however is worthy of attention, as I have found it in some specimens of all the first eight species (except *corticea*, not examined), even in the three monotypic ones, it being most constant in *isospora*, whilst I have noticed no instance of it in the rest; it therefore helps to confirm the grouping of these species together, though too inconstant to define them; these eight species are however distinguished from all the rest by the form of the second line.

In the following tabulation the scheme is double from the eighteenth heading onwards, the sexes being thereafter tabulated separately; this was unavoidable, owing to the divergence of the sexes in these species; the discrimination of the males is then rendered comparatively easy by the use of the secondary sexual characters; that of the females is and must remain difficult, the differences between them being extremely slight, and the individual variability very considerable.

- |    |  |                            |
|----|--|----------------------------|
| 1. | Apex of forewings subfalcate; expanse over 80 mm. (♀ only known) ..... | (30) <i>megalophylla</i> . |
|    | "    "    at most somewhat prominent; expanse under 76 mm. ....        | 2.                         |
| 2. | Postmedian line of hindwings well-defined, slender, entire .....       | 3.                         |
|    | "    "    dotted or cloudy or obsolete .....                           | 5.                         |
| 3. | Forewings ochreous .....   | (14) <i>demetrias</i> .    |
|    | "    not ochreous .....  | 4.                         |
| 4. | First line of forewings acutely angulated above middle .....           | (17) <i>oxyphractis</i> .  |
|    | "    "    almost straight .....  | (16) <i>ortharcha</i> .    |

5. Second line of forewings not sinuate inwards above middle .....6.  
 " " more or less distinctly sinuate inwards above  
 middle.....15.  
 6. Expanse 46 mm. or more; median shade usually obsolete .....7.  
 " 43 mm. or less; median shade distinct .....8.  
 7. Forewings with termen slightly waved .....(28) *euryphaea*.  
 " " in ♂ moderately waved, in ♀ dentate .....(29) *hyparcha*.  
 8. First line nearly approximated to median .....(4) *epicyma*.  
 " remote from median .....9.  
 9. Discal spot of forewings very long-transverse, dark, conspicuous.....(1) *sygonopa*.  
 " " oval, indistinct or obsolete .....10.  
 10. Discal spot annular .....(2) *arboricolans*.  
 " not annular .....11.  
 11. Second line of forewings slightly curved; expanse 42 mm. ....(8) *homotrias*.  
 " " moderately curved; expanse not over 38 mm. ....12.  
 12. Second line of forewings nearly approximated to median on dorsal  
 third (Oahu species) .....(3) *caryopsis*.  
 " " not markedly approximated to median .....13.  
 13. Forewings with discal dot separate (Maui species) .....(5) *corticea*.  
 " " absorbed or obsolete .....14.  
 14. Hindwings with termen waved (Hawaii species) .....(7) *aruraca*.  
 " " dentate (Kauai species).....(6) *isospora*.  
 15. First line of forewings bent or angulated in middle .....16.  
 " " " above middle .....17.  
 16. Forewings whitish-ochreous, median line well-marked .....(11) *anagraptis*.  
 " fuscous or brownish-ochreous, median line absent .....(10) *trapezias*.  
 17. Apex of forewings distinctly prominent .....(15) *goniastis*.  
 " " not prominent .....18.

A. MALES (9 *hecataea*, and 20 *platycapna* unknown).

18. Forewings with glandular patch of modified whitish-ochreous scales  
 beneath in cell .....(22) *trachyopsis*.  
 " without such patch.....19.  
 19. Antennal pectinations irregularly blotched with dark fuscous.....20.  
 " " evenly dark-lined.....23.  
 20. Abdomen  $1\frac{1}{3}$ — $1\frac{1}{2}$  .....21.  
 " almost 2 .....(23) *macrosoma*.  
 21. Discal spot of forewings whitish .....(21) *nephelosticta*.  
 " " not whitish .....22.  
 22. Forewings fuscous or dark fuscous; posterior tarsi  $\frac{4}{5}$  .....(19) *capnopa*.  
 " ochreous-fuscous, reddish-tinged; posterior tarsi  $\frac{3}{5}$ .....(18) *triscia*.  
 23. Abdomen  $1$ — $1\frac{1}{4}$ .....24.  
 "  $1\frac{1}{2}$  .....25.  
 24. Forewings light fuscous, discal spot broader, roundish .....(12) *idolias*.  
 " brownish-ochreous or fuscous, sometimes ferruginous-tinged,  
 discal spot narrower, lunate .....(13) *paludicola*.  
 25. Forewings with apical spot of pale suffusion.....26.  
 " without such spot .....27.  
 26. Forewings with dorsal edge and terminal cilia clear pale yellowish .....(25) *artemidora*.  
 " " " " not pale .....(24) *pachyspila*.

27. Posterior tarsi  $\frac{1}{2}$  .....(26) *brachytarsa*.  
 „  $\frac{3}{4}$ — $\frac{4}{5}$  .....(27) *rara*.

## B. FEMALES.

18. Forewings with discal spot broad, not lunate .....19.  
 „ „ narrow, lunate .....21.  
 19. Discal spot roundish; expanse 33 mm. or less .....(12) *idolias*.  
 „ trapezoidal, dilated beneath; expanse 40 mm. or more.....20.  
 20. Forewings narrower, ferruginous-tinged .....(22) *trachyopsis*.  
 „ less narrow, not ferruginous-tinged .....(23) *macrosoma*.  
 21. Median shade much broader than other lines, distinct .....(9) *hecataea*.  
 „ not or little broader, generally obsolete .....22.  
 22. Forewings with apical spot of pale suffusion.....23.  
 „ without such spot .....24.  
 23. Forewings with dorsal edge and terminal cilia clear pale yellowish .....(25) *artemidora*.  
 „ „ „ not pale.....(24) *pachyspila*.  
 24. First and second lines dark-dotted.....25.  
 „ „ not dark-dotted .. .....28.  
 25. Termen of forewings gently waved.....26.  
 „ „ moderately waved.....27.  
 26. Expanse 45 mm. or more .....(27) *rara*.  
 „ 44 mm. or less .....(13) *paludicola*.  
 27. Lines and discal spot usually strongly marked (Kauai species).....(21) *nephelosticta*.  
 „ „ rather obscurely marked (Hawaii species) .....(26) *brachytarsa*.  
 28. Head and thorax dark fuscous .....29.  
 „ „ brown, somewhat reddish-tinged .....(18) *triscia*.  
 29. Forewings broader, lines obsolete .....(20) *platycapna*.  
 „ less broad, lines distinct .....(19) *capnopa*.

(1) *Scotorythra syngonopa*, sp. nov.

♂. 43 mm. Head and thorax light grey, patagia whitish towards tips. Antennae white, faintly greyish-ringed, pectinations 10, laterally black-lined. Abdomen  $1\frac{1}{2}$ , grey, segmental margins white, anal tuft ochreous-whitish. Legs grey, posterior tibiae whitish-mixed, dilated, enclosing a whitish hair-pencil, posterior tarsi  $\frac{3}{4}$ . Forewings somewhat elongate-triangular, termen rather obliquely rounded, faintly waved, dorsum more rounded than usual; light ochreous-grey, finely strigulated with rather dark fuscous; costa with some irregularly strewn ochreous-white strigulae; first, median, and second lines forming cloudy darker fuscous shades, first faint, curved, median faint, sinuate, towards dorsum more distinct and subconfluent with second, second posteriorly tolerably well-defined and partially obscurely pale-edged, waved, moderately curved outwards on upper  $\frac{2}{3}$  and inwards near dorsum; discal spot very long-transverse, cloudy, rather dark fuscous. Hindwings with termen waved; colour and markings

as in forewings, but first line obsolete, second hardly curved inwards near dorsum, discal spot much smaller and less distinct. (Plate IV. fig. 28.)

1 specimen, Waimea Mts., Kauai, at 4000 feet, in May. Rather markedly distinct by its size, grey-striated appearance, more rounded dorsum of forewings, length of discal spot, and form of second line.

(2) *Scotorythra arboricolans* Butl.

*Scotorythra arboricolans* (prav. form.) Butl. Ent. Mo. Mag. XIX. p. 177.

♂ ♀. 27—35 mm. Head, thorax, and abdomen varying from light fuscous or grey to (in ♀) whitish-ochreous, abdomen in ♂  $1\frac{1}{8}$ — $1\frac{1}{4}$ , segmental margins white. Antennae whitish-grey or ochreous-whitish, darker-ringed, pectinations in ♂ 7—8, whitish, laterally black-lined. Legs grey, posterior tibiae whitish-mixed, in ♂ somewhat dilated, enclosing a whitish hair-pencil, posterior tarsi in ♂  $\frac{5}{8}$  to almost 1. Forewings somewhat elongate-triangular, termen in ♂ faintly, in ♀ more distinctly sinuate beneath apex, bowed, rather oblique; in ♂ fuscous or grey, varying in depth, more or less densely strigulated with dark fuscous, in ♀ brownish-ochreous to ochreous-whitish, densely strigulated with fuscous; first and second lines indistinctly darker, obscurely dotted with blackish, second sometimes posteriorly pale-edged, in one ♀ first obsolete and second represented by a white streak, first slightly curved, second with upper  $\frac{2}{3}$  moderately curved or bent outwards; a transverse-oval discal spot indistinctly dark-outlined, sometimes traversed by a dark fuscous median shade; seldom a darker praesubterminal shade and subapical suffusion. Hindwings with termen waved; colour, discal spot, median shade, second line, and praesubterminal shade as in forewings.

12 specimens; 10 Kona, Hawaii, at 2000—4000 feet; 1 Kilauea, Hawaii; 1 Lanai, at 3000 feet; from July to September. Butler's type was from Lanai, and I have also two other specimens of Mr Blackburn's from the same locality. A very variable species, but easy of recognition; its comparatively small size, greyish colouring, outlined discal spot, and form of second line are its most prominent characters.

(3) *Scotorythra caryopsis*, sp. nov.

♂, 24—26 mm.; ♀, 30 mm. Head, thorax, and abdomen in ♂ light reddish-ochreous, in ♀ whitish-ochreous, abdomen sprinkled with dark fuscous, in ♂  $1\frac{1}{2}$ . Antennae whitish-ochreous, fuscous-ringed, pectinations in ♂ 7, blackish-lined. Posterior tibiae in ♂ moderately dilated, enclosing a whitish-ochreous hair-pencil, posterior tarsi in ♂  $\frac{3}{4}$ . Forewings rather elongate-triangular, termen slightly waved, bowed, rather oblique, in ♀ more oblique and somewhat sinuate beneath apex; in ♂

reddish-ochreous or reddish-ochreous-brown, strigulated with dark fuscous, in ♀ whitish-ochreous irrorated with dark fuscous; first line curved, in ♂ partially marked with dark fuscous, in ♀ with three dark fuscous dots; median more or less dark, curved outwards on upper half; a transverse-oval fuscous discal spot before median, sometimes obsolete; second line waved, in ♂ more or less dark-marked, in ♀ dotted with dark fuscous, curved outwards on upper  $\frac{2}{3}$ , nearly approximated to median on lower third, space between these sometimes suffused with dark fuscous in middle and on dorsum; subterminal faintly indicated; sometimes an oblique dark subapical streak. Hindwings with termen waved; colour and lines as in forewings, but first line obsolete, median and second not much approximated dorsally.

4 specimens; 3 near Honolulu, Oahu, at 2000 feet; 1 Pauoa Valley, Oahu, at 1500 feet; in March, April, and October. This species, *isospora*, *aruraea*, and probably *corticea*, are closely related together, and may be regarded as representative forms of a common stock, each being confined to a different island. This species is particularly distinguished by the dorsal approximation of the median and second lines of forewings; it is also the smallest in average size.

(4) *Scotorythra epicyma*, sp. nov.

♀. 43 mm. Head and thorax light ferruginous-brown. Antennae pale brownish-ochreous. Abdomen brownish-ochreous, sprinkled with dark fuscous. Forewings rather elongate-triangular, apex slightly prominent, termen somewhat bowed, little oblique; ferruginous-brown, slightly sprinkled with blackish; first, median, second, and praesubterminal thick cloudy dark fuscous shades, three former rather near together, first and second waved, hardly curved, not reaching costa, median and praesubterminal almost straight, entire, but latter faint at tornus; a cloudy dark fuscous terminal patch beneath apex. Hindwings with termen hardly waved; colour, median, second, and praesubterminal shades, connecting blotch, and subapical suffusion as in forewings.

1 specimen, Kaholuamano, Kauai, at 4000 feet, in April. Evidently allied to the *isospora* group, but distinguished from them all by the straighter lines, larger size, and hardly waved termen of hindwings; the dark suffusion of the markings is probably variable as in the allied species.

(5) *Scotorythra corticea* Butl.

*Scotosia corticea* Butl. Ann. Mag. N. H. (5) VII., 1881, p. 319; Ent. Mo. Mag. XIX. p. 177.

♀. 35 mm. Head, thorax, and abdomen brownish, segmental margins finely whitish. Antennae ochreous-whitish, hardly ringed. Forewings rather elongate-



triangular, termen somewhat bowed, oblique; brown, strigulated with dark fuscous; first and second lines cloudy, fuscous, marked with dark fuscous dots on veins, first moderately curved towards costa, second curved outwards on upper  $\frac{2}{3}$ , rather sinuate inwards towards dorsum; median shade thick, rather dark fuscous, sinuate; an ill-defined dark discal dot before this; a cloudy rather dark fuscous praesubterminal shade. Hindwings with termen moderately waved; colour and markings as in forewings, but first line absent, median and second lines little curved, more cloudy, praesubterminal little marked.

Mr Perkins obtained no specimens of this form; I have described the type in the British Museum collection, from Haleakala, Maui, at 4000 feet. There should have been a second specimen in Mr Blackburn's collection, but it seems to have been lost. The type is a partially deformed female, but there is no doubt of its distinctness from all others except *S. aruraea*; from this it differs only by the more sinuate median and second lines of the forewings, and apparently separate (though little-defined) discal dot; as the two forms are from different islands, and the other most closely allied species are each apparently confined to a single island, I have thought it best (in the absence of the male of *corticea*) to keep them as separate species until further material is available.

(6) *Scotorythra isospora*, sp. nov.

♂ ♀. 26—36 mm. Head and thorax in ♂ brownish, sometimes pale-sprinkled, in ♀ light greyish-ochreous. Antennae whitish or ochreous-whitish, faintly fuscous-ringed, pectinations in ♂ 7—8, laterally blackish-lined. Abdomen in ♂  $1\frac{1}{4}$ , brownish, sprinkled with dark fuscous, segmental margins and anal tuft ochreous-whitish, in ♀ pale greyish-ochreous sprinkled with dark fuscous. Legs in ♂ fuscous, posterior tibiae whitish-mixed, somewhat dilated, enclosing an ochreous-whitish hair-pencil, in ♀ ochreous-whitish sprinkled with dark fuscous, posterior tarsi in ♂  $\frac{3}{4}$ . Forewings rather elongate-triangular, termen faintly sinuate beneath apex, bowed, oblique, waved, in ♀ more strongly; brownish-ochreous in ♂, light greyish-ochreous in ♀, more or less densely strigulated with dark fuscous; first and second lines cloudy, indistinct, darker, marked with dark fuscous or blackish dots on veins, first curved, second waved, moderately curved, slightly sinuate inwards near dorsum; median shade broader, cloudy, somewhat sinuate, in ♀ seldom also black-dotted on veins; no discal spot; in ♀ sometimes a more or less developed broad fuscous suffusion in disc posteriorly beneath median vein, extending obliquely upwards to termen beneath apex. Hindwings with termen dentate; colour and markings as in forewings, but first line obsolete.

28 specimens; 17 Kaholuamano, Kauai, at 4000 feet; 11 Waimea Mts., Kauai, at 4000 feet; from April to June. Differs from its nearest allies by the dentate termen of hindwings, usually also by the paler colouring and more conspicuously dotted lines.

(7) *Scotorythra aruraea*, sp. nov.

♂ ♀. 31—38 mm. Head and thorax in ♂ brownish, in ♀ light brownish-ochreous. Antennae whitish-ochreous, fuscous-ringed, pectinations in ♂ 8—9, laterally blackish-lined. Abdomen in ♂  $1\frac{1}{4}$ , brownish, segmental margins ochreous-whitish, in ♀ whitish-ochreous sprinkled with dark fuscous. Legs in ♂ fuscous, posterior tibiae mixed with whitish-ochreous, somewhat dilated, enclosing a pale brownish-ochreous hair-pencil, in ♀ whitish sprinkled with dark fuscous, posterior tarsi in ♂  $\frac{5}{8}$ . Forewings rather elongate-triangular, termen in ♂ rather obliquely rounded, slightly waved, in ♀ rather obliquely bowed, hardly sinuate beneath apex, waved; light ochreous-brown in ♂, pale brownish-ochreous to ochreous-brown in ♀, finely strigulated with dark fuscous; first, median, and second lines darker, indistinct (in ♀ sometimes well-marked), first and second more or less distinctly dotted with dark fuscous, first bent near costa, median rather curved, second moderately curved on upper  $\frac{2}{3}$ ; a very indistinct darker transverse discal spot, absorbed in median line; in one strongly-marked ♀ a fuscous suffused patch extending from middle of disc to termen, except towards costa and dorsum, and a praesubterminal shade. Hindwings with termen waved; colour and markings as in forewings, but first line obsolete, discal spot imperceptible. (Plate IV. fig. 29.)

13 specimens; 4 Kona, Hawaii, at 4000 feet; 8 Kilauea, Hawaii; 1 Olaa, Hawaii; from June to September, and in December. The females vary much in depth of colouring, one being darker than any male, though most are lighter. Closely allied to *S. isospora*, from which it may be distinguished especially by the waved, not dentate, termen of hindwings; the average size is larger, the general colouring warmer and deeper, and the forewings in the ♂ are without trace of the subapical sinuation, which is faint yet perceptible in *S. isospora*; the posterior tarsi in the ♂ are relatively longer.

(8) *Scotorythra homotrias*, sp. nov.

♀. 42 mm. Head, thorax, and abdomen light brownish-ochreous, abdomen sprinkled with dark fuscous. Antennae whitish-ochreous, ringed with dark fuscous. Forewings triangular, termen hardly waved, slightly bowed, oblique; brownish-ochreous, faintly purplish-tinged, obscurely strigulated with dark fuscous, costa paler and sharply strigulated; first, median, and second lines indistinct, deeper ochreous, slightly curved, nearly parallel and equidistant, first and second marked with series of blackish dots; a hardly darker praesubterminal shade. Hindwings with termen gently waved; colour and lines as in forewings, but colour rather deeper and yellower ochreous, first line obsolete, others faint.

1 specimen, Olaa, Hawaii, in September. Differs from the preceding group by the larger size, less curved termen and lines, and less waved termen of hindwings; the colouring is much as in *S. aruraea*.

(9) *Scotorythra hecataea*, sp. nov.

♀. 39 mm. Head and thorax pale greyish-ochreous. Antennae whitish-ochreous, suffusedly ringed with fuscous. Abdomen pale greyish-ochreous, somewhat sprinkled with dark fuscous. Legs pale greyish-ochreous, mottled with dark fuscous. Forewings elongate-triangular, termen hardly waved, faintly sinuate beneath apex, bowed, oblique; pale greyish-ochreous, irregularly strigulated with dark fuscous; first line ferruginous, strongly curved above middle; a broad cloudy straight median shade of ferruginous and fuscous suffusion, in which is placed a curved-linear transverse whitish discal mark; second line faintly whitish, edged anteriorly by a series of ferruginous dots parallel to termen throughout; a terminal band of ferruginous suffusion, terminated above by an oblique subapical streak, and enclosing a slender pale subterminal line. Hindwings with termen waved; light grey, sprinkled with dark grey; a fine indistinct dark grey postmedian dotted line.

1 specimen, Waimea Mts., Kauai, at 4000 feet, in May. This species seems to stand rather isolated; the form of the second line of the forewings is rather peculiar, and the sinuate termen, curved-linear pale discal mark, broad median shade, and ferruginous colouring are characteristic features.

(10) *Scotorythra trapezias*, sp. nov.

♂ ♀. 26—35 mm. Head and thorax fuscous, sometimes darker or reddish-tinged, thorax with two small posterior whitish tufts, crown and thorax sometimes spotted with whitish. Antennae whitish, irregularly spotted with dark fuscous, pectinations 6—7, irregularly blotched. Abdomen pale fuscous sprinkled with darker, in ♂  $1\frac{1}{3}$ . Legs dark fuscous irregularly spotted with pale whitish-ochreous, posterior tibiae in ♂ rather dilated, enclosing a pale brownish-ochreous hair-pencil, posterior tarsi in ♂  $\frac{4}{5}$ . Forewings somewhat elongate-triangular, termen bowed, rather oblique; brownish-ochreous or fuscous, usually somewhat reddish-tinged, with scattered black scales, veins in one specimen pale ochreous-yellow; first line darker, on upper half stronger and blackish, sometimes dilated anteriorly to form a blackish spot above middle, somewhat bent near costa, acutely angulated in middle, sinuate inwards towards dorsum; a trapezoidal lighter or sometimes white blotch occupying cell beyond this, broadest above, upper edge parallel to costa, posterior edge formed by a sinuate inwardly oblique fine blackish line, sometimes followed by a blackish suffusion which in one specimen invades lower portion of the blotch (perhaps representing median line, which is not otherwise indicated); discal spot crescentic, yellow-ochreous or whitish-ochreous or more often quite obsolete, sometimes partially irregularly edged with black; sometimes a whitish

suffusion towards costa beyond this; second line fine, pale, sometimes dotted with ochreous-whitish, edged anteriorly with blackish dots and posteriorly with a line of ground-colour, nearly straight, sinuate outwards in middle; beyond this a band of paler suffusion, strigulated with dark grey; subterminal line sometimes indistinctly pale, anteriorly darker-edged; a terminal series of dark fuscous dots. Hindwings with termen somewhat waved; grey; an indistinct darker discal mark and postmedian series of dots. (Plate IV. fig. 30.)

27 specimens; 20 Kaholuamano, Kauai; 7 Waimea Mts., Kauai, at 4000 feet; from April to June. Varies considerably, but easily distinguished from all others by the peculiar form of the strongly marked first line, and the pale blotch following it.

(11) *Scotorythra anagraptis*, sp. nov.

♀. 38 mm. Head, thorax, and abdomen whitish-ochreous, partly brownish-tinged. Antennae whitish-ochreous, scantily irregularly spotted with dark fuscous. Legs dark fuscous, ringed with whitish-ochreous, posterior pair whitish-ochreous, marbled with fuscous. Forewings very elongate-triangular, termen waved, bowed, oblique; whitish-ochreous, with some scattered black scales; a patch of brownish suffusion towards base of dorsum; first line pale, edged anteriorly with brown and posteriorly with black, very strongly curved, slightly angular somewhat below middle; median brown, black-mixed on upper half, twice sharply angulated outwards in disc, nearly followed by a lunate dark grey discal spot lying between the angulations; second pale, edged anteriorly by a black waved line and posteriorly by a brownish shade, nearly parallel to termen, somewhat curved outwards in middle, sinuate inwards above this and towards dorsum; subterminal slender, pale, waved, preceded by an undefined brownish shade marked with several small blackish spots, and followed towards apex by a brownish suffusion, leaving a pale apical patch; a terminal series of large round black dots. Hindwings with termen unevenly waved; pale grey; a darker discal mark and postmedian series of dots.

1 specimen, Kauai, at 4000 feet, without further data. Also a very distinct species, especially through the peculiar form of the first and median lines.

(12) *Scotorythra idolias*, sp. nov.

♂ ♀. 28—33 mm. Head and thorax light brown. Antennae pale greyish-ochreous, in ♀ obscurely fuscous-ringed, pectinations 7, whitish, laterally blackish-lined. Abdomen light greyish-ochreous, in ♂  $1-1\frac{1}{6}$ . Legs whitish-ochreous mottled with fuscous, posterior tibiae in ♂ hardly dilated, enclosing a whitish hair-pencil, posterior tarsi in ♂

$\frac{3}{4}$ — $\frac{4}{5}$ . Forewings somewhat elongate-triangular, termen in ♂ strongly rounded, little oblique, in ♀ rather obliquely bowed; light fuscous, sometimes ochreous-tinged, sprinkled with blackish dots tending to form strigulae; first and second lines fuscous dotted with blackish, first strongly curved, more or less abruptly bent near costa, second nearly straight, sinuate inwards above middle and more widely towards dorsum; median line absent; a large undefined roundish dark fuscous discal spot, sometimes with pale linear central mark; an indistinct more or less interrupted fuscous praesubterminal shade; a terminal series of large blackish dots. Hindwings with termen unevenly waved; whitish-fuscous; a faint grey discal mark and postmedian series of dots. (Plate IV. fig. 31.)

88 specimens; 86, all ♂, Kilauea, Hawaii, in July and August; 2 ♀ Olaa, Hawaii, in September. That the consignment of 86 specimens from Kilauea should not have included a single female is very curious; generally in this genus more females were sent than males. The species is readily recognised by its small size, uniform light fuscous colouring, strongly dotted lines, large roundish discal spot, and entire absence of median line; it varies extremely little.

(13) *Scotorythra paludicola* Butl.

*Pseudocoremia paludicola* Butl. Ent. Mo. Mag. xv. p. 272.

♂ 28—36 mm., ♀ 31—44 mm. Head and thorax fuscous or reddish-ochreous-brown, crown seldom yellowish, thorax sometimes with posterior extremity whitish. Antennae light ochreous, thinly irregularly spotted with fuscous, pectinations 8, whitish, laterally blackish-lined. Abdomen greyish-ochreous, in ♂  $1\frac{1}{4}$ . Legs light brownish-ochreous, spotted and partly suffused with dark fuscous, posterior tibiae in ♂ little dilated, enclosing a whitish hair-pencil, posterior tarsi in ♂ almost 1. Forewings somewhat elongate-triangular, termen slightly waved, in ♂ strongly bowed, little oblique, in ♀ rather obliquely bowed; varying from light brownish-ochreous to fuscous or ferruginous, more or less sprinkled with dark fuscous or blackish dots tending to form strigulae; in one rather dark fuscous ♀ there is an ochreous-whitish subcostal streak from base to  $\frac{2}{3}$ , leaving costal edge ferruginous; median band sometimes darker, in one ♂ enclosed by broad fasciae of whitish-ochreous suffusion, in ♀ sometimes enclosed by fasciae of light ferruginous-ochreous suffusion; first and second lines indistinctly darker, conspicuously dotted with blackish or dark fuscous, first rather strongly curved, sometimes obtusely angulated above middle, second tolerably straight, sinuate inwards above middle and more widely towards dorsum; median line absent; a moderate lunate dark fuscous discal spot, usually with more or less distinct pale central linear mark; subterminal line sometimes obscurely pale; usually a terminal series of large dark fuscous or blackish dots. Hindwings with termen unevenly waved; light grey; an indistinct darker discal mark and postmedian series of dots.

28 specimens; 21 Haleakala, Maui, at 5000 feet; 2 Waimea Mts., Kauai, at 4000 feet; 1 Kaholuamano, Kauai, at 4000 feet; 3 Kilauea, Hawaii; 1 Hilo, Hawaii, at 2000 feet; in January, from March to May, and in August. Closely allied to *S. idolias*, but instead of being very constant it is very variable; it differs further in the deeper and brighter colouring, narrower and more lunate discal spot, and frequently larger size, as also in the greater proportionate length of the abdomen and posterior tarsi of the male. The female is best distinguished from the same sex of *S. rara* by the smaller size, and lighter and more ferruginous colouring. The Kauai specimens, being only females, might possibly be found to represent a distinct species.

(14) *Scotorythra demetrius*, sp. nov.

♂ 32 mm., ♀ 43 mm. Head and thorax pale ferruginous-ochreous, darker in ♀. Antennae ochreous-whitish, pectinations 6, blackish-lined. Abdomen whitish-ochreous, in ♂  $1\frac{2}{3}$ . Legs pale ochreous, posterior tibiae in ♂ hardly dilated, enclosing an ochreous-whitish hair-pencil, posterior tarsi in ♂  $\frac{3}{4}$ . Forewings elongate-triangular, termen bowed, oblique, more so in ♀, not waved; in ♂ yellow-ochreous, with scattered fine dark fuscous strigulae, in ♀ ferruginous-ochreous; first and second lines well-marked, dark fuscous, first almost straight, slightly bent near costa, second slightly bent in middle, faintly sinuate inwards towards dorsum, in ♀ first preceded and second followed by a fuscous-tinged fascia; discal spot narrow, transverse, light fuscous, undefined. Hindwings with termen unevenly rounded; ochreous-whitish, more ochreous-tinged terminally; a fuscous median line, angulated in middle. (Plate IV. fig. 32.)

2 specimens, Kilauea, Hawaii, in August. A very distinct species, well characterised by the ochreous-whitish hindwings, with entire fuscous line.

(15) *Scotorythra goniastis*, sp. nov.

♂ 36 mm., ♀ 48 mm. Head and thorax fuscous. Antennae fuscous-whitish, pectinations in ♂ 6, blackish-lined. Abdomen whitish-fuscous, in ♂  $1\frac{2}{3}$ . Legs fuscous-whitish, somewhat fuscous-mixed, posterior tibiae in ♂ dilated, enclosing a light fuscous hair-pencil, posterior tarsi in ♂  $\frac{7}{8}$ . Forewings elongate-triangular, apex distinctly prominent, termen somewhat sinuate beneath apex, bowed, rather oblique; light fuscous, in ♂ strigulated with darker, in ♀ deeper and faintly ochreous-tinged; in ♀ costal edge and all veins ochreous-white; first and second lines in ♂ dark fuscous accompanied externally by a second less dark line, in ♀ ochreous-white, first strongly angulated near costa, second rather irregular, hardly prominent in middle, sinuate inwards towards dorsum; discal spot narrow, transverse, somewhat lunate, in ♂ outlined

with dark fuscous, in ♀ ochreous-white; a terminal series of dark fuscous dots. Hindwings with termen slightly waved; pale fuscous; a faint postmedian series of darker dots.

2 specimens received by me from Mr Blackburn; locality not indicated, but not improbably Haleakala, Maui. The white veins and markings of the female specimen are very possibly not constant. The species is best recognised (except from *S. ortharcha*) by the prominent apex of the forewings; the proportionately long abdomen of the male, the unspotted shaft of antennae, and the strongly angulated first line are also notable characters.

(16) *Scotorythra ortharcha*, sp. nov.

♂♀. 32—39 mm. Head and thorax dark grey or ashy-fuscous, sometimes irrorated with black. Antennae fuscous spotted with black, pectinations 7, whitish, laterally black-lined. Abdomen pale grey, sometimes sprinkled with black, in ♂  $1\frac{1}{2}$ . Legs dark grey, tips of joints whitish, posterior tibiae in ♂ little dilated, enclosing a whitish hair-pencil, posterior tarsi in ♂  $\frac{5}{8}$ . Forewings rather elongate-triangular, apex distinctly prominent, termen sinuate beneath apex, bowed, waved, oblique; purple-whitish to light fuscous, sometimes partially bluish-tinged, densely strigulated with dark fuscous or blackish; first line pale, more or less obscure, placed in a dark fuscous fascia of which the anterior edge is quite straight and sharply defined, posterior less sharp; a cloudy rather dark fuscous straight median shade, preceding discal spot, which is curved-linear, pale or white, black-edged; second line slender, whitish, interrupted, sinuate inwards above middle and more widely towards dorsum, suffusedly edged with dark fuscous; subterminal line pale or nearly obsolete, especially towards dorsum, posteriorly edged by a darker shade; a terminal series of blackish dots. Hindwings with termen waved; grey; a fine irregular waved darker postmedian line, followed by a faint less dark shade. (Plate V. fig. 1.)

9 specimens, Olaa, Hawaii, at 2000 feet, from September to November. This and the following species are distinguished from all others by the entire waved line of the grey hindwings, and also by their usually bluish-tinged forewings; they are separated from each other by the difference in the first line, which in *S. ortharcha* is practically straight, in *S. oxyphractis* acutely angulated near costa.

(17) *Scotorythra oxyphractis*, sp. nov.

♂ 35—45 mm., ♀ 37—51 mm. Head and thorax dark brown sprinkled with white. Antennae in ♂ yellow-ochreous, pectinations 8—9, whitish above, elsewhere dark

fuscous, in ♀ brownish-ochreous. Abdomen pale grey, in ♂  $1\frac{1}{3}$ . Legs pale greyish-ochreous, mixed or suffused with dark grey, posterior tibiae in ♂ hardly dilated, enclosing a whitish hair-pencil, posterior tarsi in ♂ nearly 1. Forewings somewhat elongate-triangular, termen waved, bowed, rather oblique; dark fuscous, sometimes ferruginous-tinged, irrorated with pale shining purple-bluish or blue-whitish, sometimes very sparsely; first line slender, obscure, of pale irroration sometimes marked with yellow-ochreous dots on veins, enclosed in a dark fuscous fascia, acutely angulated above middle, bent or sinuate inwards towards dorsum; discal spot transverse-oval, blackish-fuscous, sometimes enclosing a curved linear pale bluish mark, which in one ♂ is edged with bright ferruginous, or in ♀ sometimes wholly blue-whitish, lunate, without dark edging; seldom a faint dark median shade beyond this; second line fine, pale, very obscure, sharply edged anteriorly with dark fuscous, sometimes marked with yellow-ochreous dots on veins, irregularly waved, sinuate inwards above middle and towards dorsum; subterminal line slender, pale, usually almost obsolete except on costal third, where it is preceded by a dark shade; a terminal series of blackish dots. Hindwings with termen waved; grey; an irregularly waved dark grey post-median line.

10 specimens; 9 Oloa, Hawaii; 1 Hilo, Hawaii; in January, June, September, and December. Allied to the preceding species, but perhaps not so nearly as the close superficial resemblance leads one to believe, since when carefully considered they differ in many respects; the acutely angulated first line is the obvious distinction.

(18) *Scotorythra triscia*, sp. nov.

♂ ♀. 36—40 mm. Head and thorax brown, somewhat tinged with reddish. Antennae in ♂ ochreous-whitish, spotted with dark fuscous, pectinations 5—6, irregularly blotched, in ♀ yellow-ochreous, obscurely spotted. Abdomen light ochreous-grey, in ♂  $1\frac{1}{2}$ . Legs ochreous-whitish, spotted with dark fuscous, posterior tibiae in ♂ dilated, enclosing a whitish hair-pencil, posterior tarsi in ♂  $\frac{2}{3}$ . Forewings elongate-triangular, termen hardly waved, bowed, rather oblique; brownish-ochreous or ochreous-fuscous, tinged with reddish and strigulated with dark fuscous; first, median, and second lines represented by thick undefined darker shades, first bent near costa, median nearly straight, second somewhat bisinuate; subterminal line represented by a narrower dark shade, sometimes obsolete; discal spot merged in median shade, obsolete. Hindwings with termen hardly waved; whitish-grey, obscurely strigulated with darker grey; a small dark grey discal spot, and postmedian series of dots.

12 specimens, Wailuku, Maui, from August to October. Constant; although not conspicuous, it is easily recognised by the uniform light reddish-fuscous colouring and three darker shades; the posterior tarsi of the male are also unusually short, though not so short as in *S. brachytarsa*.



(19) *Scotorythra capnopa*, sp. nov.

♂ ♀. 36—39 mm. Head and thorax dark fuscous. Antennae whitish, blotched or in ♀ almost wholly suffused with dark fuscous, pectinations 6, irregularly blotched. Abdomen grey, in ♂  $1\frac{1}{3}$ . Legs dark fuscous, spotted with ochreous-whitish, posterior tibiae in ♂ dilated, enclosing an ochreous-whitish hair-pencil, posterior tarsi in ♂  $\frac{4}{5}$ . Forewings elongate-triangular, termen waved, bowed, rather oblique; fuscous, strigulated or almost wholly suffused with dark fuscous, veins partly ochreous-tinged; first and second lines blackish-fuscous, edged externally with dark fuscous shades, irregular, first gently curved, second sinuate inwards above middle and more widely towards dorsum; discal spot large, transverse-oval, usually only obscurely darker-outlined, in one ♀ mixed with ochreous; between second and subterminal lines a somewhat lighter fascia, in one ♂ brownish-ochreous; subterminal line only indicated by an undefined dark brown shade; sometimes a terminal series of pale ochreous dots. Hindwings with termen waved; grey, darker posteriorly, indistinctly darker-strigulated; a faint darker discal spot.

9 specimens, Olaa, Hawaii, in June and September. Characterised by the rather small size and dark colouring, with darker shades attached to first and second lines.

(20) *Scotorythra platycapna*, sp. nov.

♀. 47 mm. Head, thorax, and abdomen rather dark fuscous, pale-sprinkled. Antennae light greyish-ochreous, fuscous-sprinkled. Legs pale greyish-ochreous spotted with dark fuscous. Forewings triangular, termen waved, rather strongly bowed, oblique; rather dark fuscous, darker-irrorated; veins posteriorly and costal edge obscurely ochreous; a curved band of obscure ochreous suffusion towards base, and a nearly straight one at about  $\frac{4}{5}$ , enclosing unusually broad median band; lines obsolete; a linear curved transverse grey discal spot, edged anteriorly with dark fuscous suffusion, and posteriorly with two small dark fuscous spots. Hindwings with termen unevenly waved; fuscous, obscurely darker-strigulated.

1 specimen, Waimea Mts., Kauai, at 4000 feet, in May. A peculiar form of dubious specific relationship; the unusually broad forewings (especially for a female), the obsolescence of all lines, and character of the discal spot are the most noticeable points, but the male may differ considerably in appearance.

(21) *Scotorythra nephelosticta*, sp. nov.

♂ 34—42 mm., ♀ 42—49 mm. Head and thorax dark brown or dark fuscous. Antennae ochreous-whitish, irregularly spotted and in ♀ mostly suffused with dark fuscous, pectinations 7—8, irregularly blotched. Abdomen pale fuscous, in ♂  $1\frac{1}{2}$ .

Legs dark fuscous ringed with whitish-ochreous, posterior pair whitish-ochreous marbled with dark fuscous, posterior tibiae in ♂ dilated, enclosing an ochreous-whitish hair-pencil, posterior tarsi in ♂  $\frac{5}{6}$ . Forewings elongate-triangular, termen bowed, waved, rather oblique; dark brown or dark fuscous, strigulated with blackish, median band in ♂ broader than usual and generally enclosed by fasciae of lighter brown or sometimes pale brownish-ochreous; first and second lines formed of rather large blackish dots on veins, in ♀ sometimes waved, entire, first curved, bent near costa, second sometimes accompanied by fine whitish dots, sinuate inwards above middle and towards dorsum; discal spot in ♂ undefined, suboval, transverse, white or ochreous-whitish, sometimes seeming a group of dots, in ♀ lunate, hardly paler, dark-edged; subterminal line sometimes obscurely indicated with pale brownish-ochreous or whitish scales; sometimes a terminal series of fine pale brownish-ochreous dots. Hindwings with termen slightly waved, in ♀ more strongly; grey, lighter towards base, faintly darker-strigulated; a small discal mark in ♂ obscurely darker-outlined, in ♀ usually wholly dark; a postmedian series of darker dots.

25 specimens; 17 Kaholuamano, Kauai, at 4000 feet; 7 Waimea Mts., Kauai, at 4000 feet; 1 Makaweli, Kauai; from April to June. The ♂ is readily recognised amongst its near allies by the peculiar undefined whitish discal spot; the ♀ sometimes very closely resembles small dark examples of *S. rara*, but may be distinguished by the more waved termen of forewings.

(22) *Scotorythra trachyopsis*, sp. nov.

♂ ♀. 44—50 mm. Head and thorax brown, ferruginous-tinged. Antennae whitish-ochreous, irregularly spotted with fuscous or dark fuscous, pectinations 7—8, partially dark-speckled, base black. Abdomen pale brownish-ochreous, in ♂  $1\frac{1}{3}$ . Legs pale brownish-ochreous, spotted with fuscous or dark fuscous, posterior tibiae in ♂ considerably dilated, enclosing a pale whitish-ochreous hair-pencil. Forewings elongate-triangular, more elongate in ♀, termen bowed, oblique, in ♂ waved-dentate, in ♀ more oblique, waved; in ♂ beneath with elongate-oval glandular patch of modified whitish-ochreous scales in cell; ferruginous-brown, irregularly mixed with pale ochreous and blackish; first and second lines darker, waved-dentate, marked with large blackish dots, first angulated above middle, second sinuate inwards above middle and towards dorsum, median band narrower than usual; discal spot large, broad-reniform, dark, blackish-edged; subterminal line obscurely indicated, pale, edged anteriorly with darker suffusion; a terminal series of large blackish dots. Hindwings with termen somewhat waved; whitish-brownish, somewhat ochreous-tinged, indistinctly sprinkled with grey; discal mark and postmedian series of grey dots indistinct or sometimes hardly traceable; in ♂ beneath with scales somewhat modified towards upper posterior angle of cell.

4 specimens; 2 Waimea Mts., Kauai, at 4000 feet; 2 Kaholuamano, Kauai, at 4000 feet; from April to June. A peculiar species, distinguishable by the waved-dentate lines and unusually elongate forewings, with other characteristics; the ♂ differs from all by the glandular discal patch of scales beneath, which would admit of generic separation but does not seem to require it.

(23) *Scotorythra macrosoma*, sp. nov.

♂♀. 36—55 mm. (larger specimens usually ♀). Head and thorax brown or fuscous, sometimes mixed with whitish or dark fuscous, sometimes mostly suffused with whitish and then showing dark fuscous anterior band and two posterior transverse lines on thorax. Antennae whitish, irregularly spotted or blotched with dark fuscous, pectinations 6, irregularly blotched. Abdomen pale fuscous, somewhat darker-mixed, in ♂ almost 2. Legs whitish or ochreous-whitish, spotted and blotched with dark fuscous, posterior tibiae in ♂ dilated, enclosing a whitish-ochreous hair-pencil, posterior tarsi in ♂  $\frac{5}{8}$ . Forewings elongate-triangular, termen waved, bowed, oblique; varying from fuscous to light ochreous-brown or fuscous-whitish, rather thinly strewn with dark fuscous strigulae or dots; first and second lines darker, conspicuously dotted with dark fuscous on veins, first strongly curved, bent above middle and somewhat sinuate near dorsum, nearly preceded by a parallel dark shade which in pale specimens is very conspicuous, second waved, sinuate inwards above middle and towards dorsum, sometimes followed by an indistinct pale line and then by a dark shade; discal spot large, broadly dilated on lower half, wholly suffused with dark fuscous, sometimes preceded and followed by patches of white suffusion extending to first and second lines; subterminal line obscurely pale or seldom whitish, sometimes edged anteriorly with darker suffusion; sometimes an apical spot of pale suffusion, edged beneath with darker; a terminal series of dark fuscous dots. Hindwings with termen waved; fuscous or grey, lighter towards base, obscurely darker-strigulated; a dark grey transverse discal spot, and bisinuate postmedian series of dots. (Plate V. fig. 2.)

78 specimens; 63 Olaa, Hawaii; 3 Hilo, Hawaii; 2 Molokai; 6 Kaholuamano, Kauai, at 4000 feet; 4 Waimea Mts., Kauai, at 4000 feet; in January, April to June, September, November, and December. The ♂ differs from all by the peculiarly long abdomen; the species varies considerably in colour, but the characteristic large dark discal spot, dilated beneath, is always prominent, and renders it easy of recognition.

(24) *Scotorythra pachyspila*, sp. nov.

♂♀. 36—45 mm. Head and thorax fuscous, mixed with whitish and dark fuscous and sometimes with red-brown, crown and thorax sometimes wholly dark fuscous.

Antennae whitish-ochreous or pale brownish-ochreous, irregularly spotted and blotched or in one ♀ much suffused with dark fuscous, pectinations 6—7, lined with dark fuscous. Abdomen pale fuscous, somewhat darker-sprinkled, in ♂  $1\frac{1}{2}$ . Legs pale greyish-ochreous irregularly spotted with dark fuscous, posterior tibiae in ♂ dilated, enclosing a whitish hair-pencil, posterior tarsi in ♂  $\frac{5}{8}$ . Forewings elongate-triangular, termen bowed, oblique; ochreous-brown, fuscous, or bronzy-fuscous, mixed or strigulated with dark fuscous, sometimes partly suffused with ferruginous, sometimes mixed with greyish-yellowish; veins sometimes more or less clear ochreous-yellow; first and second lines usually whitish or pale yellowish, internally dark-edged, sometimes black-dotted, first strongly curved, somewhat bent near costa, second slightly waved, sinuate inwards above middle and more widely towards dorsum, somewhat projecting in middle; in ♀ median band sometimes enclosed by broad externally suffused light ochreous-yellow bands; a usually rather undefined dark fuscous discal blotch, dilated beneath, often enclosing a curved-linear ochreous-yellow transverse mark, sometimes preceded and followed by patches of ochreous-whitish suffusion; sometimes a faint dark median shade traversing this; subterminal line whitish, waved, terminating in a pale triangular apical patch; a terminal series of large dark fuscous dots. Hindwings with termen waved; pale grey; an indistinct dark grey discal mark and postmedian bisinuate series of dots. (Plate III. figs. 4, 4 a—4 d.)

16 specimens; 11 Oloa, Hawaii; 1 Kona, Hawaii, at 4000 feet; 1 Kilauea, Hawaii; 2 Lanai, at 3000 feet; 1 Haleakala, Maui, at 5000 feet; in July, and from September to December. Very variable; it cannot however well be confused with any other.

(25) *Scotorythra artemidora*, sp. nov.

♂♀. 35—37 mm. Head and thorax light brownish mixed with dark fuscous. Antennae pale brownish-ochreous, irregularly spotted with dark fuscous, pectinations 6—7, obscurely dark-lined. Abdomen pale fuscous, somewhat darker-sprinkled, in ♂  $1\frac{1}{2}$ . Legs pale greyish-ochreous, irregularly blotched with dark fuscous, posterior tibiae in ♂ dilated, enclosing a whitish hair-pencil, posterior tarsi in ♂  $\frac{5}{8}$ . Forewings elongate-triangular, termen bowed, oblique; brown, mixed with dark fuscous; first and second lines hardly paler fuscous, internally dark-edged, first strongly curved, somewhat bent near costa, second somewhat waved, rather sinuate inwards above middle and towards dorsum, somewhat projecting in middle; a curved narrow ochreous-yellow discal mark; subterminal line faint, obscurely grey-whitish; a small irregular blotch of pale suffusion before apex; a terminal series of dark fuscous dots; dorsal edge and terminal cilia clear whitish-ochreous or light yellowish. Hindwings with termen

unevenly waved; pale grey, posteriorly darker-strigulated; a pale dark-edged crescentic discal mark; a bisinuate postmedian series of dark grey dots.

2 specimens, Olaa, Hawaii, in September. Nearly allied to *S. pachyspila*, but distinguished from it and all other species by the clear whitish-ochreous dorsal edge and terminal cilia of the forewings.

(26) *Scotorythra brachytarsa*, sp. nov.

♂ 42—45 mm., ♀ 46—52 mm. Head fuscous to ochreous-brownish, seldom ferruginous or whitish. Antennae ochreous-whitish or (in ♀) pale ochreous, spotted with dark fuscous, pectinations 8, blackish-lined. Thorax fuscous or ochreous-brown, often with a more or less developed white or ochreous-yellowish posterior dot or spot. Abdomen pale fuscous, in ♂  $1\frac{1}{2}$ . Anterior and middle legs dark fuscous, femora paler, dark-spotted; posterior legs ochreous-white marbled with fuscous, tibiae in ♂ considerably dilated, enclosing an ochreous-whitish hair-pencil, tarsi in ♂  $\frac{1}{2}$ . Forewings rather elongate-triangular, termen moderately waved, bowed, rather oblique; rather dark fuscous, in ♀ sometimes suffused with ferruginous or ochreous-brown, median band sometimes enclosed (mostly in ♀) by broad lighter ochreous-brown fasciae; first and second lines formed of indistinct dark fuscous dots, often accompanied by whitish dots, in ♀ sometimes connected by waved dark lines, first curved, second sinuate inwards above middle and towards dorsum; discal spot narrow, crescentic, often pale or white or ochreous-yellow, sometimes only obscurely dark-outlined, followed by a faint darker median shade; subterminal line in ♀ often obscurely pale, waved, in ♂ only indicated by traces of a dark preceding shade; a terminal series of dark fuscous dots. Hindwings with termen gently waved; whitish-fuscous, becoming fuscous posteriorly; a series of dark fuscous dots at  $\frac{2}{3}$ ; in ♀ a dark grey discal dot. (Plate V. fig. 3.)

89 specimens; 88 Olaa, Hawaii, in June, September, November, and December; 1 Hilo, Hawaii, at 2000 feet, in January. A variable species; the ♂ is distinguished from all others by the unusually short posterior tarsi; the ♀ is sometimes only separable from *S. rara* by the more waved termen of the forewings, but is not by any means so variable as that species, and is not found in the same localities.

(27) *Scotorythra rara* Butl.

*Scotosia rara* Butl. Ent. Mo. Mag. xv. p. 273; ib. xvii. p. 8.

♂ 39—46 mm., ♀ 45—55 mm. Head and thorax brown to dark fuscous, often ferruginous-tinged, crown of head seldom whitish, thorax seldom with whitish posterior spot. Antennae in ♂ ochreous-whitish, spotted with dark fuscous, pectinations 8,

blackish-lined, in ♀ ochreous spotted or suffusedly blotched with dark fuscous. Abdomen pale greyish-ochreous to fuscous, in ♂  $1\frac{1}{2}$ . Anterior and middle legs dark fuscous, femora whitish-ochreous, dark-spotted; posterior legs ochreous-whitish marbled with fuscous, tibiae in ♂ rather dilated, enclosing an ochreous-whitish hair-pencil, tarsi in ♂  $\frac{3}{4}$ — $\frac{4}{5}$ . Forewings elongate-triangular, termen gently waved, bowed, oblique; fuscous or ochreous-brown, sometimes ferruginous-tinged, in ♀ varying also to whitish-brown or dark fuscous, strigulated with dark fuscous or blackish; in ♀ sometimes a sharply defined whitish-ochreous, pale reddish-ochreous, or bright ferruginous costal streak from base to second line, broader anteriorly; median band in ♀ sometimes conspicuously darker fuscous, enclosed by broad fasciae of ochreous or brownish suffusion; first and second lines formed of dark fuscous or blackish dots, often accompanied by whitish dots, in ♀ sometimes connected by slightly waved dark lines, first unevenly curved, sometimes bent above middle, second sinuate inwards above middle and more widely towards dorsum; discal spot lunate, edged with dark fuscous suffusion, in ♂ seldom whitish or pale ochreous; median shade very faint or obsolete, only in one pale ♀ dark brown, conspicuous; subterminal line obscurely pale or obsolete, or indicated by faint darker preceding shade; rarely a terminal series of ochreous-whitish or dark fuscous dots. Hindwings with termen waved; a dark grey small discal spot and postmedian series of dots, only in one pale ♀ connected by a waved line. (Plate III. figs. 5, 5a—5d.)

77 specimens; 35 Waimea Mts., Kauai, at 4000 feet; 22 Kaholuamano, Kauai, at 4000 feet; 1 Honolulu Mts., Oahu; 3 Haleakala, Maui, at 5000 feet; 15 Kona, Hawaii, at 4000 feet; 1 Kawaihoa, Hawaii; from April to June, in August, September, and November. I have also three of Mr Blackburn's specimens from the original locality, Haleakala, whence comes the British Museum type (a very dark ♀). The male is not very variable, but the female is exceedingly so. The size, dark colouring, and only gently waved termen of the forewings will generally serve to distinguish it.

(28) *Scotorythra euryphaea*, sp. nov.

♂ 46—59 mm., ♀ 60—71 mm. Head and thorax varying from brown to bright ferruginous, seldom dark fuscous or ochreous-yellowish mixed with fuscous. Antennae in ♂ pale fuscous or fuscous-whitish, unspotted, pectinations 10, laterally black-lined; in ♀ yellow-ochreous, thinly spotted with dark fuscous. Abdomen light greyish-ochreous, in ♂  $1\frac{1}{3}$ . Legs in ♂ fuscous, in ♀ orange-ochreous marbled with dark fuscous; posterior tibiae pale, in ♂ somewhat dilated, enclosing an ochreous-whitish hair-pencil, posterior tarsi in ♂ almost 1. Forewings elongate-triangular, broader in ♂, termen slightly waved, bowed, oblique; in ♂ dark ferruginous-brown, strigulated with dark fuscous, sometimes partially mixed with ferruginous suffusion, in ♀ varying from orange-ochreous to ferruginous-brown, strigulated with dark fuscous; median band in ♂ sometimes enclosed

by fasciae of partially confluent yellow spots; first and second lines dark fuscous, often very indistinct, seldom forming series of dots, sometimes accompanied by series of whitish dots, first unevenly curved, second slightly sinuate inwards towards dorsum; median shade darker, usually very faint, seldom distinct, somewhat angulated above middle; discal spot very obscurely darker, hardly defined, placed on median shade, in ♀ sometimes distinct, oval or lunate; subterminal line obscurely pale, waved, very faint or obsolete. Hindwings with termen in ♂ hardly, in ♀ gently waved; in ♂ light fuscous, darker terminally, in ♀ ochreous-yellowish irrorated with fuscous or seldom wholly fuscous; usually a faint postmedian series of darker dots. (Plate V. fig. 4.)

43 specimens; 19 Waimea Mts., Kauai, at 4000 feet; 21 Kaholuamano, Kauai, at 4000 feet; 2 Haleakala, Maui, at 5000 feet; 1 Molokai; from April to July, and in October. Differs from all the preceding by its large size, long antennal pectinations, and peculiar form of the second line of forewings, which is not sinuate above middle.

(29) *Scotorythra hyparcha*, sp. nov.

♂ 53—61 mm., ♀ 65—75 mm. Head and thorax in ♂ dark fuscous, in ♀ varying from ferruginous-ochreous to dark brown. Antennae in ♂ grey, pectinations 10, pale, laterally blackish-lined, in ♀ ochreous, spotted or almost wholly suffused with dark fuscous. Abdomen in ♂  $1\frac{1}{3}$ , pale grey, darker-mixed, in ♀ pale ochreous, fuscous-sprinkled. Legs in ♂ rather dark fuscous, posterior tibiae pale ochreous marbled with fuscous, somewhat dilated, enclosing an ochreous-whitish hair-pencil, posterior tarsi 1, in ♀ light ochreous-yellowish marbled with dark fuscous. Forewings elongate-triangular, broader in ♂, termen in ♂ waved, in ♀ dentate, bowed, oblique; in ♂ dark fuscous, darker-strigulated, in ♀ varying from ferruginous-ochreous or brownish-ochreous to dark brown, strigulated with dark fuscous; first and second lines faintly paler, waved, obscurely dark-edged, often accompanied with series of small dark fuscous spots, in one ♂ by ochreous spots, first bent above middle, second hardly curved; discal spot large, oval or narrow-transverse, dark fuscous, more often obsolete; median line faintly darker, beyond discal spot, bent above middle; subterminal obscurely pale, edged with obscure darker shades. Hindwings with termen unevenly waved; in ♂ light fuscous, darker terminally, in ♀ pale fuscous, sometimes ochreous-tinged, darker-strigulated; sometimes a faint darker discal spot.

7 specimens; 5 Olaa, Hawaii, in September; 1 Hilo, Hawaii, at 2000 feet, in December; 1 Kilauea, Hawaii, in August. Closely allied to *S. euryphaca*, but easily distinguished by the more strongly waved or in ♀ dentate termen of forewings.

(30) *Scotorythra megalophylla*, sp. nov.

♀. 81—87 mm. Head and thorax yellow-ochreous, sometimes suffused with orange or ferruginous. Antennae ochreous, spotted with dark fuscous. Abdomen light

ochreous-yellowish, sometimes sprinkled with fuscous. Legs orange, spotted with fuscous. Forewings rather elongate-triangular, costa slightly sinuate posteriorly, apex prominent, subfalcate, termen concave below apex, then waved, bowed, oblique; ochreous-yellow, thinly sprinkled with fuscous, or more or less densely suffusedly strigulated with ferruginous-brown; costa sometimes suffused with fiery orange on anterior half; first and second lines ferruginous, sometimes very obscure, more or less marked with blackish dots on veins, first gently and evenly curved, second rather sinuate inwards on lower half, sometimes followed by a deeper suffusion; no discal spot; cilia dark fuscous, base ferruginous, tips whitish. Hindwings with termen unevenly waved; light ochreous-yellowish, sometimes tinged with orange or fuscous, more or less sprinkled with dark fuscous; an indistinct darker discal spot, and sometimes a post-median series of dark dots. (Plate V. fig. 5.)

3 specimens; 2 Oloa, Hawaii; 1 Kona, Hawaii, at 3000 feet; in September. It is a pity the male of this fine insect was not discovered, but it may be expected to present differences analogous to those of the same sex in *S. euryphaea*. The female is apparently variable, but immediately recognisable by its large size and subfalcate forewings; the dark cilia are also a characteristic feature.

TRITOCLEIS, gen. nov.

Face with projecting scales. Tongue developed. Antennae in ♂ bipectinated, simple on apical third and on one joint above basal. Palpi rough-scaled. Thorax thinly hairy beneath. Femora glabrous, posterior tibiae in ♂ not dilated, without hair-pencil. Forewings in ♂ without fovea; 10 out of 11, connected with 9 to form well-defined areole. Hindwings normal.

The connection of vein 10 with 9 is not here (as in the preceding genus and many others of the family) the casual and unimportant conjunction at a point of two almost parallel and closely approximated veins, but 10 is in its lower portion parallel to the upper wall of cell, and only takes an upward direction after its connection with 9.

(31) *Tritocleis microphylla*, sp. nov.

♂. 20 mm. Head and thorax whitish-ochreous, sprinkled with black. Antennae ochreous-whitish, pectinations 12, finely black-lined. Abdomen whitish-ochreous, with double dorsal series of blackish dots, two on basal segment much larger. Forewings triangular, termen bowed, oblique; whitish-ochreous, finely and thinly sprinkled with black; first line indicated only by a blackish dot near dorsum; a cloudy dark grey discal dot; second line unusually near termen, formed by a series of black dots, running from  $\frac{5}{6}$  of costa to  $\frac{3}{4}$  of dorsum, unevenly curved outwards, beneath costa indented



inwards; cilia ochreous-whitish, with a basal series of small black spots. Hindwings with termen slightly waved; pale whitish-ochreous, sprinkled with black; a small narrow-oval discal spot outlined with blackish; second line faint, ochreous, marked with black dots, curved; subterminal indicated by a series of blackish dots; cilia as in forewings. (Plate V. fig. 6.)

1 specimen, Oloa, Hawaii, in November.

## SPHINGIDAE.

## DEILEPHILA Ochs.

(1) *Deilephila* (?) *smaragdita*, sp. nov.

♂. 94 mm. Head yellowish-green, face and palpi dark purplish-fuscous. Thorax green, collar and posterior hairs dark purplish-fuscous. Abdomen long, tolerably cylindrical, green (partly discoloured), on sides and beneath purplish-ochreous. Forewings rather deep glossy bluish-green; lines forming very indistinct cloudy darker yellow-green shades, first absent, median straight, second slightly curved, followed below middle by a small spot of black irroration, subterminal near and parallel to second; a terminal streak of dark purplish-fuscous irroration dilated towards apex (damaged). Hindwings rather dark purplish-fuscous; a faintly indicated darker post-median shade; cilia yellow-whitish, base dark fuscous. Wings beneath purplish-ochreous. (Plate V. fig. 7.)

1 specimen, Makaweli, Kauai, at 2000 feet, "taken some years ago by ladies of the Gay family." This example has lost one antenna and the apical half of the other, and also both posterior legs; it is therefore impossible to determine properly its generic position, and it is only provisionally included in *Deilephila*; it is superficially very distinct from anything known to me. It is a remarkable and beautiful species; and its fair captors might earn additional praise by discovering further specimens, and enabling its affinities to be accurately ascertained.

(2) *Deilephila pyrias*, sp. nov.

♂ ♀. 67—74 mm. Head and thorax very dark brown, a lateral stripe on head, and margins of patagia whitish or yellowish. Antennae dark fuscous, apex whitish. Abdomen orange, on sides and beneath suffused with crimson, with a broad dark brown dorsal stripe, and broad dark fuscous or black bands on margin of segments above. Forewings dark brown, often more or less partially mixed with whitish scales and hairs; lines cloudy, dark fuscous, first curved, indistinct, preceded by triangular dark fuscous

or black dorsal blotch, median curved towards costa, often indistinct, second waved, distinct, followed by trapezoidal dark fuscous or black dorsal blotch; a suffused dark fuscous discal spot; a suffused dark oblique apical streak. Hindwings deep orange; a suffused irregular-edged dark fuscous basal patch, extending on costa to  $\frac{3}{4}$ ; a straight-edged dark fuscous or black terminal fascia, attenuated beneath, hardly reaching tornus; cilia pale yellowish, base dark fuscous or black. Wings beneath more or less crimson-suffused. (Plate V. fig. 8.)

11 specimens; 9 Olaa, Hawaii, at 2000 feet; 2 Hilo, Hawaii, at 2000 feet; in January, June, September, November, and December. This and the following species belong to the section often separated as a distinct genus under the name *Choerocampa*; they are apparently best distinguished from each other by the abdominal colouring.

(3) *Deilephila calida* Butl.

*Deilephila calida* Butl. Ann. Mag. N. H. (5) VII., 1881, p. 317.

Head brown, with pale yellowish line above eyes. Thorax brown, margins of patagia pale yellowish. Antennae dark fuscous, tips white. Abdomen dark brown, beneath pale reddish, three basal segments black on sides except at base which is white, three apical segments with yellow-whitish basal spot on sides. Forewings fuscous; basal area suffused with dark brown, more blackish dorsally, outer edge curved, dorsal cilia on this area white; indistinct darker transverse shades towards costa at  $\frac{1}{3}$  and  $\frac{2}{3}$ , and a roundish dark brown discal spot between these; second line pale yellowish-ochreous except towards costa, nearly parallel to termen but sinuate inwards towards dorsum, followed by a dark brown posteriorly suffused and irregular band, enclosing a blotch of ground-colour on costa. Hindwings blackish-fuscous; a rather irregular vermilion-red postmedian band.

No examples obtained by Mr Perkins; I have described the type in the British Museum, from Oahu.

(4) *Deilephila wilsoni* Roths.

*Deilephila wilsoni* Roths. Nov. Zool. I. p. 83.

I have not seen this species, but according to the description it should be distinct from either of the two preceding, though allied to them. The body (abdomen) is said to be deep brown with a white border on each side. Locality Hawaii.

(5) *Deilephila lineata* Fab. (*livornica* Esp.).

5 specimens; 3 Olaa, Hawaii; 1 Kilauea, Hawaii; 1 Molokai, at 3000 feet; in June, September and November. Also recorded by Mr Blackburn from Oahu, and apparently rather common. This species is cosmopolitan in warm countries.

## SPHINX Linn.

Abdomen yellow-spotted .....(2) *celeus*.  
 „ rosy-spotted .....(1) *convolvuli*.

(1) *Sphinx convolvuli* Linn. (*cingulata* Fab.).

19 specimens; 17 Kona, Hawaii, at 1500 feet; 1 Oloo, Hawaii; 1 Wailuku, Maui; from September to December. These examples all belong to the American and Pacific form, often separated as a species under the name *cingulata*; it is however incapable of strict definition, and I regard it as a slight geographical form only. The species is practically cosmopolitan.

(2) *Sphinx celeus* Hüb.

*Protoparce blackburni* Butl. Ent. Mo. Mag. xvii. p. 6.

1 specimen, without locality label. Recorded by Mr Blackburn as occurring rarely near Honolulu, Oahu. The larva is described by Mr Blackburn, Ann. Mag. N. H. 1881, p. 319. Widely distributed in America.

## PAPILIONINA.

## NYMPHALIDAE.

## ANOSIA Hüb.

(1) *Anosia erippus* Cram.

6 specimens; 5 Makaweli, Kauai; 1 Kaholuamano, Kauai, at 4000 feet; from February to April. Indigenous to America, but has spread within the last 30 years over the Pacific as far as Celebes, Australia, and New Zealand.

## VANESSA Fab.

(1) *Vanessa atalanta* Linn.

8 specimens; 6 Oloo, Hawaii; 2 Kona, Hawaii, at 4000 feet; in June, August, September, and December. Occurs in Europe and North America.

(2) *Vanessa tammeamea* Esch.

*Vanessa tammeamea* Esch. Kotzeb. Reis. iii. p. 207, pl. v. 8.

*Pyrameis cordelia* Doubl. Hew. Gen. pl. xxv. 3.

(Plate V. fig. 9.)

65 specimens; 40 Kilauea, Hawaii; 4 Kona, Hawaii, at 3000 feet; 2 Hilo, Hawaii; 1 Oloo, Hawaii; 1 Panoa, Oahu; 1 Honolulu Mts., Oahu; 1 Kaala Mts.,

Oahu, at 2000 feet; 5 Molokai, at 2500 feet; 1 Lanai; 1 Haleakala, Maui, at 8000 feet; 2 Waimea Mts., Kauai, at 3000—4000 feet; 2 Halemanu, Kauai, at 4000 feet; 1 Kaholuamano, Kauai, at 4000 feet; 3 Makaweli, Kauai, at 2000 feet; from January to October. The anterior spot in the black apical area of forewings is rosy in the male, white in the female. The colouring of the undersurface of hindwings varies much; in the male it is browner, sometimes much ferruginous-suffused, without white suffusion, but often with sharply defined white discal and costal spots, in the female it is often much whitish-suffused and with irregular whitish median fascia, but sometimes very uniform yellow-brownish throughout. The larva is described by Mr Blackburn, Ent. Mo. Mag. XIX. p. 55.

(3) *Vanessa cardui* Linn.

12 specimens; 6 Halemanu, Kauai, bred; 5 Lanai, at sea level; 1 Kona, Hawaii, at 4000 feet; in February, May, and August. Mr Blackburn records it as occurring in various places in plenty, but apparently irregularly, between February and July (Ent. Mo. Mag. XVI. p. 161). Some Lanai specimens are very small, one having an expanse of only 48 mm. A cosmopolitan species.

(4) *Vanessa huntera* Fab.

10 specimens; 8 Kona, Hawaii, at 4000 feet; 1 Koele Mts., Lanai, at 2000 feet; 1 Haleakala, Maui, at 8000 feet; in April, July, and August. Noted also by Mr Blackburn as a regular resident. Occurs in North America.

LYCAENIDAE.

LYCAENA Fab.

(1) *Lycaena baetica* Linn.

9 specimens; 7 Mauna Loa, Hawaii, at 1500 feet; 1 Waianae Mts., Oahu; 1 Molokai; in April. Also taken by Mr Blackburn, who has described the larva, Trans. Ent. Soc. Lond. 1882, p. 31. Occurs in Europe, Asia, Africa, Australia, and many Pacific islands.

(2) *Lycaena blackburni* Tuely.

*Holochila blackburni* Tuely Ent. Mo. Mag. xv. p. 9.

(Plate V. fig. 10.)

70 specimens; 7 Kona, Hawaii, at 3000—4000 feet; 5 Kilauea, Hawaii; 1 Panoa Valley, Oahu, at 1500 feet; 3 Waianae Mts., Oahu, at 2000 feet; 1 Lanai, at 3000

feet; 16 Kaholuamano, Kauai, at 4000 feet; 36 Halemanu, Kauai, at 4000 feet; 1 Makaweli, Kauai, at 2000 feet; from February to May, and in August and September. The larva is described by Mr Blackburn, Ent. Mo. Mag. XIX. 56. Although differing from all other species of the genus in its light bluish-green unspotted undersurface, this insect is structurally a true *Lycaena*, belonging to the group of *argiolus*.

## PYRALIDINA.

## PHYCITIDAE.

GENOPHANTIS *Meyr.*

Antennae in ♂ rather stout, flatly subdentate, shortly ciliated, above base with a very slight sinuation roughened with scales on inner side; remaining characters as in ♀.

Described originally from the female, and amongst the 24 specimens now sent there were only two males; the characters of this sex, as anticipated, confirm the relationship with *Crocydopora*.

(1) *Genophantis iodora* Meyr.

*Genophantis iodora* Meyr. Trans. Ent. Soc. Lond. 1888, p. 246.

♂♀. 17—27 mm. Forewings pale ochreous or greyish-ochreous, variably more or less mixed with ferruginous or reddish-fuscous, sometimes much mixed with blackish; in dark-suffused specimens often a pale costal streak, and sometimes an interrupted broader light dorsal streak, often reduced to a pale dorsal blotch beyond first line; first line pale, dark-edged, angulated in middle, on dorsum usually preceded by a small triangular dark spot; discal spot usually forming two transversely placed dark fuscous dots, sometimes obsolete; second line pale, suffusedly dark-edged, nearly straight, parallel to termen, slightly indented above middle. Hindwings pale grey; a suffused darker terminal line. (Plate V. fig. 11.)

24 specimens; 17 Waimea Mts., Kauai, at 4000 feet; 2 Kaholuamano, Kauai, at 4000 feet; 2 Molokai, at 4000 feet; 1 Oloa, Hawaii; 1 Waianae Mts., Oahu, at 2000 feet; 1 Honolulu Mts., Oahu; from April to June, and in September and October. I have redescribed the species, as it varies very considerably in colouring, and was originally described from a single specimen.

PLODIA *Guen.*(1) *Plodia interpunctella* Hüb.

Recorded by Mr Blackburn; as mentioned under *Ephestia ficulella*.

EPHESTIA *Guen.*(1) *Ephestia elutella* Hüb.(2) *Ephestia ficulella* Barr. (? *desuetella* Walk.).

Of these three species no specimens were included; their previous occurrence is recorded in *Trans. Ent. Soc. Lond.* 1888, p. 244; they are of course domestic and artificially introduced, being now probably cosmopolitan.

EPHESTIODES *Rag.*

The separation of this genus from *Ephestia* is perhaps unnecessary, but may pass for the present.

(1) *Ephestiodes gilvescentella* Rag.

*Ephestiodes gilvescentella* Rag. *Diagn. N. Amer. Phyc.* p. 16. *E. infimella* ib. p. 16. *E. erythrella* ib. p. 16.

♂♀. 11—14 mm. Head and thorax grey. Palpi dark grey, sometimes whitish-sprinkled, terminal joint very obtuse. Abdomen grey, apex whitish-ochreous. Forewings elongate, narrow, somewhat dilated posteriorly, termen very obliquely rounded; grey, irrorated with whitish and irregularly sprinkled with black, more or less suffused with a pale reddish tinge; lines cloudy, whitish, darker-edged internally, first slightly curved, oblique, second almost straight; two transversely placed dark fuscous discal dots, sometimes nearly obsolete; cilia grey, irrorated with whitish. Hindwings pale grey, semitransparent; veins and a suffused terminal line dark grey; in ♂ two very small pale ochreous-yellowish subbasal tufts, upper appressed, lower erect.

4 specimens, Molokai, in May. Occurs in North America. I have seen Ragonot's types, which seem to me all to belong to the same species.

HOMOEOSOMA *Curt.*

Forewings with veins 4 and 5 stalked .....(2) *amphibola*.  
 " " coincident .....(1) *humeralis*.

(1) *Homoeosoma humeralis* Butl.

*Ephestia humeralis* Butl. *Ann. Mag. Nat. Hist.* (5) VII. 1881, p. 332. *E. albosparsa* ib. p. 333.

*Homocosoma humeralis* Meyr. *Trans. Ent. Soc. Lond.* 1888, p. 244.

♂♀. 12—19 mm. Forewings very narrow, posteriorly somewhat dilated; vein 5

absent; fuscous or dark fuscous, suffusedly irrorated with white, especially towards costa anteriorly; first line straight, whitish, edged posteriorly by a streak of dark suffusion; sometimes a faint darker discal dot; second line whitish, obscurely dark-edged, very faint or usually wholly obsolete. Hindwings pale grey; veins and terminal line dark grey.

21 specimens; 8 Kona, Hawaii, from 1500 to 4000 feet; 5 Olaa, Hawaii; 5 Molokai, from 3000 to 3500 feet; 2 Waianae Mts., Oahu, at 2000 feet; 1 Waimea Mts., Kauai, at 4000 feet; from April to June, and in August and September. Also 5 specimens received from Mr Blackburn, from Oahu and Hawaii.

(2) *Homoeosoma amphibola*, sp. nov.

♂♀. 16—22 mm. Head, palpi, and thorax fuscous, irrorated with white. Forewings very narrow, posteriorly somewhat dilated; veins 4 and 5 stalked; fuscous or dark fuscous, irrorated with white; first line almost straight, whitish, edged posteriorly by a dark fuscous fascia; a well-defined dark fuscous discal spot; second line almost straight, whitish, dark-edged, always distinct; cilia fuscous, irrorated with whitish. Hindwings pale grey; veins and terminal line dark grey. (Plate V. fig. 12.)

33 specimens; 25 Kaholuamano, Kauai, at 4000 feet; 8 Waimea Mts., Kauai, at 4000 feet; from April to June. Exceedingly similar to the preceding, but constantly distinguished by the neuration, and also by the well-marked second line of forewings. It also closely approaches the Australian *H. vagella*, but may be separated by the nearly straight first line, which in that species is angulated.

GALLERIADAE.

MELIPHORA *Guen.*

(1) *Meliphora grisella* Fab.

1 specimen, Kona, Hawaii, at 1400 feet, in September. Also taken by Mr Blackburn. Occurs in Europe, N. America, and Australia.

CRAMBIDAE.

EUCHROMIUS *Guen.*

(1) *Euchromius ocellus* Haw. (*bella* Butl., non Hüb.).

2 specimens; 1 Makaweli, Kauai, at sea-level; 1 Molokai; in May. Also previously recorded. Native in S. Europe, but now occurs in America and Australia also.

## PRIONOPTERYX Steph.

(1) *Prionopteryx exonoma*, sp. nov.

♀. 12 mm. Head and thorax brown. Forewings elongate, termen with a deep upwards-oblique semioval excavation below middle; 4 absent, 7 absent, 9 absent, 11 free; brown, slightly coppery-tinged; first and second lines fine, white, blackish-edged, first preceded towards costa by broader blackish suffusion, acutely angulated outwards above middle and inwards towards dorsum, between these irregular, second obtusely angulated outwards above middle and inwards towards dorsum; a median blackish shade on costal half parallel to these; a very small white wedged-shaped mark on costa before apex; four undefined dashes of blackish suffusion towards termen; cilia fuscous, with a black line interrupted on excavation, and a white basal mark at apex. Hindwings with vein 4 absent; dark grey, suffused with blackish-fuscous towards termen, slightly purplish-tinged; cilia grey, with blackish subbasal line, tips whitish. (Plate V. fig. 13.)

1 specimen, Waianae Mts., Oahu, at 2000 feet, in April. Distinct by the small size and peculiar neuration (which varies specifically in this genus); in the latter character it approaches nearest the Australian *P. apicistrigella*, to which, however, in other respects it is but little allied.

## TALIS Guen.

- |  |                          |
|--|--------------------------|
| 1. First line distinct, subsinuate .....         | (6) <i>floricolans</i> . |
| "   angulated near costa or obsolete .....       | 2.                       |
| 2. Forewings very elongate (Kauai species) ..... | (1) <i>geralea</i> .     |
| "   shorter.....                                 | 3.                       |
| 3. Forewings grey.....                           | (5) <i>hyacinthina</i> . |
| "   ochreous or brownish .....                   | 4.                       |
| 4. Forewings with dark tornal spot in cilia..... | (4) <i>oxyptera</i> .    |
| "   without such spot .....                      | 5.                       |
| 5. Lines more or less distinct .....             | (3) <i>hydrophila</i> .  |
| "   absent.....                                  | (2) <i>homodora</i> .    |

(1) *Talis geralea*, sp. nov.

♂♀. 12—17 mm. Palpi 5. Forewings very elongate-triangular, narrower than in the other native species, apex in ♂ obtuse, in ♀ round-pointed, termen straight, oblique, in ♀ very oblique; brownish-ochreous or light fuscous, more or less whitish-sprinkled, in ♀ sometimes much suffused with white; a very few scattered black scales; two dark fuscous discal dots transversely placed, sometimes faint; second line darker,



usually faint or absent, sometimes marked with some black scales, curved, indented near dorsum; an indistinct interrupted dark terminal line. Hindwings fuscous. (Plate V. fig. 14.)

7 specimens; 3 Waimea Mts., Kauai, at 4000 feet; 4 Makaweli, Kauai, sea-level; in May and June. Differs from all the rest by the more elongate forewings; the whitish irroration and indistinct or absent second line are also characteristic.

(2) *Talis homodora*, sp. nov.

♂. 12—14 mm. Palpi 5. Forewings elongate-triangular, apex round-pointed, termen straight, oblique; whitish-ochreous or pale brownish-ochreous, irrorated with fuscous; a few scattered black scales; two blackish discal dots transversely placed; second line absent; an indistinct interrupted darker terminal line. Hindwings fuscous.

8 specimens, Waianae Mts., Oahu, at 3000 feet, in April. Characterised by the uniform colouring, and entire absence of lines.

(3) *Talis hydrophila* Butler.

*Scotomera hydrophila* Butl. Trans. Ent. Soc. Lond. 1882, p. 36.

*Hednota hydrophila* Meyr. Trans. Ent. Soc. Lond. 1888, p. 242.

♂♀. 11—14 mm. Palpi 4. Forewings elongate-triangular, apex obtuse, termen straight, oblique; brownish-ochreous, irrorated with dark brown; first and second lines dark brown, sometimes indistinct, first angulated outwards above middle and inwards below middle, second rather strongly curved, indented near dorsum; two dark fuscous or blackish discal dots transversely placed; a terminal series of dark fuscous or blackish dots. Hindwings fuscous or dark fuscous.

13 specimens; 7 Kona, Hawaii, at 4000 feet; 6 Molokai, from 3000 to 3500 feet; from May to July. According to Mr Blackburn also from Oahu, but perhaps by confusion with others. Distinguished by the dark brownish colouring, and peculiar form of the first line.

(4) *Talis oxyptera* Meyr.

*Hednota oxyptera* Meyr. Trans. Ent. Soc. Lond. 1888, p. 243.

Only one specimen sent, a ♀ of 11 mm., from Waianae Mts., Oahu, "on plains," in April. My examples were from Honolulu, Oahu, where I found it common in dry grassy places in August. Especially characterised by the ochreous colouring and distinct darker ochreous lines (first curved outwards on upper  $\frac{2}{3}$ , second moderately curved), and particularly by the dark tornal spot in cilia of forewings.

(5) *Talis hyacinthina*, sp. nov.

♂♀. 13—16 mm. Palpi 4. Forewings elongate-triangular, apex obtuse, termen nearly straight, oblique; grey, more or less irrorated with white and dark grey, sometimes mixed with yellow towards base; a few scattered black scales; first and second lines usually more or less ochreous-yellow, first angulated near costa, sometimes obsolete, second marked with black scales, gently curved, sinuate inwards towards dorsum; two black discal dots transversely placed; an interrupted blackish terminal line. Hindwings grey or dark grey. (Plate V. fig. 15.)

8 specimens, Kona, Hawaii, from 4000 to 8000 feet, from June to August. Always separable from its nearest allies by the grey colouring; the yellow lines are very characteristic when present, but are not always well-developed.

(6) *Talis floricolans* Butler.

*Gesneria floricolens* Butl. Ent. Mo. Mag. XIX. p. 180.

*Hednota floricolans* Meyr. Trans. Ent. Soc. Lond. 1888, p. 242.

This is the most distinct species of the group, recognisable by the shorter palpi, forewings whitish mixed with fuscous, first line very distinct, only slightly sinuate, brown mixed with black, preceded by whitish suffusion, second distinct, ochreous more or less mixed with brown and black, strongly curved on upper  $\frac{2}{3}$ . (Plate V. fig. 16.)

12 specimens; 8 Molokai; 3 Waianae Mts., Oahu, "on plains"; 1 Waialua, Oahu, sea-level; from March to May. According to Mr Blackburn also from Lanai. In this species (as in the others) veins 4 and 5 of the hindwings are normally approximated at base, the stalking recorded by me being exceptional.

## PYRAUSTIDAE.

NYMPHULA *Schranck*.(1) *Nymphula fluctuosalis* Zell. (*linealis* Guen.).

*Oligostigma curta* Butl. Ent. Mo. Mag. xv. p. 270.

14 specimens; 13 Wailuku, Maui; 1 Waialua, Oahu; in October and November. Occurs also in Asia, Africa, and Australia.

MARGARONIA *Hüb.*(1) *Margaronia exaula* Meyr.

*Margarodes exaula* Meyr. Trans. Ent. Soc. Lond. 1888, p. 213.

*Margaronia glauculalis* Butl. Ann. Mag. Nat. Hist. (5) VII. 1881, p. 327 (non Guen.).

♂♀. 40—51 mm. Description may be supplemented as follows: Maxillary palpi orange, tips white; forewings with orange costal streak variable in breadth basally, and sometimes extended finely to apex; cilia pale orange, sometimes greyish-tinged, base white.

5 specimens; 3 Molokai, at 3000 feet; 1 Lahaina, Maui; 1 unlabelled; in June. Also recorded by Mr Blackburn from Honolulu, Oahu. The species is at once distinguished from *M. nereis* Meyr. by the entire absence of orange marking on face, and from *M. glauculalis* Guen. (*marthesiusalis* Walk.) by the pale orange cilia.

(2) *Margaronia cyanomichla*, sp. nov.

♂♀. 26—28 mm. Head and thorax fuscous, sometimes whitish-mixed. Palpi dark fuscous, lower half white. Forewings light fuscous or whitish, more or less tinged or wholly suffused with bright bluish-purple, sometimes forming whitish blotches on costal half between fasciae; five dull orange fasciae (in ♂ much suffused with whitish), edged with dark fuscous, first two rather oblique, third median, including a dark fuscous transverse mark above middle, connected with fourth by a slender downward-oblique bar below middle, fourth gently curved, obsolete on dorsum, fifth broader, terminal; a dark fuscous dot below costa between second and third; cilia fuscous-whitish, with a dark fuscous subbasal line. Hindwings with groundcolour and fourth and fifth fasciae as in forewings, but fourth fascia almost straight, fifth narrowed to a point at tornus; a dark fuscous discal mark, beneath which is sometimes a small orange spot; cilia as in forewings. (Plate V. fig. 17.)

5 specimens; 2 Waimea Mts., Kauai, at 4000 feet; 2 Kaholuamano, Kauai; 1 Molokai Mts.; from April to August. The only male is the Molokai specimen, and is in very poor condition; its more whitish colouring may possibly be rather individual than sexual.

OMIODES *Guen.*

- |    |   |                         |
|----|---|-------------------------|
| 1. | Forewings with veins marked by pale lines .....               | 2.                      |
|    | "          "          not marked by pale lines .....          | 5.                      |
| 2. | Second line with acute projection outwards .....              | (1) <i>blackburni</i> . |
|    | "          "          without acute projection outwards ..... | 3.                      |
| 3. | First line indicated by dark shade .....                      | 4.                      |
|    | "          "          by dark dots only .....                 | (7) <i>telegrapha</i> . |
| 4. | Second line very obtusely angulated below middle ..           | (5) <i>epicentra</i> .  |
|    | "          "          not angulated.....                      | (8) <i>accepta</i> .    |
| 5. | Forewings ochreous or ferruginous .....                       | 6.                      |
|    | "          "          fuscous .....                           | 7.                      |

6. Orbicular and discal spots well-marked .....(11) *demaratalis*.  
 " " absent .....(10) *monogramma*.  
 7. Hindwings with postmedian line angulated or bent in middle .....8.  
 " " almost straight .....10.  
 8. Median band of forewings darker .....9.  
 " " not darker .....(13) *localis*.  
 9. Forewings with second line obsolete .....(3) *asaphombra*.  
 " " sharply marked .....(2) *euryprora*.  
 10. Postmedian line of hindwings white .....11.  
 " " not white .....12.  
 11. Second line of forewings projecting inwards below middle .....(12) *monogona*.  
 " " without projection .....(9) *continuatalis*.  
 12. First line followed by rectangularly bent blackish streak .....(6) *anastrepta*.  
 " " not so followed .....(4) *iridias*.

(1) *Omiodes blackburni* Butl.

*Botys blackburni* Butl. Ent. Mo. Mag. xiv. p. 48.

*Omiodes blackburni* Meyr. Trans. Ent. Soc. Lond. 1888, p. 214.

♂♀. 30—37 mm. Sufficiently described by me (l. c.); but in one female from Lanai the groundcolour of both wings is mostly suffused with rather dark fuscous.

17 specimens; 7 Oloa, Hawaii, at 2000 feet; 5 Lahaina, Maui, on coast; 1 Honolulu, Oahu; 2 Lanai, at 3000 feet; 1 Makaweli, Kauai, on coast; 1 Waimea Mts., Kauai, at 4000 feet; in June, July, and November. Bred from larvae feeding on the banana (*Musa*), to which it is very destructive.

(2) *Omiodes euryprora*, sp. nov.

♂♀. 31—33 mm. Head, thorax, and abdomen fuscous. Palpi dark fuscous, lower half white. Legs dark fuscous, tarsi white. Forewings long, apex subacute, termen rather strongly sinuate; fuscous, purplish-tinged, irregularly sprinkled with whitish; a sharply-defined blackish-fuscous very broad median band, not reaching costa, anteriorly edged by lower portion of faintly marked angulated first line, anterior half of upper edge excavated, with a blackish orbicular dot in middle of excavation, posterior edge margined by whitish second line, forming a strong obtuse prominence in middle; a terminal series of blackish-fuscous dots. Hindwings fuscous, darker posteriorly; an obscure paler postmedian line, angulated in middle. (Plate V. fig. 18.)

3 specimens; 2 Oloa, Hawaii, at 2000 feet, in June and November; 1 Hilo, Hawaii, at 2000 feet, in January.

(3) *Omiodes asaphombra*, sp. nov.

♂. 35 mm. Head, thorax, and abdomen fuscous. Palpi fuscous, lower half white. Forewings long, termen slightly sinuate; fuscous, somewhat mixed with whitish and

darker ; a very broad dark fuscous median band mixed with ferruginous, not reaching costa, anterior edge straight, anterior half of upper edge excavated, with a dark fuscous orbicular dot in excavation before middle, posterior edge wholly suffused and undefined ; a terminal series of dark fuscous dots. Hindwings rather dark fuscous ; a slightly paler postmedian shade, darker-edged, obtusely angulated in middle.

1 specimen, Waimea Mts., Kauai, at 4000 feet, in May.

(4) *Omiodes iridias*, sp. nov.

♂♀. 27—28 mm. Head and thorax dark fuscous, with white line above eyes. Palpi dark fuscous, lower half white. Forewings rather long, termen slightly sinuate beneath apex ; dark fuscous, irrorated with dull purplish ; lines obscurely paler, first obtusely angulated above middle, obsolete on costa, second very obtusely angulated below middle, straight or slightly curved on upper portion, sinuate inwards below angulation ; enclosed median band in ♂ hardly darker, somewhat ferruginous-mixed on dorsal half, in ♀ blackish except towards costa, upper edge excavated on anterior half, with a blackish orbicular dot in excavation before middle ; a terminal series of dark fuscous or blackish dots : cilia fuscous, with darker subbasal line. Hindwings rather dark fuscous ; an obscurely paler slightly sinuate postmedian line, anteriorly darker-edged ; cilia as in forewings. (Plate V. fig. 19.)

2 specimens, Kilauea, Hawaii, in August.

(5) *Omiodes epicentra*, sp. nov.

♂♀. 25—26 mm. Head, thorax, and abdomen whitish-ochreous mixed with brownish, segmental margins narrowly whitish, anal tuft mixed with dark fuscous. Palpi dark fuscous, lower half white. Forewings moderate, termen bowed ; pale ochreous, irregularly mixed with whitish and sprinkled with dark fuscous ; veins indistinctly whitish ; first line dark fuscous, very acutely angulated in middle, upper portion indistinct, lower strongly marked and followed by a brownish-ochreous suffusion ; a blackish orbicular dot ; two dark fuscous discal dots transversely placed, followed by an oblique brownish-ochreous suffusion ; second line whitish, edged with dark fuscous, with very slight and obtuse angulation below middle ; a terminal series of blackish triangular dots. Hindwings grey, darker-sprinkled ; a blackish discal dot ; a straight whitish postmedian line, edged anteriorly with dark fuscous, and posteriorly by a cloudy dark fuscous suffusion ; an interrupted blackish terminal line.

3 specimens, Waialua, Oahu, on plains, in March.

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(6) *Omiodes anastrepta*, sp. nov.

♀. 28—29 mm. Head, thorax, and abdomen fuscous. Palpi dark fuscous, lower half white. Forewings moderate, termen faintly sinuate beneath apex; rather dark fuscous, more or less whitish-sprinkled; first line whitish, angulated above middle, nearly or quite obsolete above angulation, lower portion margined posteriorly by a thick blackish-fuscous streak which is nearly rectangularly bent and continued beneath median vein to discal mark, this angle sometimes filled with dark suffusion; a small black orbicular dot; a transverse blackish discal mark; second line whitish, slightly sinuate beneath costa, edged posteriorly by a suffused dark fuscous band, and sometimes anteriorly by a series of dark fuscous dots; a terminal series of blackish dots. Hindwings rather dark grey; a paler slightly sinuate postmedian line, edged anteriorly with dark grey dots, and posteriorly by a band of dark grey suffusion; a terminal series of blackish dots.

2 specimens; 1 Kona, Hawaii, at 4000 feet, in September; 1 Molokai Mts. (forest above Pelekuna), in August.

(7) *Omiodes telegrapha*, sp. nov.

♂. 40 mm. Head and thorax ochreous-yellowish. Palpi yellow-brownish, lower half whitish. Forewings long, termen sinuate beneath subacute apex; light ochreous-yellowish, slightly blackish-sprinkled, veins partially white; first line very acutely angulated above middle, only indicated by several blackish dots between veins; second line cloudy, blackish, interrupted by veins, almost straight; an almost terminal series of blackish dots, preceded by white dashes. Hindwings grey, veins whitish; a dark grey discal dot; a straight whitish postmedian line, edged anteriorly narrowly, and posteriorly more broadly with dark grey suffusion; a terminal series of black dots preceded by white dashes. (Plate V. fig. 20.)

1 specimen, Olaa, Hawaii, in September.

(8) *Omiodes accepta* Butl.

*Botys accepta* Butl. Ent. Mo. Mag. xiv. p. 49.

*Omiodes accepta* Meyr. Trans. Ent. Soc. Lond. 1888, p. 214.

♂♀. 22—33 mm. Sufficiently described by me (l. c.).

16 specimens; 6 Hilo, Hawaii, at 2000 feet; 4 Kona, Hawaii, from 1500 to 4000 feet; 1 Haleakala, Maui, at 5000 feet; 1 Molokai, at 3000 feet; 3 Kaholuamano, Kauai, at 4000 feet; 1 Waimea Mts., Kauai, at 4000 feet; in December and January, and from April to September.

(9) *Omiodes continuatalis* Wall.

*Salbia continuatalis* Wall. Wien. Ent. Mon. 1860, p. 175.

*Botys continuatalis* Butl. Ent. Mo. Mag. xv. p. 270.

*Omiodes continuatalis* Meyr. Trans. Ent. Soc. Lond. 1888, p. 215.

♂♀. 26—32 mm. Sufficiently described by me (l. c.).

30 specimens; 4 Kona, Hawaii, from 2000 to 4000 feet; 12 Waianae Mts., Oahu; 3 Waialua, Oahu, on coast; 6 Lanai, from 2000 to 3000 feet; 1 Molokai Mts.; 3 Kaholuamano, Kauai, at 4000 feet; 1 Waimea Mts., Kauai, at 4000 feet; from February to June, and in September.

(10) *Omiodes monogramma*, sp. nov.

♂. 25—29 mm. Head and palpi deep ferruginous, lower half of palpi white. Thorax ferruginous, posteriorly paler and mixed with whitish-ochreous. Abdomen ferruginous-ochreous, segmental margins usually finely white. Forewings moderate, termen gently bowed; ferruginous; costa suffused with dark fuscous from base to  $\frac{3}{8}$ ; second line about  $\frac{3}{4}$ , almost straight, white, obsolete on costa, posteriorly edged with fuscous suffusion; a dark fuscous terminal line: cilia grey, with darker sub-basal line. Hindwings fuscous, usually suffused with dull ochreous towards dorsum; a white postmedian line, obtusely angulated near tornus, posteriorly edged with dark fuscous suffusion, beyond which the terminal area is wholly ferruginous-ochreous; a dark fuscous terminal line; cilia whitish, with dark grey subbasal line. (Plate V. fig. 21.)

5 specimens; 2 Waianae Mts., Oahu; 3 Waimea Mts., Kauai, at 4000 feet; from April to June. Allied to *O. demaratalis*, but differs by the larger size, ferruginous colouring, absence of orbicular and discal dots, second line of forewings placed nearer termen, and postmedian line of hindwings obtusely angulated and followed by dark fuscous suffusion.

(11) *Omiodes demaratalis* Walk.

*Botys demaratalis* Walk. Cat. XIX. p. 1009.

*Omiodes demaratalis* Meyr. Trans. Ent. Soc. Lond. 1888, p. 216.

Sufficiently described.

22 specimens; 13 Waianae Mts., Oahu; 8 Waimea Mts., Kauai, at 4000 feet; 1 Kona, Hawaii, at 2000 feet; from April to June and in September. Also recorded from Honolulu, Oahu, where I took it in August.

(12) *Omiodes monogona* Meyr.

*Omiodes monogona* Meyr. Trans. Ent. Soc. Lond. 1888, p. 216. *O. liodyta*, ib. 217.

♂♀. 17—28 mm. The second line of forewings varies in form to some extent, covering both descriptions, and also in breadth, being sometimes thick and suffused posteriorly. The types from which my two descriptions were drawn are now seen to belong certainly to the same species; however the two examples of *O. liodyta* remain peculiar in respect of size, as none of Mr Perkins' specimens are below 22 mm.

21 specimens; 4 Oloa, Hawaii; 2 Kona, Hawaii, at 4000 feet; 2 Waianae Mts., Oahu, at 1700 feet; 12 Kaholuamano, Kauai, at 4000 feet; 1 Waimea Mts., Kauai, at 4000 feet; in April, from June to August, and in December.

(13) *Omiodes localis* Butl.

*Botys localis* Butl. Ent. Mo. Mag. xv. p. 271.

*Omiodes localis* Meyr. Trans. Ent. Soc. Lond. 1888, p. 217.

Sufficiently described by me (l. c.).

35 specimens; 12 Kona, Hawaii, from 2000 to 4000 feet; 7 Waianae Mts., Oahu, from 1700 to 3000 feet; 1 Molokai, at 3000 feet; 2 Lanai, at 2000 feet; 2 Waimea Mts., Kauai, at 4000 feet; 11 Kaholuamano, Kauai, at 4000 feet; from February to September.

## HYMENIA Hüb.

(1) *Hymenia recurvalis* Fab. (*fascialis* Cram.).

20 specimens; 7 Kona, Hawaii, at 1500 feet; 1 Oloa, Hawaii; 10 Waialua, Oahu, on plains; 2 Honolulu, Oahu; from March to June. Occurs in Asia, Africa, and Australia.

## PHLYCTAENIA Hüb.

1. Forewings with second line almost straight .....(24) *heterodoxa*.
- "          "          more or less broken .....2.
2. Groundcolour of median band white .....(11) *eucrena*.
- "          "          not white.....3.
3. Forewings with sharply marked white spots .....4.
- "          "          sometimes partly whitish-suffused, but without sharp white spots .....6.



4. Forewings with white or yellowish discal spot beyond white median spot .....5.
- " without such discal spot .....(1) *calliastra*.
5. Cilia sharply barred with whitish .....(3) *synastra*.
- " not or indistinctly whitish-dotted .....(2) *hyacinthias*.
6. Forewings suffused with shining brassy-yellowish .....(4) *chalcophanes*.
- " not brassy-yellowish .....7.
7. Hindwings whitish, without grey suffusion .....8.
- " terminally or wholly grey .....10.
8. Palpi  $3\frac{1}{2}$ —4 .....(23) *pyranthes*.
- "  $2\frac{1}{2}$ —3 .....9.
9. Forewings with costa posteriorly dotted with dark fuscous .....(20) *liopis*.
- " " not dotted with dark fuscous.....(22) *rhodias*.
10. First line whitish or ochreous, nearly straight, partly or wholly double .....11.
- " more or less bent, seldom whitish .....13.
11. Forewings with ferruginous-orange costal streak throughout.....(9) *iocrossa*.
- " without such streak.....12.
12. Forewings with reddish-ochreous costal patch beyond second line .....(10) *micacea*.
- " without such patch . . . . .(8) *nigrescens*.
13. Forewings with dark fuscous subcostal spot beyond second line .....(13) *metasema*.
- " without such spot .....14.
14. Groundcolour suffused with ferruginous .....15.
- " not ferruginous .....17.
15. Forewings with discal spot white .....(14) *ommatias*.
- " " not white.....16.
16. Orbicular and discal spots separated by yellow or orange spot .....(21) *endopyra*.
- " " not separated by yellow spot .....(19) *despecta*.
17. Forewings with pale or whitish suffusion beyond discal spot.....18.
- " without such suffusion .....20.
18. First line indicated by broad pale fascia, narrowed costally .....(7) *monticolans*.
- " not so formed .....19.
19. Forewings anteriorly with costal  $\frac{3}{4}$  dark, dorsal  $\frac{1}{4}$  pale .....(6) *ephippias*.
- " with these areas not contrasted.....(12) *platyleuca*.
20. Groundcolour uniformly dark .....21.
- " much mixed with pale .....(5) *chytropa*.
21. First line very thick, strongly marked .....(16) *pachygramma*.
- " not very thick .....22.
22. Second line more or less whitish-edged posteriorly .....23.
- " not whitish-edged.....(18) *argoscelis*.
23. Palpi whitish towards base beneath .....(15) *caminopis*.
- " wholly dark fuscous .....(17) *ennychioides*.

(1) *Phlyctaenia calliastra*, sp. nov.

♂♀. 20—23 mm. Head dark fuscous, with white lateral line. Palpi 2, dark fuscous, basal and second joints white beneath except at apex, more or less yellow-suffused. Thorax dark fuscous, two sometimes connected spots behind collar, a mark on posterior margin, and sometimes a spot in middle of collar yellowish, and a spot on each side of back white. Abdomen dark fuscous, segmental margins white in middle of

back and on sides. Legs dark fuscous, ringed and banded with white, posterior tibiae banded with yellowish. Forewings dark fuscous, sometimes with some yellowish scales beneath costa; markings snow-white; a basal median dot, another beyond it, a straight series of three small spots representing first line, two dots beyond this near costa and dorsum, a subquadrate spot in middle of disc, and two dots transversely placed beyond this; second line represented by two connected spots beneath costa, a series of two or three dots below middle nearer termen, and a series of three small subconfluent spots on dorsal third nearer base; a series of quadrate dots along termen and posterior half of costa; cilia dark fuscous, apical half spotted with white. Hindwings dark fuscous; apical half of cilia spotted with whitish.

8 specimens; 4 Kaholuamano, Kauai, at 4000 feet; 4 Mts. Waimea, Kauai, at 4000 feet; from April to June.

(2) *Phlyctaenia hyacinthias*, sp. nov.

♂ ♀. 24—27 mm. Head blackish, with a white lateral line, back of crown sometimes ochreous-yellow. Palpi  $2\frac{1}{4}$ , basal and second joints ochreous-yellow beneath except at apex. Thorax blackish, with an ochreous-yellow spot on shoulder, two ochreous-yellow spots behind collar and one in middle of back sometimes confluent, a white spot on each side of back, and white posterior mark. Abdomen blackish, sides yellowish-mixed, segmental margins white. Legs blackish, tarsi ringed with white, middle and posterior tibiae broadly banded with yellowish. Forewings dark fuscous; a subbasal transverse series of four dots, second white, rest ochreous-yellow; an ochreous-yellow dorsal spot before first line; first line ochreous-yellow, interrupted near costa by a group of three white dots, angulated inwards on lower half, followed by a spot of white and yellow scales opposite angulation; sometimes a streak of ochreous-yellow scales strewn beneath costa from first to second line; dot-like orbicular and oval discal spot ochreous-yellow; a transverse white spot between these, sometimes divided into two, and two white dots transversely placed beyond discal; second line represented by two connected white marks beneath costa, a series of two or three dots below middle nearer termen, and a series of three connected marks on dorsal third nearer base; sometimes a subterminal streak of ochreous-yellow scales; five white dots on posterior half of costa, yellowish beneath; a terminal series of white dots, sometimes almost obsolete; cilia dark fuscous, sometimes with indistinct whitish dots on apical half. Hindwings dark fuscous; two obliquely placed darker discal dots; cilia as in forewings. (Plate V. fig. 22.)

12 specimens, Haleakala, Maui, at 5000 feet, from March to May.

(3) *Phlyctaenia synastra*, sp. nov.

♂ ♀. 15—21 mm. Head dark fuscous, with a white lateral line, back of crown

sometimes ochreous-yellow. Palpi 2, black, basal and second joints white beneath except at apex. Thorax dark fuscous, with two ochreous-yellow spots behind collar and sometimes one in middle of back, sometimes confluent, a white spot on each side of back, and white posterior mark. Abdomen dark fuscous, sides yellowish-mixed, segmental margins white. Legs blackish, tarsi ringed with white, middle tibiae variably or hardly pale-banded or with terminal half white, posterior tibiae broadly banded with whitish-yellowish. Forewings dark fuscous, sometimes variably strewn with whitish and yellowish scales; a subbasal transverse series of three dots, second white, others yellowish; first line white, sometimes partly yellowish-tinged, irregular, interrupted above middle, dilated in middle, sinuate inwards on lower half, followed by two white dots above middle and one (sometimes yellow) below middle; dot-like orbicular and oval discal spot yellow or whitish; a narrow transverse white spot between these, seldom reduced to several dots, and two white dots transversely placed beyond discal; second line white, somewhat indented near costa, broken inwards below middle, usually interrupted to form three separate groups of subconfluent spots; sometimes a subterminal streak of pale yellowish scales; five white or yellowish dots on posterior half of costa; a terminal series of white dots; cilia dark fuscous, apical half spotted with whitish. Hindwings fuscous or dark fuscous, disc in ♂ sometimes suffused with whitish; two obliquely placed darker discal dots; an indistinct pale waved postmedian line; cilia fuscous, apical half more or less whitish.

15 specimens; 12 Oloa, Hawaii; 2 Kona, Hawaii, at 2000—4000 feet; 1 Waianae Mts., Oahu, at 2000 feet; in April, June, July, September, and November.

(4) *Phlyctaenia chalcophanes*, sp. nov.

♂ ♀. 21—24 mm. Head, palpi, and thorax pale ochreous-yellow sprinkled with black, back of crown deeper ochreous-yellow, palpi  $2\frac{1}{2}$ . Abdomen black mixed with pale yellow, segmental margins white. Legs black ringed with pale yellowish, posterior tibiae suffused with whitish-yellowish. Forewings blackish, mixed with ochreous-yellow; markings shining whitish-yellow, with prismatic reflections; basal and subbasal spots, sometimes confluent and enlarged; first line slender, irregular, followed by a partially confluent fascia, not reaching costa; an oval blackish spot containing a pale mark representing orbicular, separated by a transverse spot connected beneath with preceding fascia from a subquadrate blackish discal spot containing two pale dots; second line waved, sharply indented beneath costa, middle third curved outwards, preceded by a suffused fascia confluent above and below middle; subterminal line slender, sharply dentate, teeth touching termen, limiting a series of triangular black terminal spots; cilia fuscous, on apical half suffusedly spotted with whitish-yellowish.

Hindwings rather dark fuscous; two obliquely placed darker discal dots; cilia as in forewings. (Plate V. fig. 23.)

22 specimens; 20 Oloa, Hawaii, at 2000 feet; 2 Hilo, Hawaii, at 2000 feet; in January, September, and November.

(5) *Phlyctaenia chytropa*, sp. nov.

♀. 18—21 mm. Head, palpi, and thorax whitish-ochreous irrorated with dark fuscous, palpi  $2\frac{1}{2}$ . Abdomen dark grey, segmental margins ochreous-whitish. Legs dark fuscous, ringed with whitish, middle tibiae suffusedly banded with whitish or with terminal half wholly white, posterior tibiae mostly suffused with whitish. Forewings dark fuscous, irregularly and suffusedly mixed with whitish and whitish-ochreous; a subbasal spot of dark suffusion; first line irregular, obscurely pale, anteriorly suffused, posteriorly dark-edged; quadrate orbicular and 8-shaped discal spot dark-suffused; second line whitish, anteriorly black-edged, posteriorly partly edged with dark suffusion, middle third curved outwards; subterminal line obscurely indicated by whitish suffusion; three indistinct blackish spots before termen in middle; a series of blackish spots along termen and posterior half of costa; cilia fuscous, apical half spotted with whitish. Hindwings fuscous or rather dark fuscous, darker posteriorly; two obliquely placed darker discal dots; cilia as in forewings.

2 specimens; 1 Mts. Waimea, Kauai, at 4000 feet; 1 Waianae Mts., Oahu, at 2000 feet; in April and May.

(6) *Phlyctaenia ephippias*, sp. nov.

♂. 19—24 mm. Head and thorax light ochreous-yellowish irrorated with black, thorax with small white central spot. Palpi 2, blackish, sprinkled with pale yellowish. Abdomen dark grey. Legs blackish, ringed with white, posterior tibiae suffused with white. Forewings dull fuscous-purplish, densely irregularly irrorated with dark fuscous and light yellowish; a darker blotch occupying costal  $\frac{3}{4}$  from base to end of discal spot, leaving dorsal fourth more yellowish; an undefined white median basal dot; first line dark fuscous, bent in middle, interrupted above middle and on costa; round orbicular and 8-shaped discal spot outlined with dark fuscous, with a few white scales between them; an undefined spot of whitish scales below discal spot; space between discal spot and second line irregularly suffused with pale yellowish; second line pale yellowish, anteriorly edged with dark fuscous, slightly waved, sinuate-curved outwards to near termen above tornus, indistinct in disc, rectangularly broken inwards to beneath discal spot, towards costa marked with a white dot; a dark fuscous terminal line marked with white dots; cilia light fuscous mixed with whitish, with a dark fuscous line, and obscurely spotted with dark fuscous. Hindwings fuscous; two obliquely placed darker discal dots; cilia as in forewings. (Plate V. fig. 24.)

4 specimens, Mts. Waimea, Kauai, at 4000 feet, in May and June.

(7) *Phlyctaenia monticolans* Butl.

*Locastra monticolans* Butl. Trans. Ent. Soc. Lond. 1882, p. 34.

*Scopula monticolans* Meyr. Op. id. 1888, p. 219.

♂ ♀. 21—25 mm. Head, palpi, and thorax blackish, sprinkled with ferruginous or whitish; thorax crested, with a spot on each side of back and a posterior spot whitish; palpi  $1\frac{1}{2}$ — $1\frac{3}{4}$ . Abdomen dark fuscous, segmental margins whitish. Legs dark fuscous, ringed with white, posterior tibiae suffused with whitish. Forewings dark fuscous, variably mixed or irrorated with black, reddish-ochreous, and white, sometimes from subbasal to second line wholly suffused with reddish-ochreous or prismatic white; a more or less developed straight black subbasal line or fascia; first line thick, black, slightly curved, sometimes broadly interrupted below middle; roundish orbicular and oblong-oval discal spot outlined with black (in one specimen almost obsolete); second line more or less whitish, anteriorly black-edged, waved, suddenly indented near costa, curved outwards to rather near termen, at  $\frac{2}{3}$  abruptly broken inwards to beneath discal spot; a series of large semioval dark fuscous dots along termen and apical portion of costa, alternating with white dots, sometimes obsolete: cilia dark fuscous, apical half spotted with whitish. Hindwings rather dark fuscous, darker terminally; two obliquely placed darker discal dots; cilia as in forewings.

17 specimens; 4 Oloa, Hawaii, at 2000 feet; 1 Panoa Valley, Oahu, at 1500 feet; 10 Kaholuamano, Kauai, at 4000 feet; 2 Mts. Waimea, Kauai, at 4000 feet; from March to June, and in November. Mr Blackburn's specimens were from near Honolulu, at 1500 feet. I have redescribed this species, as my former description did not cover the considerable range of variation now shown to exist.

(8) *Phlyctaenia nigrescens* Butl.

*Mecyna nigrescens* Butl. Ann. Mag. Nat. Hist. (5) VII. 1881, p. 328.

*Melanomecyna nigrescens* id. Ent. Mo. Mag. XIX. p. 179.

*Scopula nigrescens* Meyr. Trans. Ent. Soc. Lond. 1888, p. 220.

♂ ♀. 14—18 mm. Head and thorax dark fuscous mixed with pale ochreous. Palpi 2— $2\frac{1}{4}$ , dark fuscous mixed with whitish. Abdomen dark fuscous, segmental margins white. Legs dark fuscous ringed with white, posterior tibiae suffused with whitish. Forewings fuscous, with coppery reflections, variably mixed with dark fuscous, whitish-ochreous, and whitish; first line black, preceded by whitish suffusion, lower half strong and touching orbicular beneath, upper half reduced to an indistinct mark beneath costa; roundish orbicular and 8-shaped discal spot black-outlined, space

between them often pale; discal spot followed by a conspicuous white suffusion, variable in extent; second line white, anteriorly black-edged, sinuate-curved to rather near tornus, at  $\frac{2}{3}$  abruptly broken inwards to beneath discal spot, near below which it emits a short black tooth inwards; posterior half of costa spotted with blackish, alternating with two or more whitish-ochreous spots; a terminal series of round blackish dots: cilia dark fuscous, apical half spotted with whitish. Hindwings rather dark fuscous, with darker terminal band; two obliquely placed darker discal dots; cilia dark fuscous, apical half whitish.

20 specimens; 4 Kona, Hawaii, from 1500 to 5000 feet; 1 Waianae Mts., Oahu, at 2000 feet; 3 Molokai, at 3000 feet; 1 Haleakala, Maui, at 5000 feet; 1 Wailuku, Maui; 10 Kaholuamano, Kauai, at 4000 feet; from April to August. Also twenty specimens received from Mr Blackburn; the original type-specimen was from Haleakala.

(9) *Phlyctaenia iocrossa*, sp. nov.

♂. 20—25 mm. Head, palpi, and thorax dark fuscous, sometimes much mixed with ferruginous, thorax with more or less developed central yellowish spot and sometimes white posterior mark, palpi  $2\frac{1}{2}$ . Abdomen dark fuscous, towards apex ferruginous-marked, segmental margins white. Legs dark fuscous, ringed with whitish, posterior tibiae whitish above. Forewings rather dark fuscous, slightly purplish-tinged; a more or less defined streak of ferruginous-orange suffusion along costa from base to apex, posteriorly marked with four quadrate dark fuscous costal spots; a white median subbasal dot; first line thick, straight, vertical, whitish-orange, beneath costal streak forming a quadrate white spot enclosing a dark fuscous dot or mark; a whitish longitudinal dash before second line above middle, and a whitish dot above this; sometimes some orange suffusion towards middle of dorsum; second line slender, whitish-orange, anteriorly darker-edged, marked with white beneath costal streak, middle third curved outwards, indistinct or nearly obsolete; sometimes a whitish suffusion between veins towards termen; a terminal series of indistinct dark fuscous spots separated by pale or whitish dots: cilia dark fuscous. Hindwings rather dark fuscous; two obliquely placed darker discal dots, and sometimes a faint second line; cilia dark fuscous, apical half paler. (Plate V. fig. 25.)

6 specimens; 4 Oloa, Hawaii, at 2000 feet; 1 Hilo, Hawaii, at 2000 feet; 1 Molokai, at 4000 feet; in January, June, September, and November.

(10) *Phlyctaenia micacea* Butl.

*Aporodes micacea* Butl. Ann. Mag. Nat. Hist. (5) VII. 1881, p. 326.

*Scopula micacea* Meyr. Trans. Ent. Soc. Lond. 1888, p. 220.

♂ ♀. 18—22 mm. Head, palpi, and thorax dark fuscous, more or less mixed

with black and ferruginous, thorax usually with central and posterior white marks, palpi  $1\frac{1}{2}$ —2. Abdomen blackish mixed with ferruginous, segmental margins white. Legs dark fuscous ringed with white, posterior tibiae whitish above. Forewings dark purplish-slaty-fuscous, towards base and costa somewhat ferruginous-mixed; first line sinuate or nearly straight, vertical, whitish, nearly preceded by a similar line, space between them suffused with reddish-ochreous and whitish except on costa, followed by a thick fascia of blackish suffusion, forming a triangular projection below middle; orbicular round, blackish, upper half usually filled with reddish-ochreous; discal spot 8-shaped, black-outlined, thickened laterally, more or less filled with reddish-ochreous; two small indistinct reddish-ochreous costal spots above this; second line dentate, black, posteriorly partially edged with some white and reddish-ochreous scales, fine and indistinct except towards costa, middle third curved outwards, followed by an elongate reddish-ochreous costal patch including two dark fuscous costal spots, and beneath this edged by a white mark becoming reddish-ochreous posteriorly; a terminal series of minute white dots: cilia dark fuscous, with apical series of whitish dots. Hindwings rather dark fuscous, darker terminally; two obliquely placed darker discal dots; cilia dark fuscous, apical half spotted with whitish.

12 specimens; 9 Kona, Hawaii, from 2000 to 4000 feet; 3 Mts. Waimea, Kauai, at 4000 feet; from May to September. Also recorded from Haleakala, Maui, at 4000 feet, by Mr Blackburn, from whom I received 14 specimens.

(11) *Phlyctaenia eucrena* Meyr.

*Scopula eucrena* Meyr. Trans. Ent. Soc. Lond. 1888, p. 218.

♂♀. 14—17 mm. Head and thorax reddish-ochreous, sometimes partially or wholly suffused with black, sometimes more or less marked with white. Palpi  $2\frac{1}{2}$ , reddish-ochreous or blackish above, broadly white beneath. Abdomen pale ochreous mixed with black, segmental margins white. Legs dark fuscous ringed with white, anterior and middle tibiae suffused with reddish-ochreous, posterior tibiae white with two black rings. Forewings brownish-ochreous, slightly reddish-tinged; first and second lines thick, white, first sinuate or nearly straight, vertical, anteriorly partially black-edged or sometimes preceded by a black blotch, posteriorly edged on lower half with some black or grey scales, second irregular, at  $\frac{3}{4}$  abruptly broken inwards to beneath discal spot, anteriorly edged with some black scales; included median space wholly suffused with white, except partial black outline of orbicular, sometimes a costal spot above it, and a costal blotch before second line partially or wholly suffused with black and representing discal spot; in one specimen second line mostly suffused with black except on costa; costa posteriorly spotted with blackish, or sometimes occupied by a blackish suffusion including two white costal dots; a terminal series

of black dots: cilia fuscous, mixed or spotted with whitish. Hindwings grey, sometimes suffused with whitish in disc; two obliquely placed darker discal dots; second line waved, whitish, sometimes nearly obsolete; a terminal series of blackish spots; cilia whitish, sometimes mixed with grey, with a darker grey basal line. (Plate V. fig. 26.)

6 specimens; 4 Oloa, Hawaii, at 2000 feet; 1 Kona, Hawaii, at 4000 feet; 1 Kaholuamano, Kauai, at 4000 feet; in April, June, August, and November. The locality of the original specimen received from Mr Blackburn was unrecorded. Those now obtained show a considerable range of variation.

(12) *Phlyctaenia platyleuca*, sp. nov.

♂♀. 22—25 mm. Head, palpi, and thorax brownish-ochreous irrorated with blackish, sometimes partially mixed with whitish. Abdomen ochreous-fuscous or rather dark fuscous, segmental margins in ♂ white. Legs dark fuscous ringed with white, posterior tibiae suffused with whitish. Forewings fuscous or dark fuscous, irrorated with light yellowish; a dark fuscous spot near base, and usually another larger beyond it towards dorsum; first line black, somewhat bent in middle, interrupted above middle, in one ♂ thick, anteriorly white-edged towards dorsum, posteriorly suffused; roundish orbicular and 8-shaped discal spot outlined with black; in one ♂ median band beyond middle wholly suffused with white, in two ♀s only a patch of white suffusion between discal spot and second line, in other ♂s none; second line blackish, posteriorly sometimes more or less whitish-edged, waved, sinuate-curved to rather near termen, at  $\frac{2}{3}$  rectangularly broken inwards to below discal spot; a spot of dark fuscous suffusion towards costa beyond this; posterior half of costa indistinctly dark-spotted; a terminal series of dark fuscous spots, in one ♂ separated by white dots: cilia dark fuscous, apical half obscurely pale-spotted. Hindwings fuscous, in ♀ darker posteriorly; two obliquely placed darker discal dots; second line faintly darker; a terminal series of dark fuscous dots; cilia as in forewings.

6 specimens; 5 Haleakala, Maui, at 5000 feet, in April and May; 1 Oloa, Hawaii (without white suffusion), at 2000 feet, in November.

(13) *Phlyctaenia metasema*, sp. nov.

♂♀. 15—23 mm. Head, palpi, and thorax brownish-ochreous, more or less irrorated with dark fuscous; palpi 3, base white beneath. Abdomen whitish-ochreous, irrorated with dark fuscous, segmental margins white on middle of back. Legs dark fuscous, ringed with white, posterior tibiae whitish. Forewings light ochreous-fuscous, more ochreous in ♂, more or less irrorated with dark fuscous, sometimes more or less tinged with dull reddish or ferruginous suffusion; first line waved, blackish,



angulated in middle, interrupted above middle; roundish orbicular and 8-shaped discal spot dark-outlined; second line blackish, interrupted, sometimes posteriorly whitish-edged towards extremities, sinuate-curved to rather near termen, at  $\frac{2}{3}$  abruptly broken inwards to beneath discal spot; a roundish dark fuscous or blackish spot beyond second line beneath costa; posterior half of costa spotted with dark fuscous; sometimes some indistinct dark fuscous terminal spots: cilia fuscous, apical half indistinctly spotted with whitish. Hindwings in ♂ whitish, with dark grey terminal band, sometimes reduced to an apical blotch, in ♀ grey, darker posteriorly; two obliquely placed dark grey discal dots; a postmedian series of dark grey dots, sometimes indistinct; sometimes a terminal series of indistinct dark fuscous dots; cilia whitish, with a grey line. (Plate V. fig. 27.)

17 specimens; 7 Oloa, Hawaii, at 2000 feet; 6 Hilo, Hawaii, at 2000 feet; 4 Haleakala, Maui, at 5000 feet; in January, May, September, November, and December.

(14) *Phlyctaenia ommatias*, sp. nov.

♂. 26 mm. Head, palpi, and thorax dark fuscous mixed with ferruginous, palpi  $3\frac{1}{2}$ , base whitish-mixed beneath. Abdomen dark fuscous, segmental margins hardly whitish. Legs dark fuscous, tarsi whitish-ochreous, posterior tibiae ferruginous-mixed. Forewings deep purplish-ferruginous, irrorated with dark fuscous; first line dark fuscous, irregular, bent in middle; small round orbicular and crescentic discal spot outlined with dark fuscous, discal mostly filled with white and with lower extremity forming a clear white short longitudinal dash; second line dark fuscous, followed by some whitish scales, sinuate-indentated beneath costa, at  $\frac{2}{3}$  forming a subquadrate loop inwards beneath discal spot; posterior half of costa spotted with blackish; a terminal series of blackish dots separated by whitish scales: cilia dark fuscous, apical half obscurely pale-mixed. Hindwings dark fuscous; two obliquely placed darker discal dots; a faint darker postmedian line; cilia as in forewings. (Plate V. fig. 28.)

1 specimen, Molokai, at 3000 feet, in June.

(15) *Phlyctaenia caminopsis*, sp. nov.

♀. 30 mm. Head, palpi, thorax, and abdomen dark purplish-fuscous, palpi  $2\frac{1}{2}$ , whitish towards base beneath. Legs dark fuscous, posterior tarsi suffused with pale ochreous. Forewings dark purple-fuscous, towards termen sprinkled with whitish; first line blackish, angulated in middle, thickened dorsally; roundish orbicular and narrow 8-shaped discal spot outlined with ferruginous-blackish; second line ferruginous-blackish, posteriorly indistinctly whitish-edged, sharply indented beneath costa, at  $\frac{2}{3}$  forming a subquadrate loop inwards beneath discal spot; an indistinct terminal series

of dark fuscous spots: cilia dark fuscous, apical half obscurely whitish-mixed. Hindwings dark purplish-fuscous; cilia as in forewings.

1 specimen, Molokai, at 5000 feet, in September. It is possible that this may be the other sex of the preceding species, but I do not feel justified in uniting them.

(16) *Phlyctaenia pachygramma*, sp. nov.

♀. 27—29 mm. Head, palpi, and thorax dark purplish-fuscous, palpi 2. Abdomen dark fuscous, with dorsal series of white dots. Legs dark fuscous, apex of posterior tibiae whitish. Forewings rather dark purplish-fuscous, costa suffusedly darker; first and second lines very thick, waved, blackish, first somewhat curved, second indented beneath costa, at  $\frac{2}{3}$  rather shortly broken inwards; round orbicular touching first line and 8-shaped discal spot strongly outlined with blackish; a terminal series of small blackish spots, separated by pale greyish-ochreous scales: cilia dark fuscous, tips whitish-mixed. Hindwings rather dark fuscous; two obliquely placed darker discal dots; a cloudy darker postmedian line; a terminal series of darker spots; cilia as in forewings. (Plate V. fig. 29.)

2 specimens; 1 Oloa, Hawaii, in September; 1 Waianae Mts., Oahu, at 2000 feet, in February.

(17) *Phlyctaenia ennychioides* Butl.

*Mecyna ennychioides* Butl. Ann. Mag. Nat. Hist. (5) VII. 1881, p. 328.

*Melanomecyna ennychioides* id. Ent. Mo. Mag. XIX. p. 179; *M. stellata* ib. p. 179.

*Scopula ennychioides* Meyr. Trans. Ent. Soc. Lond. 1888, p. 221; *S. stellata* ib. p. 222.

♂♀. 19—24 mm. Head, palpi, and thorax dark fuscous, palpi  $2\frac{1}{2}$ —3. Abdomen fuscous, segmental margins whitish. Legs dark fuscous, ringed with whitish, posterior tibiae suffused with whitish. Forewings rather dark purplish-fuscous, costa and base sometimes darker-suffused; first line dark fuscous, bent in middle, sometimes interrupted above middle; roundish orbicular and 8-shaped discal spot outlined or sometimes wholly suffused with dark fuscous, sometimes obscurely pale-centred; second line waved, dark fuscous, posteriorly partially whitish-edged, especially towards dorsum, indented near costa, at  $\frac{2}{3}$  abruptly broken inwards to beneath discal spot; posterior half of costa often obscurely spotted with dark fuscous and pale; a terminal series of dark fuscous spots, sometimes separated by ochreous-whitish scales: cilia dark fuscous, apical half more or less mixed with ochreous-whitish. Hindwings fuscous or rather dark fuscous; two indistinct obliquely placed darker discal dots; a faint darker postmedian line; a terminal series of dark spots; cilia as in forewings, but more whitish.

22 specimens; 5 Oloa, Hawaii, at 2000 feet; 1 Hilo, Hawaii, at 2000 feet; 1 Kilauea, Hawaii; 1 Kona, Hawaii, at 1500 feet; 3 Haleakala, Maui, at 5000 feet; 2 Waianae Mts., Oahu, at 3000 feet; 4 Molokai, at 4000 feet; 1 Lanai, at 2000 feet; 4 Kaholuamano, Kauai, at 4000 feet; in January, and from April to December. Also seven specimens received from Mr Blackburn; the additional material now obtained shows that only one species is indicated under the names quoted. My reference to *Scotomera tristis* (l. c. p. 222) must have been made under some misapprehension, as it is an Indian species.

(18) *Phlyctaenia argoscelis* Meyr.

*Scopula argoscelis* Meyr. Trans. Ent. Soc. Lond. 1888, p. 222.

♂ ♀. 20—25 mm. Head, palpi, and thorax rather dark purplish-fuscous, sometimes partly ferruginous-tinged, palpi  $3\frac{1}{2}$ —4, whitish towards base beneath. Abdomen rather dark fuscous, segmental margins white on back. Legs dark fuscous, ringed with whitish, anterior and middle tibiae and tarsi wholly suffused with white. Forewings rather dark purple-fuscous, sometimes partially tinged with ferruginous suffusion; first line dark fuscous, bent in middle, interrupted above middle; small roundish orbicular and 8-shaped discal spot suffused with dark fuscous; second line waved, dark fuscous, sinuate-curved, at  $\frac{2}{3}$  abruptly broken inwards to below discal spot; posterior half of costa sometimes pale, more or less distinctly spotted with dark fuscous; a terminal series of dark fuscous spots: cilia dark fuscous. Hindwings rather dark fuscous, slightly coppery-tinged; sometimes two obliquely placed discal dots and postmedian line darker; a terminal series of darker spots; cilia whitish-fuscous, with two cloudy darker lines.

24 specimens; 3 Kona, Hawaii, at 4000 feet; 1 Oloa, Hawaii, at 2000 feet; 4 Waianae Mts., Oahu, at 3000 feet; 1 Molokai, at 4000 feet; 9 Mts. Waimea, Kauai, at 4000 feet; 6 Kaholuamano, Kauai, at 4000 feet; from April to November. Also three specimens received from Mr Blackburn.

(19) *Phlyctaenia despecta* Butl.

*Rhodaria despecta* Butl. Ent. Mo. Mag. xiv. p. 49.

*Scopula exigua* ib. xvii. p. 9.

*Scopula despecta* Meyr. Trans. Ent. Soc. Lond. 1888, p. 223.

♂ ♀. 15—27 mm. Head, palpi, and thorax ferruginous, sometimes infuscated, palpi 3— $3\frac{1}{2}$ , white towards base beneath, thorax sometimes suffused with ochreous-yellowish posteriorly. Abdomen grey, sometimes suffused with ochreous-yellowish or ferruginous. Legs whitish, sometimes more or less variably suffused with ferruginous. Forewings reddish-ochreous or fuscous-ochreous or ferruginous, sometimes much mixed with dark fuscous, especially towards costa on anterior half, sometimes much tinged

with coppery-purplish; first line dark fuscous, bent in middle but usually obsolete on costal half; roundish orbicular and 8-shaped discal spot outlined with dark fuscous; second line waved or denticulate, dark fuscous, more or less curved on upper portion, sometimes sinuate near costa, below middle with an abrupt semicircular excavation inwards beneath discal spot; posterior half of costa sometimes spotted with dark fuscous; a terminal series of dark fuscous or blackish dots: cilia rather dark fuscous, tips obscurely whitish. Hindwings fuscous, darker posteriorly, sometimes mixed with lighter ochreous suffusion; two obliquely placed dark fuscous discal dots; usually an indistinct darker postmedian line as in forewings; a terminal series of blackish dots; cilia grey or grey-whitish, with dark grey subbasal line.

55 specimens; 18 Kona, Hawaii, at 3500—4000 feet; 3 Oloo, Hawaii, at 2000 feet; 1 Hilo, Hawaii, at 2000 feet; 7 Waianae Mts., Oahu, at 2000—3000 feet; 1 Lanai, at 2000 feet; 2 Molokai, at 3000 feet; 9 Mts. Waimea, Kauai, at 4000 feet; 14 Kaholuamano, Kauai, at 4000 feet; occurs all the year round. Also recorded from Maui by Mr Blackburn, from whom I received 24 specimens; he has described the larva, Ent. Mo. Mag. XIX. 56. This species varies locally, especially in size, and I found it hard to believe that the extreme forms could be identical, but after prolonged examination I can find no reliable distinctions. The small rather dull form originally described is the Oahu form; the Kona specimens are all medium-sized, lighter-coloured; the largest and darkest specimens (mostly purple-tinged) are from Kauai (especially Mts. Waimea), but transitional specimens from the same localities also occur. The single Hilo specimen is very purple-tinged, indistinctly marked. Probably these differences are directly attributable to climatic influences.

(20) *Phlyctaenia liopis*, sp. nov.

♂ ♀. 20—22 mm. Head, palpi, and thorax light fuscous-reddish, palpi  $2\frac{1}{2}$ —3. Abdomen pale whitish-ochreous. Legs whitish, more or less suffused with dull ochreous-reddish. Forewings elongate, pale ochreous, suffusedly irrorated with light fuscous and reddish; first line dark fuscous, irregular, sometimes obsolete on costal half or wholly; roundish orbicular and 8-shaped discal spot fuscous, in ♀ ill-defined; second line dark fuscous, waved, sometimes indistinct, upper portion unevenly curved, below middle with an abrupt semicircular excavation inwards beneath discal spot; a series of dark fuscous dots along termen and apical third of costa: cilia fuscous-whitish with obscure reddish-fuscous line. Hindwings whitish, faintly ochreous-tinged, in ♂ suffused with light reddish and fuscous towards apex; two obliquely placed dark fuscous discal dots; in ♂ a dark fuscous postmedian line; a terminal series of dark fuscous dots, sometimes indistinct; cilia whitish, faintly reddish-tinged. (Plate V. fig. 30.)

3 specimens, Haleakala, Maui, at 5000—6000 feet, in April and May.

(21) *Phlyctaenia endopyra*, sp. nov.

♂♀. 15—21 mm. Head, palpi, and thorax ferruginous-orange, more or less mixed with dark fuscous, palpi  $2\frac{1}{2}$ —3, whitish towards base beneath. Abdomen greyish-ochreous mixed with dark fuscous, segmental margins whitish. Legs ochreous-whitish or brownish-ochreous, more or less suffused with dark fuscous, posterior tibiae more whitish. Forewings elongate, ferruginous-orange or deep ferruginous, sometimes suffusedly irrorated with dark fuscous except towards costa, where it is sometimes brighter orange; first line dark fuscous, rectangularly bent in middle, sometimes obsolete on upper half; roundish orbicular and 8-shaped discal spot more or less suffused with dark fuscous, in ♂ closely approximated and separated only by a vertical yellow linear mark (seldom obsolete), in ♀ separated by a clear orange quadrate spot, orbicular preceded by a smaller similar spot; posterior half of costa sometimes spotted with dark fuscous; second line dark fuscous, upper portion parallel to termen, slightly sinuate near costa, below middle abruptly broken inwards to beneath discal spot; a terminal series of dark fuscous dots: cilia fuscous, tips obscurely whitish. Hindwings in ♂ whitish-ochreous, grey-sprinkled, in ♀ light fuscous, slightly yellowish-tinged; two obliquely placed darker discal dots; a curved darker grey postmedian line; in ♂ sometimes a terminal fascia of grey suffusion; a terminal series of dark fuscous dots; cilia fuscous-whitish, with fuscous subbasal line.

6 specimens; 4 Haleakala, Maui, at 5000 feet, from March to May; 2 Hilo, Hawaii, at 2000 feet, in January. Distinguished from its allies by form of second line.

(22) *Phlyctaenia rhodias*, sp. nov.

♂♀. 19—24 mm. Head, palpi, and thorax ferruginous or dark reddish, partially sprinkled with dark grey, palpi  $2\frac{1}{2}$ —3, white towards base beneath. Abdomen whitish-ochreous. Legs light yellow-ochreous, more or less suffused with reddish. Forewings elongate, rosy-ochreous, irrorated with dull crimson; lines dark grey, ill-defined, first obtusely angulated in middle, second waved, unevenly curved on upper portion, below middle abruptly broken inwards beneath discal spot; roundish orbicular and 8-shaped discal spot indistinctly outlined or suffused with dark grey; a terminal series of blackish dots: cilia dull purplish, mixed with dark grey. Hindwings dull ochreous-whitish, sometimes posteriorly rosy-tinged; two obliquely placed grey discal dots; an indistinct curved grey postmedian line; a terminal series of blackish dots; cilia whitish or rosy-whitish.

3 specimens; 2 Molokai, at 4500 feet, in September; 1 Lanai, at 3000 feet, in July.

(23) *Phlyctaenia pyranthes*, sp. nov.

♂ ♀. 19—23 mm. Head and thorax ferruginous-orange, patagia reddish. Palpi  $3\frac{1}{2}$ —4, ochreous-reddish, base white beneath. Abdomen whitish-ochreous, reddish-tinged. Legs dark reddish, banded with white, middle pair almost wholly white. Forewings yellow-ochreous, almost wholly suffused with purple-reddish; lines obscurely darker or almost obsolete, sometimes mixed or partly dotted with dark fuscous, first bent in middle, second sometimes posteriorly pale-edged, curved on upper portion, sinuate-indented near costa, below middle abruptly broken inwards to beneath discal spot; roundish orbicular and 8-shaped discal spot darker purple-reddish, sometimes fuscous-tinged; sometimes a terminal series of blackish dots: cilia dull purple or purplish-grey, tips whitish. Hindwings pale whitish-ochreous, more or less rosy-tinged, especially posteriorly; two obliquely placed sometimes indistinct dark grey discal dots; sometimes an obscure grey postmedian line; sometimes a terminal series of dark fuscous dots; cilia rosy-whitish. (Plate V. fig. 31.)

6 specimens; 2 Hilo, Hawaii, at 2000 feet, in January; 3 Mts. Waimea, Kauai, at 4000 feet, in May and June; 1 Kaholuamano, Kauai, at 4000 feet, in April.

(24) *Phlyctaenia heterodoxa*, sp. nov.

♂ ♀. 17—21 mm. Head, palpi, and thorax brownish-ochreous, palpi  $2\frac{1}{2}$ , white towards base beneath. Abdomen greyish-ochreous. Legs fuscous, posterior pair whitish-fuscous. Forewings pale ochreous irrorated with fuscous, sometimes ferruginous-tinged, especially towards base of costa and on terminal area, sometimes whitish-suffused in disc; orbicular and discal spots dot-like, rather dark fuscous, sometimes obsolete; second line straight or faintly sinuate, parallel to termen, in ♂ whitish, edged posteriorly with fuscous or dark fuscous suffusion, in ♀ obscurely paler, edged posteriorly by ferruginous terminal area: cilia pale ochreous or ochreous-whitish. Hindwings in ♂ whitish, in ♀ grey; two indistinct grey obliquely placed discal dots; an apical patch of rather dark grey suffusion, margined anteriorly by traces of a postmedian line; cilia in ♂ whitish, in ♀ grey, ferruginous-tinged. (Plate V. fig. 32.)

4 specimens, Haleakala, Maui, at 5000 feet, from March to May.

PYRAUSTA *Schranck*.

I have suppressed the genus *Protocolletis* Meyr., having shown elsewhere that the character on which it was founded, the anastomosing of vein 10 of the forewings with 9 towards base, occurs occasionally as an exceptional structure in several species of this

and allied genera; yet as it appears to be constant in Hawaiian forms, I have here ranked the two species which exhibit the structure as a separate section.

1. Forewings mixed with green.....(1) *bryochloris*.
- "    not green ..... 2.
2. Forewings with dorsal edge black on median area .....(8) *psychropa*.
- "    "    not black ..... 3.
3. Orbicular confluent beneath with dark blotch reaching dorsum .....(2) *dracontias*.
- "    not confluent with dark blotch beneath ..... 4.
4. Forewings dark purplish-fuscous .....(6) *brontias*.
- "    not dark fuscous ..... 5.
5. Forewings more or less ferruginous ..... 6.
- "    whitish-ochreous..... 8.
6. Hindwings yellowish .....(10) *phaethontia*.
- "    light fuscous ..... 7.
7. Palpi  $2\frac{1}{2}$ —3 .....(5) *thermantis*.
- "    5 .....(9) *constricta*.
8. Orbicular and discal spots obsolete.....(7) *litorea*.
- "    "    distinct ..... 9.
9. Head and thorax hardly dark-sprinkled .....(3) *dryadopa*.
- "    "    densely irrorated with dark fuscous .....(4) *chloropis*.

(1) *Pyrausta bryochloris*, sp. nov.

♂ ♀. 28—32 mm. Head, palpi, and thorax black mixed with green, palpi 2. Abdomen rather dark fuscous. Legs dark fuscous, ringed with whitish. Forewings blackish, densely irregularly irrorated with light green; two white basal dots; a well-marked black subbasal line, followed by whitish-green suffusion; first and second lines slender, white, waved, internally black-edged, first irregular, second moderately curved outwards between  $\frac{1}{5}$  and  $\frac{3}{5}$ ; dorsal scale-tuft white mixed with fuscous; roundish orbicular and 8-shaped discal spot outlined with ferruginous, discal marked with two white dots; some light purplish suffusion in disc below these; blotches of dark ground-colour at apex and tornus; a terminal series of white dots: cilia fuscous, mixed with darker and pale. Hindwings dark fuscous, rather lighter anteriorly; cilia as in forewings. (Plate VI. fig. 1.)

2 specimens, Haleakala, Maui, at 5000 feet, in March.

(2) *Pyrausta dracontias*, sp. nov.

♀. 26—27 mm. Head, palpi, and thorax dark fuscous mixed with whitish, palpi  $3\frac{1}{2}$ . Abdomen fuscous, sprinkled with darker and whitish. Legs dark fuscous, sprinkled with whitish. Forewings rather dark fuscous; first line double, purple-whitish, nearly straight; orbicular trapezoidal, dark fuscous, indistinctly whitish-edged except on

lower margin, where it is confluent with a dark fuscous blotch occupying anterior half of median band and extending to dorsum; discal spot irregularly pentagonal, blackish-fuscous, white-edged; second line slender, white, anteriorly dark-edged, preceded by a broad band of whitish suffusion, middle third strongly curved outwards: cilia fuscous, mixed with dark fuscous and whitish. Hindwings fuscous; a darker discal dot; an indistinct darker postmedian line; cilia whitish, spotted with fuscous, with a dark fuscous subbasal line. (Plate VI. fig. 2.)

2 specimens; 1 Mts. Waimea, Kauai, at 4000 feet; 1 Kaholuamano, Kauai, at 4000 feet; in April and May.

(3) *Pyrausta dryadopa*, sp. nov.

♂ ♀. 21—22 mm. Head, palpi, and thorax pale whitish-ochreous, shoulders with a few dark fuscous specks, palpi  $3\frac{1}{2}$ , thinly sprinkled with dark fuscous. Abdomen whitish-ochreous, sprinkled with fuscous and dark fuscous, segmental margins whitish. Legs whitish, banded with dark fuscous irroration, posterior tibiae wholly whitish. Forewings in ♂ with termen strongly sinuate below apex; pale whitish-ochreous, sprinkled with brownish or dark fuscous; first line pale, edged posteriorly with dark fuscous on lower half, obtusely angulated outwards in middle, and more sharply inwards near dorsum; roundish orbicular and 8-shaped discal spot outlined with brownish or dark fuscous, space between them pale, discal dark-centred; a dark fuscous costal dot above discal spot; second line pale, waved, edged anteriorly with dark fuscous, upper  $\frac{2}{3}$  moderately curved outwards, thence rectangularly broken inwards to beneath discal spot; costal area beyond this wholly pale except two dark fuscous dots; terminal area in ♀ suffused with dark fuscous from beneath apex to below middle; a terminal series of dark fuscous dots: cilia whitish-ochreous with two dark fuscous lines, and barred with dark fuscous. Hindwings fuscous-whitish, in ♀ irrorated with fuscous; two obliquely placed dark fuscous discal dots; a waved, darker fuscous postmedian line; a darker subterminal shade, leaving a whitish terminal line, marked with a series of black dots; cilia whitish, with two indistinct interrupted fuscous lines.

3 specimens; 1 Mts. Waimea, Kauai, at 4000 feet; 1 Kaholuamano, Kauai, at 4000 feet; 1 Haleakala, Maui, at 5000 feet; in April and May.

(4) *Pyrausta chloropis*, sp. nov.

♂ ♀. 20—25 mm. Head, palpi, thorax, and abdomen whitish-ochreous, more or less brownish-tinged and irrorated with dark fuscous, palpi  $3\frac{1}{2}$ —4, whitish beneath. Legs ochreous-whitish, indistinctly banded with dark fuscous. Forewings whitish-ochreous, irrorated with dark brown; a dark fuscous suffusion on base of costa; first and second lines dark fuscous, waved, first bent in middle, posteriorly pale-edged,



second curved, indented below costa, below middle rectangularly broken inwards to beneath discal spot; included median band rather darker-suffused except on costa; roundish orbicular and reniform discal spot darker, separated by a pale or ochreous-white spot; posterior half of costa dotted with dark fuscous; a terminal series of dark fuscous marks: cilia ochreous-whitish, barred with fuscous, with two dark fuscous lines. Hindwings rather light fuscous; two obliquely placed dark fuscous discal dots; a waved dark fuscous postmedian line, with middle third curved outwards; terminal marks and cilia as in forewings.

16 specimens; 3 Olaa, Hawaii, at 2000 feet, in November; 1 Hilo, Hawaii, at 2000 feet, in January; 9 Kaholuamano, Kauai, at 4000 feet, in April; 3 Mts. Waimea, Kauai, at 4000 feet, in May and June.

(5) *Pyrausta thermantis*, sp. nov.

♂ ♀. 19—21 mm. Head, palpi, and thorax ferruginous, mixed with black and pale ochreous, palpi  $2\frac{1}{2}$ —3. Abdomen fuscous, irrorated with whitish-ochreous. Legs ferruginous, partly suffused with black. Forewings ferruginous, irrorated with dark fuscous; first and second lines obscurely ochreous-whitish, edged internally with dark fuscous, first somewhat angulated above middle, obsolete towards costa, second curved, slightly waved, indented beneath costa, below middle sending an abrupt narrow loop inwards to beneath discal spot; roundish orbicular and reniform discal spot outlined with dark fuscous, separated by a quadrate spot of whitish suffusion, discal spot followed by some whitish suffusion; costa posteriorly spotted with dark and pale; a spot of dark fuscous suffusion beyond second line beneath costa; a terminal series of obscure dark fuscous dots: cilia grey, paler-mixed, with darker subbasal line. Hindwings light fuscous; two obliquely placed dark grey discal dots; a curved dark grey postmedian line, obscurely pale-edged posteriorly; a terminal series of dark fuscous dots; cilia grey-whitish, with two grey lines. (Plate VI. fig. 3.)

3 specimens, Olaa, Hawaii, in June.

(6) *Pyrausta brontias*, sp. nov.

♂ ♀. 21—25 mm. Head, palpi, and thorax dark fuscous, crown often mixed with ferruginous-ochreous, palpi 3— $3\frac{1}{2}$ . Abdomen rather dark fuscous, segmental margins whitish, anal tuft pale ochreous. Legs dark fuscous, ringed with ochreous-whitish. Forewings glossy dark purplish-fuscous; often a ferruginous-ochreous dorsal suffusion before first line; first and second lines blackish-fuscous, first hardly traceable, second often more or less edged posteriorly with ochreous-whitish, curved, indented beneath costa, below middle forming an abrupt loop inwards beneath discal spot; roundish orbicular and 8-shaped discal spot darker, sometimes very indistinct; a terminal series

of ochreous-whitish marks: cilia dark fuscous. Hindwings fuscous, becoming darker posteriorly; two indistinct darker obliquely placed discal dots; a terminal series of whitish dots; cilia fuscous, tips whitish.

10 specimens; 8 Kaholuamano, Kauai, at 4000 feet; 2 Mts. Waimea, Kauai, at 4000 feet; from April to June.

(7) *Pyrausta litorea* Butl.

*Scopula litorea* Butl. Ent. Mo. Mag. XIX. p. 178.

*Eurycreon litorea* Meyr. Trans. Ent. Soc. Lond. 1888, p. 230.

No additional specimens obtained. Recorded by Mr Blackburn from Mauna Lea, Lanai, in September. After careful comparison with allied forms, I consider that the face is only somewhat prominently rounded and has no true frontal projection. The first and second lines of forewings are sometimes more distinctly indicated by dots of blackish scales than is implied in my description, but none of the specimens are good.

(8) *Pyrausta psychropa*, sp. nov.

♂. 23—28 mm. Head, palpi, and thorax whitish mixed with fuscous or whitish-fuscous, palpi 3, with broad lateral blackish-fuscous stripe, base white beneath, edge of shoulder black. Abdomen rather elongate, fuscous, whitish-mixed, anal tuft whitish. Legs fuscous mixed with whitish. Forewings fuscous, thickly suffusedly strewn with white scales, and more or less irrorated with dark fuscous; a short black longitudinal streak from base of costa; first line darker, only distinct near costa, where it is very oblique and somewhat marked with black; dorsal edge sharply black between first and second lines; oval orbicular and narrow-reniform discal spot outlined with dark fuscous or blackish, oblique; second line hardly perceptible except towards costa, where it forms a very oblique blackish streak, followed by a small white costal spot, elsewhere sometimes partially indicated by dark fuscous dots, apparently sending an abrupt loop inwards beneath discal spot; a terminal series of black dots: cilia whitish, with a fuscous subbasal line. Hindwings fuscous, lighter anteriorly; two obliquely placed darker discal dots; sometimes obscure indications of a postmedian line. (Plate VI. fig. 4.)

3 specimens; 2 Kaholuamano, Kauai, at 4000 feet; 1 Mts. Waimea, Kauai, at 4000 feet; in April and May.

Section *PROTOCOLLETIS* Meyr.

(9) *Pyrausta constricta* Butl.

*Scopula constricta* Butl. Trans. Ent. Soc. Lond. 1882, p. 40.

*Protocolletis constricta* Meyr. Trans. Ent. Soc. Lond. 1888, p. 224.

No examples of this species were included in the collection. The original specimens were bred from larvae feeding between spun leaves of an unidentified plant on the mountains near Honolulu, Oahu.

(10) *Pyrausta phaethontia*, sp. nov.

♂. 33—37 mm. Head, palpi, and thorax ochreous-ferruginous, palpi 4, crimson-tinged, sprinkled with dark fuscous. Abdomen ochreous-yellowish, sprinkled with crimson-ferruginous. Legs ochreous-yellowish, more or less suffused with crimson-ferruginous. Forewings ochreous-yellowish, densely irrorated or wholly suffused with crimson-ferruginous; small orbicular and transverse discal spot infuscated but very obscure and undefined; second line darker, hardly traceable, rather curved on upper portion, sinuate beneath costa, apparently forming a loop inwards beneath discal spot: cilia ferruginous-purplish, somewhat whitish-mixed. Hindwings light ochreous-yellowish; two obliquely placed rosy-grey discal dots; a faint rosy-grey waved line beyond  $\frac{3}{4}$ ; apex more or less rosy-suffused; cilia purple, tips paler. (Plate VI. fig. 5.)

5 specimens; 4 Oloa, Hawaii; 1 Kona, Hawaii, at 4000 feet; in June, September, and December.

MECYNA Steph.

(1) *Mecyna aurora* Butl.

*Anemosa aurora* Butl. Ann. Mag. Nat. Hist. (5) VII. 1881, p. 327.

*Mecyna aurora* Meyr. Trans. Ent. Soc. Lond. 1888, p. 225.

(Plate VI. fig. 6.)

A single specimen, without locality; it is a female (this sex being previously unknown), expanding 18 mm., but not differing in any way from the male. By an unfortunate perversity the locality of Mr Blackburn's specimens has also escaped record.

(2) *Mecyna virescens* Butl.

*Mecyna virescens* Butl. Ann. Mag. Nat. Hist. (5) VII. 1881, p. 329; Meyr. Trans. Ent. Soc. Lond. 1888, p. 225.

41 specimens; 28 Kona, Hawaii, at 4000 feet; 2 Haleakala, Maui, at 5000 feet; 7 Waianae Mts., Oahu, at 2000 feet; 2 Halemanu, Kauai; 2 Mts. Waimea, Kauai, at 4000 feet; from March to September. Bred by Mr Blackburn from larvae feeding on an *Acacia* (?), on Haleakala; 14 specimens sent by him.

LOXOSTEGE *Hüb.*

- |   |                          |
|---|--------------------------|
| 1. Forewings reddish-brown .....            | (1) <i>conisalias</i> .  |
| "    orange or ochreous .....               | 2.                       |
| 2. First and second lines well-marked ..... | (3) <i>helioxantha</i> . |
| "    "    absent .....                      | (2) <i>melanopsis</i> .  |

(1) *Loxostege conisalias*, sp. nov.

♂. 19—23 mm. Head, thorax, and abdomen greyish-ochreous, more or less ferruginous-tinged. Antennal ciliations  $\frac{1}{4}$  (longer at base). Palpi  $4\frac{1}{2}$ , ferruginous, sprinkled with dark fuscous. Forewings with termen rather sinuate beneath apex; reddish-brown, sprinkled with dark fuscous; median band more or less suffused with dark fuscous, anterior edge very ill-defined, posterior moderately curved to below middle, thence rectangularly broken inwards to below discal spot; discal spot small, white, surrounded by darker suffusion: cilia pale fuscous, with two dark fuscous lines. Hindwings light fuscous; cilia whitish-fuscous, with fuscous subbasal line.

3 specimens, Hilo, Hawaii, at 2000 feet, in December and January.

(2) *Loxostege melanopsis*, sp. nov.

♂. 21 mm. Head, palpi, thorax, and abdomen reddish-ochreous, palpi  $4\frac{1}{2}$ , sprinkled with black, abdomen ferruginous-suffused. Antennal ciliations 1. Forewings with termen faintly sinuate beneath apex; orange-ochreous, suffusedly sprinkled with ferruginous; costal edge blackish except towards apex; round orbicular and 8-shaped discal spot blackish: cilia apparently ochreous with blackish lines (imperfect). Hindwings pale yellowish-ochreous, suffusedly irrorated with grey except on a terminal band; two indistinct obliquely placed darker discal dots; cilia ochreous-whitish. (Plate VI. fig. 7.)

1 specimen, Oloa, Hawaii, at 2000 feet, in November.

(3) *Loxostege helioxantha*, sp. nov.

♀. 32—34 mm. Head and thorax light orange, shoulders reddish-brown. Palpi 6, ochreous, more or less suffusedly irrorated with reddish and sprinkled with dark fuscous. Abdomen light yellow-ochreous. Forewings with termen not sinuate; vein 10 sometimes stalked with 9; light orange, veins more or less marked with grey-reddish suffusion; costal edge dark fuscous on anterior half; first and second lines grey-reddish, first angulated in middle, second slightly waved, curved, indented beneath costa, below

middle forming a deep abrupt loop inwards beneath discal spot ; round orbicular and reniform discal spot reddish-brown : cilia grey-reddish. Hindwings light yellowish ; two obliquely placed rosy-grey discal spots ; a faint rosy-grey postmedian line ; cilia whitish-rosy. (Plate VI. fig. 8.)

4 specimens, Kaholuamano, Kauai, at 4000 feet, in April. The variation in the structure of vein 10 of forewings is curious but does not impair the generic definition, though enlarging it ; it appears to be normal in this species, for the four individuals all differ in this respect, varying from complete separation through partial fusion to stalking for fully half their length.

NOMOPHILA *Hüb.*

(1) *Nomophila noctuella* Schiff.

10 specimens ; 1 Olaa, Hawaii ; 1 Haleakala, Maui, at 5000 feet ; 6 Waianae Mts., Oahu, at 1300 feet ; 2 Mts. Waimea, Kauai, at 4000 feet ; from April to June, and in September. Almost a cosmopolitan species.

HELLULA *Guen.*

(1) *Hellula undalis* Fab.

2 specimens ; 1 Honolulu Mts., Oahu ; 1 Mts. Waimea, Kauai, at 4000 feet ; in June.

PROMYLAEA, gen. nov.

Face rounded, vertical ; ocelli present ; tongue developed. Antennae  $\frac{3}{4}$ , in ♂ — ? Labial palpi rather short, porrected, with appressed scales, terminal joint short, pointed. Maxillary palpi extremely short, resting on base of labial. Posterior tibiae with outer spurs  $\frac{3}{4}$ . Forewings normal. Hindwings with vein 3 absent, 4 and 5 closely approximated at base, 7 remote from 6 at origin, anastomosing with 8 to near middle, lower median without pecten.

This genus is closely allied to *Mestolobes*, but differs in the extremely small (hardly visible) maxillary palpi, and the separation of veins 4 and 5 of hindwings ; the ♂ may probably show differences in respect of the secondary sexual characters of hindwings.

(1) *Promylaea pyropha*, sp. nov.

♀. 18 mm. Head and thorax deep shining bluish-lead, back of crown orange. Palpi orange. Abdomen dark fuscous. Legs prismatic-fuscous, middle and posterior

femora pale coppery-golden. Forewings fuscous-blackish; a patch occupying basal fourth, produced on costa, a very broad fascia of irroration beyond middle, becoming uniform on costal half anteriorly, and a rather narrow terminal fascia shining bluish-leadens: cilia fuscous, basal  $\frac{2}{3}$  blackish-fuscous. Hindwings dark fuscous, with coppery reflections, somewhat lighter towards base; cilia as in forewings. (Plate VI. fig. 9.)

1 specimen, Molokai, at 4000 feet.

MESTOLOBES *Butl.*

The characters given may be augmented as follows: hindwings with veins 3 and 4 connate or stalked, 7 frequently separate from 6, anastomosing more or less with 8; in ♂ sometimes with subdorsal groove as in *Orthomecyna*, dorsal lobe sometimes modified into a pocket beneath, with or without costal hair-pencil or ridge of curled hairs.

1. Forewings with groundcolour uniform blackish or dark fuscous .....2.
- "          "          not uniform dark fuscous .....10.
2. Forewings with several violet-blue-metallic spots in disc.....(1) *amethystias*.
- "          "          without such spots .....3.
3. Forewings wholly without markings .....(7) *sirina*.
- "          "          with more or less marking .....4.
4. Forewings with white antemedian dorsal spot .....(8) *epidelta*.
- "          "          without such spot .....5.
5. Forewings with four shining leaden fasciae.....(2) *chrysomolybda*.
- "          "          without such fasciae .....6.
6. Palpi wholly whitish .....(4) *crypsichrysa*.
- "          "          not whitish .....7.
7. Forewings with termen concave beneath apex .....(5) *erinnys*.
- "          "          not concave.....8.
8. Forewings with lines orange or ferruginous-mixed .....9.
- "          "          not orange or ferruginous.....(6) *arctura*.
9. Forewings with discal spot indicated.....(11) *ombrias*.
- "          "          obsolete.....(3) *xanthoscia*.
10. Hindwings whitish or yellowish, at least in disc .....11.
- "          "          not whitish or yellowish in disc .....21.
11. Forewings with basal third almost wholly whitish .....12.
- "          "          not wholly whitish .....13.
12. Hindwings with terminal dark fascia entire .....(22) *chlorolychna*.
- "          "          not reaching below middle.....(24) *semiochrea*.
13. Hindwings with entire dark terminal band with median projection  
   inwards .....14.
- "          "          without band so formed .....15.
14. Hindwings with costal hair-pencil .....(18) *pessias* ♂.
- "          "          without costal hair-pencil .....(21) *mesacma* ♂.
15. Palpi fuscous .....16.
- "          "          mostly ochreous-whitish or yellowish .....18.
16. Posterior tibiae with black projecting scales.....(15) *scleropis* ♂.
- "          "          without black scales .....17.

17. Tuft of dorsal lobe blackish-tipped .....(20) *aphrias* ♂.  
 " " not blackish-tipped.....(27) *autodoxa*.  
 18. First line with wedge-shaped projection inwards in middle .....(25) *pragmatica*.  
 " without such projection .....19.  
 19. Forewings ochreous-orange .....(23) *perixantha*.  
 " not orange .....20.  
 20. First line slender, not suffused .....(26) *abnormis*.  
 " broad, suffused on one side .....(17) *orthrias*.  
 21. Head and thorax yellow-ochreous .....(14) *ochrias*.  
 " " not yellow-ochreous .....22.  
 22. Forewings with basal area ferruginous-ochreous except on costa .....(9) *iochrysa*.  
 " with basal area not ferruginous-ochreous .....23.  
 23. First line forming a broad whitish fascia .....(16) *eurylyca*.  
 " not broadly whitish .....24.  
 24. Expanse 13 mm. or less .....(13) *minuscula*.  
 " 14 mm. or more.....25.  
 25. Expanse 16 mm. or more.....26.  
 " 15 mm. or less .....(12) *banausa*.  
 26. Forewings without definite markings .....(28) *homalopa*.  
 " with distinct lines .....27.  
 27. First line straight .....(10) *droseropa*.  
 " curved or angulated.....28.  
 28. Hindwings fuscous-grey .....(19) *chimonias*.  
 " dark fuscous .....29.  
 29. Forewings with first line distinctly angulated .....30.  
 " " rather curved (Molokai species) .....(15) *scleropis* ♀.  
 30. First line angulated in middle (Kauai species) .....(20) *aphrias* ♀.  
 " " above middle (Maui species) .....(18) *pessias* ♀.

In the preceding tabulation characters are selected which are independent of sex, so far as possible, since in some species only one sex is known; but the males of allied species are sometimes most easily separated by the very well-marked differences in the secondary sexual characters, viz. the tufts of hair on the hindwings and legs.

(1) *Mestolobes amethystias*, sp. nov.

♀. 13 mm. Head and thorax dark fuscous, face with lateral whitish line. (Palpi broken.) Abdomen dark fuscous, segmental margins white. Legs dark fuscous, ringed with whitish. Forewings blackish; subbasal, first, second, and subterminal lines fulvous-orange, subbasal and first forming sinuate fasciae, separated by a violet-silvery-metallic line, second and subterminal thick, strongly curved, also separated by a violet-silvery-metallic line; several small scattered pale violet-blue-metallic spots in disc; a whitish wedge-shaped mark on costa before apex: cilia fuscous, with two dark fuscous lines. Hindwings dark fuscous, lighter anteriorly; cilia whitish, with dark fuscous basal line. (Plate VI. fig. 10.)

1 specimen, Kaholuamano, Kauai, at 4000 feet, in April.

(2) *Mestolobes chrysomolybda*, sp. nov.

♂♀. 14—15 mm. Head, thorax, and abdomen dark leaden-fuscous. Palpi blackish, beneath pale yellowish. Legs dark grey, ringed with whitish. Forewings blackish-fuscous; subbasal, first, second, and subterminal lines thick, fulvous-orange, each preceded by a shining deep leaden fascia; subbasal and first angulate-sinuate, sometimes almost obsolete, preceding fasciae broad; second sinuate-angulated in middle, preceding fascia broad; subterminal close to termen, curved, preceding fascia narrow, remote from second: cilia dark fuscous, with blackish subbasal line. Hindwings dark grey, with broad blackish-grey terminal band; a more or less marked longitudinal streak of whitish suffusion in disc; in ♂ with short dorsal lobe ending in tuft of white hairs, and whitish costal hair-pencil; cilia white, with dark grey basal line. (Plate VI. fig. 11.)

3 specimens, Kaholuamano, Kauai, at 4000 feet, in April.

(3) *Mestolobes xanthoscia*, sp. nov.

♀. 12—15 mm. Head, thorax, abdomen, and legs dark fuscous. Palpi fuscous, sometimes yellowish except towards apex. Forewings dark fuscous, slightly purpletinged; first and second lines fulvous-orange, usually darker-edged, first about middle, curved or somewhat bent, sometimes nearly obsolete except towards costa, second rather near termen, curved: cilia rather dark fuscous, with darker subbasal line. Hindwings rather dark fuscous, darker posteriorly; cilia as in forewings.

5 specimens; 3 Kilauea, Hawaii, in August; 1 Olaa, Hawaii, at 2000 feet, in November; 1 Waianae Mts., Oahu, in April.

(4) *Mestolobes crypsichrysa*, sp. nov.

♂♀. 14—15 mm. Head, thorax, abdomen, and legs dark fuscous. Palpi whitish. Forewings blackish-fuscous; subbasal, first, and second lines more or less indicated by fulvous-orange irroration, very undefined, first and second sometimes forming distinct spots on costa, first about middle, angulated above middle, second at  $\frac{3}{4}$ , angulated in middle: cilia whitish-fuscous, with dark fuscous line. Hindwings blackish-fuscous, somewhat lighter in disc; in ♂ with long and rather broad whitish dorsal lobe, ending in tuft of white hairs, and with an ochreous-yellowish costal hair-pencil; cilia whitish, basal third blackish.

6 specimens; 4 Kaholuamano, Kauai, at 4000 feet; 2 Mts. Waimea, Kauai, at 4000 feet; from April to June.



(5) *Mestolobes erinnys*, sp. nov.

♂. 20 mm. Head, palpi, thorax, abdomen, and legs rather dark fuscous. Forewings with termen concave beneath obtusely prominent apex, then prominently rounded; dark purplish-fuscous; first and second lines darker, suffusedly mixed with light ochreous-yellowish, first at  $\frac{2}{5}$ , sharply angulated above middle, second at  $\frac{4}{5}$ , nearly straight: cilia fuscous, with darker subbasal line (imperfect). Hindwings dark fuscous; a moderate fuscous dorsal lobe, ending in tuft of fuscous hairs, but no costal hair-pencil; cilia fuscous-whitish, basal third dark fuscous. (Plate VI. fig. 12.)

1 specimen, Waianae Mts., Oahu, at 2200 feet, in April. Differs from all the rest by the peculiar form of forewings.

(6) *Mestolobes arctura*, sp. nov.

♀. 13—14 mm. Head, thorax, and abdomen blackish-fuscous, coppery-tinged, abdomen with genital tuft of densely packed black hair-scales. Palpi blackish mixed with fuscous-whitish. Legs fuscous. Forewings rather narrow, blackish-fuscous, coppery-tinged; first, median, and second lines obscure, grey-purplish, ill-defined, first at  $\frac{2}{5}$ , slender, angulated above middle, median broad on costal half, hardly marked beneath, second at  $\frac{4}{5}$ , slender, curved, almost angulated in middle; some light purplish scales on termen: cilia purplish-fuscous, with dark fuscous subbasal line. Hindwings dark fuscous; cilia as in forewings.

2 specimens, Molokai, at 4500 feet, in July and September. The female is distinguished from all others by the singular genital tuft; but if this is connected with oviposition, there may be nothing analogous in the male.

(7) *Mestolobes sirina*, sp. nov.

♂. 12 mm. Head, palpi, thorax, abdomen, and legs dark fuscous. Forewings rather narrow, dark fuscous, slightly coppery-tinged: cilia fuscous, with dark fuscous subbasal line. Hindwings blackish-fuscous; a moderate whitish dorsal lobe, ending in a tuft of whitish hairs, and a whitish costal hair-pencil; cilia as in forewings.

1 specimen, Lanai, at 3000 feet, in July.

(8) *Mestolobes epidelta*, sp. nov.

♀. 14 mm. Head, palpi, thorax, abdomen, and legs dark purplish-fuscous; base of palpi whitish; apex of patagia white; segmental margins white; legs ringed with

whitish. Forewings dark fuscous, purplish-tinged; a small triangular white spot on dorsum before middle; a smaller ochreous-whitish spot on costa at  $\frac{3}{4}$ : cilia whitish, barred with dark fuscous, and with a dark fuscous subbasal line. Hindwings dark fuscous, slightly purplish-tinged; cilia whitish, basal third dark fuscous. (Plate VI. fig. 13.)

1 specimen, Mts. Waimea, Kauai, at 4000 feet, in May.

(9) *Mestolobes iochrysa*, sp. nov.

♀. 13—14 mm. Head dark fuscous, sides of face and edges of collar whitish. Palpi black, obliquely barred with white. Antennae whitish, ringed with dark fuscous. Thorax black, somewhat mixed with whitish. Abdomen blackish, segmental margins whitish. Legs dark fuscous, ringed with whitish. Forewings blackish; an almost basal undefined ochreous-whitish line, space between this and first line wholly ferruginous-ochreous except on costa; first line at  $\frac{1}{3}$ , whitish, angulated above middle, followed by a similar ferruginous line; median area more or less mixed and on dorsal half mostly suffused with whitish; an undefined 8-shaped discal spot filled with ferruginous; second line at  $\frac{4}{5}$ , ferruginous, curved, followed by a similar whitish line; an undefined ferruginous subterminal line; a short white costal mark before apex: cilia dark grey, on upper half of termen more or less distinctly barred with white, with a blackish subbasal line. Hindwings blackish; cilia dark grey, with blackish subbasal line. (Plate VI. fig. 14.)

2 specimens, Mts. Waimea, Kauai, at 4000 feet, in May.

(10) *Mestolobes droseropa*, sp. nov.

♀. 17 mm. Head, palpi, and thorax dark fuscous, thorax with a few fuscous-whitish scales. (Abdomen broken.) Legs dark fuscous, ringed with whitish. Forewings dark fuscous, with a few irregularly scattered whitish scales; subbasal line blackish, followed by some whitish scales, interrupted below middle; first and second lines blackish, somewhat mixed with light ochreous-yellowish, first before middle, straight, oblique, second at  $\frac{4}{5}$ , angulated above middle, edged posteriorly on costa by a whitish mark; an undefined 8-shaped discal spot outlined with blackish, partially filled with light ochreous-yellowish; terminal area beyond this strewn with light ochreous-yellowish scales; a small whitish mark on costa before apex: cilia dark fuscous, basal third blackish-fuscous. Hindwings dark fuscous, somewhat lighter anteriorly; cilia as in forewings.

1 specimen, probably from Kilauea, Hawaii, in August.

(11) *Mestolobes ombrias*, sp. nov.

♂♀. 14—15 mm. Head, palpi, thorax, abdomen, and legs rather dark fuscous. Forewings rather dark fuscous, faintly purplish-tinged; first and second lines thick, dark fuscous, slightly ferruginous-tinged or obscurely mixed with ferruginous centrally, first at  $\frac{2}{5}$ , slightly curved, second at  $\frac{4}{5}$ , obtusely angulated about middle, sometimes followed on costa by a small whitish spot; an undefined 8-shaped discal spot similarly coloured; sometimes an undefined darker subterminal shade: cilia fuscous, with dark fuscous subbasal line. Hindwings blackish-fuscous; in ♂ with very small dorsal lobe ending in tuft of fuscous or whitish-fuscous hairs, but without costal hair-pencil; cilia fuscous, basal third dark fuscous. (Plate VI. fig. 15.)

5 specimens; 3 Lanai, at 3000 feet, in July; 2 Molokai, at 3000 feet, in August and September.

(12) *Mestolobes banausa*, sp. nov.

♂. 14—15 mm. Head and thorax ochreous or fuscous, more or less mixed with dark fuscous. Palpi rather dark fuscous. Abdomen rather dark fuscous, somewhat ochreous-sprinkled. Legs dark fuscous ringed with whitish, posterior tibiae suffused with whitish. Forewings fuscous, mixed with dark fuscous; an irregular blackish subbasal line on costal half; dorsal area before first lines sometimes suffused with light yellow-ochreous; first line mixed with ochreous and blackish, angulated above middle, sometimes preceded by a similar whitish line; upper half of median area more or less strewn with whitish; an 8-shaped ochreous discal spot, edged with blackish; second line blackish, marked with ochreous towards costa, posteriorly more or less completely edged with white, rather irregular, angulated in middle; subterminal line more or less indicated with ochreous and whitish: cilia fuscous, with dark fuscous subbasal line, on upper half of termen obscurely barred with whitish. Hindwings dark fuscous, lighter anteriorly; in ♂ with moderate dorsal lobe, ending in tuft of whitish hairs, but no costal hair-pencil; cilia fuscous-whitish, basal third dark fuscous.

♀. Lighter and more ochreous-tinged generally; forewings with first line almost straight, preceding whitish line thicker and more distinct; hindwings lighter or sometimes suffusedly whitish-ochreous towards base.

7 specimens, Kona, Hawaii, at 4000—5000 feet, in July and August.

(13) *Mestolobes minuscula* Butl.

*Boreophila minuscula* Butl. Ann. Mag. Nat. Hist. (5) VII. 1881, p. 325.

*Mestolobes simaethina* id. Trans. Ent. Soc. Lond. 1882, p. 38.

*Mestolobes minuscula* Meyr. Trans. Ent. Soc. Lond. 1888, p. 230.

Abdomen in ♂ beneath with two short tufts of yellowish hairs near base; forewings seldom with median band wholly ochreous; otherwise sufficiently described.

70 specimens; 3 Oaa, Hawaii, at 2000 feet; 2 Kona, Hawaii, at 2000 feet; 6 Kilauea, Hawaii; 1 Wailuku, Maui; 5 Molokai, at 3000 feet; 20 Waianae Mts., Oahu, at 1400—2000 feet; 3 Kaala Mts., Oahu, at 1000—2000 feet; 1 Lanai, at 2000 feet; 27 Lihui, Kauai, at 1500 feet; 2 Kaholuamano, Kauai, at 4000 feet: from February to September, and in November. Also 16 specimens received from Mr Blackburn, who records it from Haleakala, Maui, at 4000 feet.

(14) *Mestolobes ochrias*, sp. nov.

♂. 11—12 mm. Head, palpi, and thorax yellow-ochreous. Abdomen dark fuscous, towards base suffused with yellow-ochreous, segmental margins pale ochreous, beneath with two yellowish tufts near base. Legs pale ochreous-yellowish or whitish-ochreous, anterior and middle pairs sometimes partially banded with dark fuscous. Forewings yellow-ochreous or whitish-ochreous, fuscous-sprinkled; costa marked with very undefined spots of blackish irroration; upper half of subbasal line indicated by blackish irroration; first and second lines somewhat deeper yellow-ochreous, first rather curved, edged with a few dark fuscous scales, preceded by an indistinct whitish fuscous-edged line, second moderately curved, sinuate towards dorsum, posteriorly edged with blackish and followed by a distinct whitish line; a terminal series of cloudy dark fuscous dots: cilia fuscous-whitish with blackish subbasal and grey postmedian line. Hindwings dark fuscous, rather lighter anteriorly; a moderate dorsal lobe ending in a tuft of ochreous-yellow hairs, and an ochreous-yellow costal hair-pencil; cilia whitish, with dark fuscous subbasal line.

2 specimens, Waianae Mts., Oahu, at 2000 feet, in April.

(15) *Mestolobes scleropis*, sp. nov.

♂♀. 16—19 mm. Head, palpi, and thorax fuscous, mixed with pale and dark. Abdomen rather dark fuscous. Legs in ♂ whitish, posterior tibiae roughened with black scales on apical half above, in ♀ fuscous, whitish-ringed. Forewings fuscous, more or less mixed with dark fuscous and sometimes with fuscous-whitish; subbasal line blackish-fuscous on upper half; first and second lines obscurely pale, more or less edged with ochreous suffusion mixed with blackish-fuscous, first rather curved, second irregularly curved, more strongly on median third; an ochreous 8-shaped discal spot, edged with dark fuscous; a terminal series of small cloudy blackish-fuscous spots: cilia fuscous, paler-mixed, with dark fuscous subbasal line. Hindwings dark

fuscous becoming lighter anteriorly; in ♂ a small patch of pale yellowish suffusion below middle of disc, a moderately broad whitish-ochreous dorsal lobe ending in a tuft of whitish and dark fuscous hairs, and a yellow-whitish hair-pencil lying in a pale yellowish costal patch; cilia whitish or fuscous-whitish, basal third fuscous. (Plate VI. fig. 16.)

7 specimens, Molokai, at 3000—4500 feet, from June to September.

(16) *Mestolobes eurylyca*, sp. nov.

♂. 15 mm. Head, palpi, and thorax ochreous-fuscous. Abdomen dark fuscous, lighter on back, beneath with two small whitish-ochreous tufts near base. Legs whitish-ochreous, anterior tibiae and tarsi and middle tarsi banded with dark fuscous. Forewings ochreous-fuscous, mixed with dark fuscous; first line represented by a rather broad well-defined slightly curved ochreous-whitish fascia before middle; an obscure ochreous 8-shaped discal spot touching its posterior edge; second line more ochreous, curved, but hardly traceable, followed by a few whitish scales, more distinct on costa; a terminal series of cloudy blackish-fuscous spots: cilia light greyish-ochreous obscurely barred with dark fuscous, with a blackish-fuscous line. Hindwings dark fuscous, lighter anteriorly; a moderately broad rather dark fuscous dorsal lobe, clothed on inner side with whitish and on outer side with blackish-fuscous hairs; a light ochreous curled hair-pencil lying in an ochreous-whitish costal patch; cilia grey-whitish, basal third rather dark fuscous.

1 specimen, Lanai, at 2000 feet, in January.

(17) *Mestolobes orthrias*, sp. nov.

♂. 17 mm. Head and palpi whitish-ochreous, face white. Thorax ochreous-fuscous. Abdomen rather dark fuscous, two basal segments and apical bands of next three ochreous-whitish. Legs ochreous-whitish, anterior tibiae and tarsi and middle tarsi banded with dark fuscous. Forewings ochreous-brown; first line thick, curved, white, anteriorly edged with blackish, posteriorly with yellow-ochreous suffusion; an 8-shaped discal spot obscurely outlined with dark fuscous; second line very obscurely indicated with whitish and dark fuscous scales, slender, curved-bent, forming a more distinct whitish mark on costa; a terminal series of indistinct dark fuscous dots: cilia fuscous, base whitish, with a dark fuscous subbasal line. Hindwings ochreous-white; a moderately broad dark fuscous terminal fascia, becoming suffused beneath and not reaching tornus; a moderate ochreous-whitish dorsal lobe, clothed on both sides with whitish hairs; an ochreous-whitish costal hair-pencil; cilia whitish, basal half grey except towards tornus. (Plate VI. fig. 17.)

1 specimen, Mts. Waimea, Kauai, at 4000 feet, in May.

M. F. H.

(18) *Mestolobes pessias*, sp. nov.

♂♀. 15—23 mm. Head, palpi, and thorax whitish-ochreous or whitish, variably mixed with fuscous and dark fuscous. Abdomen fuscous or dark fuscous, segmental margins ochreous-whitish, in ♂ beneath with lateral curled tufts below middle. Legs whitish, variably banded with dark fuscous. Forewings brownish-ochreous or fuscous, sometimes mixed with dark fuscous or whitish; a blackish subbasal line more or less marked on upper half; first line white (seldom pale or obsolete), irregular, angulated above middle, partially dark-edged, often followed by a fascia of whitish suffusion sometimes confluent with it; an 8-shaped ochreous dark-outlined discal spot, sometimes very obscure; second line white (seldom pale or obsolete), anteriorly dark-edged, curved outwards from  $\frac{1}{4}$  to  $\frac{3}{4}$ ; a terminal series of dark fuscous spots: cilia ochreous-whitish or seldom fuscous, barred with darker fuscous, and with a dark fuscous subbasal line. Hindwings in ♂ ochreous-whitish, with a moderately broad dark fuscous terminal band, its anterior edge with more or less developed acute projection in middle; in ♀ dark fuscous, darker terminally; in ♂ with moderately broad ochreous-whitish dorsal lobe ending in tuft of black scales, and whitish-ochreous costal hair-pencil; cilia ochreous-whitish, with two more or less marked fuscous or dark fuscous lines. (Plate VI. fig. 18.)

74 specimens, Haleakala, Maui, at 5000 feet, in May. Extremely variable in the development of the white and dark fuscous colouring; the white predominates much more in the ♂ than in the ♀.

(19) *Mestolobes chimonias*, sp. nov.

♂. 20—22 mm. Head, palpi, and thorax brown, somewhat mixed with pale and dark. Abdomen fuscous, segmental margins whitish-ochreous. Legs dark fuscous, ringed with whitish-ochreous, posterior tibiae whitish-ochreous. Forewings fuscous, irregularly mixed with ochreous-whitish and sometimes with dark fuscous; first and second lines slender, whitish, more or less dark-edged and margined on both sides with yellow-ochreous suffusion, first angulated above middle, sometimes nearly followed by a fascia of whitish suffusion, second at  $\frac{4}{5}$ , middle third curved outwards; an 8-shaped ochreous-tinged discal spot suffusedly outlined with dark fuscous, sometimes almost obsolete; a terminal series of cloudy blackish marks: cilia whitish-ochreous, barred with fuscous, with a dark fuscous line. Hindwings fuscous-grey, somewhat lighter anteriorly; a pale postmedian line faintly indicated; a small dorsal lobe, clothed with ochreous-whitish hairs, but no costal hair-pencil; cilia whitish, indistinctly barred with grey, with dark grey subbasal line.

4 specimens; 2 Haleakala, Maui, at 5000—6000 feet, in March and April; 2 Molokai, at 4500 feet, in September.

(20) *Mestolobes aphrias*, sp. nov.

♂ ♀. 19—23 mm. Head and thorax fuscous, in ♂ mixed with whitish. Palpi fuscous. Abdomen fuscous, segmental margins whitish. Legs ochreous-whitish, anterior and middle pair in ♂ more or less banded with dark fuscous, in ♀ suffused with rather dark fuscous. Forewings white, in ♂ variably irrorated with fuscous and dark fuscous, in ♀ almost wholly suffused with rather dark fuscous mixed with yellow-ochreous and black; first line in ♂ represented by a moderately broad pale fascia, in ♀ narrower, posteriorly edged with dark fuscous, angularly projecting in middle and near dorsum; an 8-shaped discal spot partially edged with dark fuscous, in ♂ white, in ♀ ochreous; second line white, partially edged with dark fuscous, curved outwards from  $\frac{1}{4}$  to  $\frac{3}{4}$ ; a terminal series of cloudy dark fuscous spots: cilia ochreous-whitish indistinctly barred with fuscous, with a dark fuscous line. Hindwings in ♂ whitish-yellowish, with an apical blotch of dark fuscous suffusion, and some dark fuscous irroration along remainder of termen; in ♀ dark fuscous, darker terminally; in ♂ with whitish-yellowish dorsal lobe, terminating in a tuft of hairs with apical half blackish, and a yellowish costal hair-pencil; cilia whitish-yellowish, in ♀ with dark fuscous line.

5 specimens, Kaholuamano, Kauai, at 4000 feet, in April.

(21) *Mestolobes mesacma*, sp. nov.

♂. 14—20 mm. Head and palpi ochreous-whitish, sometimes fuscous-mixed. Thorax fuscous mixed with ochreous-whitish. Abdomen rather dark fuscous, towards base more or less suffused with ochreous-whitish. Legs ochreous-whitish, banded with dark fuscous. Forewings brownish-ochreous, more or less mixed irregularly with dark fuscous; subbasal line blackish on upper half; first line thick, ochreous-white, somewhat curved or nearly straight, posteriorly edged with blackish; an 8-shaped ochreous discal spot outlined with blackish; second line pale ochreous, partially edged with dark fuscous, middle third curved outwards; a terminal series of cloudy dark fuscous spots: cilia fuscous-whitish mixed with fuscous, with a blackish-fuscous subbasal line. Hindwings whitish-yellowish, base whiter; a moderately broad blackish-fuscous terminal fascia, in middle sending a strong wedge-shaped projection inwards to before middle of disc; a moderately broad whitish-yellowish dorsal lobe, ending in a tuft of black hairs; no costal hair-pencil; cilia as in forewings. (Plate VI. fig. 19.)

5 specimens, Molokai, at 3000—4500 feet, from June to August.

(22) *Mestolobes chlorolychna*, sp. nov.

♂. 14—15 mm. Head, palpi, and thorax whitish-ochreous more or less mixed with fuscous. Abdomen dark fuscous, more or less mixed with whitish-ochreous.

Legs ochreous-whitish banded with dark fuscous, posterior tibiae above with dense blackish tuft of hairs before middle. Forewings ochreous-brown or deep yellow-ochreous, more or less sprinkled with dark fuscous; subbasal line indicated by some black scales on upper half; first line represented by a broad ochreous-whitish fascia, anteriorly suffused but extending almost to subbasal line, posterior edge slightly curved, more or less blackish-margined; an 8-shaped discal spot sometimes more yellow-ochreous but hardly defined; second line obscurely pale or fuscous-whitish, sometimes very little marked, sometimes edged anteriorly with yellow-ochreous and blackish scales, middle third curved outwards; a terminal series of indistinct dark fuscous spots: cilia light fuscous, paler-mixed, with dark fuscous subbasal line. Hindwings pale ochreous-yellowish; a moderate blackish-fuscous terminal fascia, with short triangular projection inwards in middle; a moderate ochreous-whitish dorsal lobe, with short black tuft of hairs on inner side and similar light yellowish tuft on outer side, neither reaching apex, which is naked; no costal hair-pencil; cilia ochreous-whitish, basal third rather dark fuscous.

5 specimens, Kona, Hawaii, at 4000 feet, from June to September.

(23) *Mestolobes perixantha*, sp. nov.

♂♀. 13—18 mm. Head and palpi ochreous-whitish to ochreous-yellowish. Thorax ochreous-orange, sometimes mixed with dark fuscous. Abdomen ochreous-yellow, base of segments more or less marked with dark fuscous. Legs pale ochreous-yellowish, more or less banded with dark fuscous. Forewings ochreous-orange, very variably irrorated with dark fuscous (very densely, or partially, or hardly at all), sometimes mixed with white in disc and towards base; first line thick, white, rather curved, anteriorly edged with blackish-fuscous; an 8-shaped discal spot outlined with dark fuscous or almost obsolete, in one specimen preceded by a similar white spot; second line slender, white, sometimes little marked, middle third curved outwards: cilia ochreous-yellowish or fuscous-whitish, variably or not mixed with dark fuscous. Hindwings ochreous-yellow; a very variable dark fuscous terminal fascia, sometimes occupying posterior half of wing, or narrow, or reduced to an apical suffusion, or almost wholly obsolete; in ♂ a rather long broad ochreous-whitish dorsal lobe, clothed on sides with pale yellowish hairs, and an ochreous-yellow costal hair-pencil; cilia pale yellowish, sometimes with fuscous line. (Plate VI. fig. 20.)

10 specimens; 9 Mts. Waimea, Kauai, at 4000 feet; 1 Kaholuamano, Kauai, at 4000 feet; from April to June. Exceedingly variable.

(24) *Mestolobes semiochrea* Butl.

*Mestolobes semiochrea* Butl. Trans. Ent. Soc. Lond. 1882, p. 39; Meyr. op. id. 1888, p. 229.



♂. 13—14 mm. Forewings with lines sometimes little marked; an ochreous 8-shaped discal spot obscurely darker-outlined; otherwise sufficiently described.

3 specimens, Waianae Mts., Oahu, in April. Mr Blackburn's examples were from the same island "in mountains near Honolulu."

(25) *Mestolobes pragmatica*, sp. nov.

♂. 13—14 mm. Head and thorax ochreous-whitish, thinly mixed with dark fuscous. Palpi ochreous-whitish. Abdomen dark fuscous, segmental margins more or less broadly ochreous-whitish, beneath with two small curled ochreous-whitish tufts near base. Legs whitish, anterior and middle pair banded with dark fuscous. Forewings fuscous, partially ochreous-tinged, mixed with dark fuscous, especially on median band, which is sometimes wholly suffused with dark fuscous; basal area irregularly mixed and spotted with white; first and second lines white, first sinuate, forming a wedge-shaped projection inwards in middle, second slender, curved outwards from  $\frac{1}{4}$  to  $\frac{3}{4}$ ; an 8-shaped discal spot obscurely indicated: cilia ochreous-whitish, with a dark fuscous line. Hindwings ochreous-white; a moderate irregular dark fuscous fascia along upper half of termen; a rather long whitish dorsal lobe, ending in a tuft of whitish hairs of which apical third is black; no costal hair-pencil; cilia ochreous-whitish, with fuscous subbasal line on upper half of termen.

4 specimens, Oloa, Hawaii, from July to September.

(26) *Mestolobes abnormis* Butl.

*Metasia abnormis* Butl. Trans. Ent. Soc. Lond. 1882, p. 35 (♀).

*Mestolobes oenone* id. l. c., p. 37 (♂).

*Mestolobes abnormis* Meyr. Trans. Ent. Soc. Lond. 1888, p. 228.

Sufficiently described; but the tufts of the dorsal lobe, which I have described as black, should have been correctly described as having the apical portion black, the rest whitish.

1 specimen, Panoa Valley, Oahu, in November; this is a variety having an oblique trapezoidal ochreous-white blotch in disc of forewings, extending from above middle of first line to termen above tornus, but otherwise normal. Six specimens received from Mr Blackburn, who took them flying in the sunshine in a torrent-bed near Honolulu, Oahu.

(27) *Mestolobes autodoxa*, sp. nov.

♂ ♀. 12—14 mm. Head, palpi, and thorax fuscous, sometimes ochreous-tinged. Abdomen dark fuscous, segmental margins in ♂ whitish towards base. Legs whitish,

anterior and middle pair banded with dark fuscous. Forewings fuscous, more or less mixed with dark fuscous; first line obscurely pale or almost obsolete, followed by some ochreous and dark fuscous scales; an 8-shaped discal spot very obscurely indicated; second line pale or whitish-ochreous, slender, curved outwards from  $\frac{1}{4}$  to  $\frac{3}{4}$ : cilia fuscous, paler-mixed, with a dark fuscous line. Hindwings in ♂ ochreous-white, more yellowish-tinged dorsally, with moderate dark fuscous fascia along upper half of termen, in ♀ rather dark fuscous, becoming blackish-fuscous posteriorly, with a patch of whitish suffusion in middle of disc; in ♂ with rather long ochreous-whitish dorsal lobe, clothed with long whitish hairs, and a whitish-yellowish costal hair-pencil; cilia whitish, with dark fuscous subbasal line in ♂ on upper half of termen, in ♀ throughout. (Plate VI. fig. 21.)

4 specimens, Waianae Mts., Oahu, at 1400 feet, in April. Very similar to *M. abnormis*, yet the ♂ differs widely in the wholly whitish hairs of the dorsal lobe, and the absence of the black tibial tuft.

(28) *Mestolobes homalopa*, sp. nov.

♂♀. 16—20 mm. Head, palpi, and thorax pale greyish-ochreous or whitish-ochreous, sometimes fuscous-sprinkled. Abdomen in ♂ fuscous, segmental margins whitish-ochreous, in ♀ darker fuscous. Legs ochreous-whitish, anterior pair sometimes banded with dark fuscous. Forewings pale ochreous, sometimes yellowish-tinged, more or less irrorated with fuscous, in ♀ sometimes suffused with fuscous; a few scattered dark fuscous scales, but no defined markings: cilia fuscous, paler-mixed. Hindwings fuscous, becoming dark fuscous towards termen; in ♂ a moderately long ochreous-whitish dorsal lobe, clothed with long whitish hairs on inner side, and a ridge of erect curled hair-scales along costa towards middle; cilia fuscous.

12 specimens, Haleakala, Maui, at 5000 feet, in May.

ORTHOMECYNA *Butl.*

In the hindwings 7 is sometimes connate with 6, and sometimes anastomoses more or less shortly with 8; the characters given are otherwise sufficient. The pecten of hairs on the lower median vein is as well-defined as in the Crambidae, whereas in *Mestolobes* there is no trace of it.

- |    |  |                          |
|----|--|--------------------------|
| 1. | Hindwings clear orange or yellowish .....                    | 2.                       |
|    | „ at most greyish-yellowish, or partly yellow-suffused ..... | 6.                       |
| 2. | Cilia of hindwings fuscous.....                              | (8) <i>epicausta</i> .   |
|    | „ „ yellow or orange .....                                   | 3.                       |
| 3. | Forewings irrorated or suffused with whitish .....           | (11) <i>mesochasma</i> . |
|    | „ not whitish-irrorated .....                                | 4.                       |
| 4. | Hindwings suffused with dark fuscous towards costa .....     | (7) <i>albicaudata</i> . |
|    | „ not dark fuscous towards costa.....                        | 5.                       |

5. Genital tuft of ♂ whitish .....(6) *chrysophanes*.  
 " " black .....(5) *alloyptila*.  
 6. Hindwings with more or less yellowish suffusion .....7.  
 " wholly without yellowish suffusion .....12.  
 7. Forewings with lines distinctly black-edged .....8.  
 " " obscure, not black-edged .....9.  
 8. Hindwings pale greyish-yellowish, with grey terminal band .....(12) *cupreipennis*.  
 " dark grey, with two streaks of yellowish suffusion .....(13) *exigua*.  
 9. Hindwings mostly pale greyish-yellowish .....10.  
 " at most with two very indistinct streaks of yellowish suffusion.....11.  
 10. Abdomen yellow-ochreous .....(10) *aphanopsis*.  
 " slaty-fuscous .....(9) *picrodes*.  
 11. Forewings with first and second lines closely approximated dorsally ... (2) *phaeophanes*.  
 " " " not closely approximated .....(4) *crossias*.  
 12. Forewings distinctly ochreous .....13.  
 " more grey or dark fuscous .....14.  
 13. Hindwings whitish-fuscous .....(3) *heterodyas*.  
 " dark fuscous.....(2) *phaeophanes*.  
 14. Forewings whitish-irrorated .....(14) *amphilyca*.  
 " not whitish-irrorated.....(1) *metalycia*.

(1) *Orthomecyna metalycia*, sp. nov.

♂. 22—25 mm. Head, palpi, thorax, abdomen, and legs ochreous-fuscous. Forewings rather broad, rather dark fuscous, more or less suffusedly irrorated with whitish-ochreous, especially on basal area; first and second lines whitish-ochreous, ill-defined or sometimes almost obsolete, first hardly oblique, triangularly indented outwards above middle, posteriorly dark-edged, second moderately curved outwards from beneath costa to  $\frac{3}{4}$ ; an indistinct darker transverse mark representing discal spot; a waved whitish-ochreous almost terminal line, seldom obsolete: cilia fuscous mixed with whitish-ochreous, with a darker line. Hindwings rather dark fuscous, darker posteriorly; cilia whitish-ochreous, sometimes fuscous-tinged, basal third fuscous. (Plate VI. fig. 22.)

5 specimens, Kona, Hawaii, at 4000 feet, from July to September.

(2) *Orthomecyna phaeophanes*, sp. nov.

♂♀. 17—29 mm. Head, palpi, thorax, and abdomen ochreous-fuscous or ochreous-brown, sometimes mixed with dark fuscous. Legs whitish-fuscous, sometimes banded with dark fuscous. Forewings rather elongate, ochreous-brown or ochreous-fuscous, sometimes mostly suffused with dark fuscous; first and second lines lighter ochreous, very obscure or sometimes obsolete, internally dark-edged, closely approximated dorsally, first oblique, more or less triangularly indented outwards above middle, second moderately curved outwards from near costa to  $\frac{3}{4}$ ;

sometimes a cloudy dark fuscous discal dot; sometimes obscure lighter subterminal and terminal shades, separated by a sometimes well-marked waved dark fuscous line: cilia ochreous-fuscous, tips paler. Hindwings dark fuscous; sometimes very obscure streaks of yellowish suffusion below middle and towards costa posteriorly; cilia light yellowish, more or less fuscous-mixed towards base.

14 specimens; 6 Haleakala, Maui, at 4000—5000 feet; 2 Waianae Mts., Oahu, at 2000—3000 feet; 4 Molokai, at 3000—4000 feet; 2 Kauai, at 4000 feet; from April to June, and in September. Varies considerably, whilst always very obscure; from *O. metalycia* it differs in the narrower forewings, ochreous colouring, and dorsally closely approximated first and second lines.

(3) *Orthomecyna heterodyas*, sp. nov.

♂. 25—28 mm. Head, palpi, thorax, abdomen, and legs brownish-ochreous, fuscous-tinged. Forewings rather elongate, brownish-ochreous, distinctly yellowish-tinged, sprinkled with fuscous; first and second lines cloudy, whitish, first irregular, second curved outwards on upper  $\frac{2}{5}$ : cilia fuscous-whitish, mixed with brownish-ochreous (imperfect). Hindwings whitish-fuscous, becoming fuscous towards termen; cilia as in forewings. (Plate VI. fig. 23.)

2 specimens, Kilauea, Hawaii, in June and August.

(4) *Orthomecyna crossias*, sp. nov.

♂♀. 23—28 mm. Head and thorax dark fuscous, somewhat mixed with light ochreous-yellowish. Palpi dark fuscous. Abdomen pale yellow-ochreous, in ♂ little, in ♀ mostly suffused with fuscous. Legs dark fuscous, ringed with pale yellow-ochreous. Forewings elongate, brown, densely irrorated with dark fuscous; first and second lines indicated by a diffused ochreous-yellow irroration, only defined on costa, where it forms two well-marked yellowish spots; a more or less marked yellowish suffusion towards middle of costa; a small undefined dark fuscous discal spot, in ♂ followed by a subquadrate white spot, and connected with middle of dorsum by a broad irregular whitish suffusion; an undefined ochreous dentate line resting on termen: cilia ochreous-yellowish mixed with dark fuscous. Hindwings fuscous, becoming dark fuscous posteriorly; very obscure streaks of yellowish suffusion beneath middle of disc, and towards costa posteriorly; cilia ochreous-yellowish, base in ♀ mixed with dark fuscous.

2 specimens, Oahu, at 2000 feet, in April.

(5) *Orthomecyna alloptila*, sp. nov.

♂. 18—21 mm. Head, palpi, and thorax ochreous-orange, palpi somewhat infuscated. Abdomen light orange, apex whitish, genital tuft of ♂ black. Legs ochreous-whitish, anterior pair obscurely banded with fuscous. Forewings elongate, ochreous-orange, suffused towards termen with fuscous; first and second lines hardly paler, closely approximated dorsally, median band somewhat infuscated, first straight, oblique, second curved on upper half; a small undefined darker fuscous discal spot: cilia ochreous-yellowish or fuscous, basal half darker fuscous. Hindwings light orange; a narrow longitudinal median streak, a broader dorsal streak, and a rather narrow irregular terminal fascia cloudy dark fuscous; cilia light orange, tips paler.

3 specimens, Kilauea, Hawaii, in June and August.

(6) *Orthomecyna chrysophanes*, sp. nov.

♂♀. 18—24 mm. Head, palpi, and thorax brownish-ochreous to ochreous-orange. Abdomen pale orange, towards apex more or less whitish, genital tuft of ♂ whitish. Legs pale yellowish or ochreous-whitish, anterior and middle pair more or less banded with fuscous. Forewings rather elongate, ochreous-orange, more or less irrorated or in one specimen wholly suffused with fuscous, usually clearer orange towards middle of costa; first and second lines hardly indicated except by cloudy dark fuscous internal margins, which are closely approximated dorsally, first nearly straight, irregular, second curved outwards on upper half; a small undefined dark fuscous discal spot, seldom with an ochreous-whitish spot beyond it and another below it; sometimes a fuscous shade beyond second line; usually slender darker fuscous subterminal and terminal lines, sometimes suffused together as a narrow fascia: cilia fuscous, with a dark fuscous line. Hindwings light orange; usually a more or less developed narrow dark fuscous terminal fascia, with a triangular projection inwards in middle, often interrupted below middle or much reduced or sometimes wholly obsolete; sometimes a narrow median streak of dark fuscous irroration, and a broader dorsal streak; cilia light orange, tips yellow-whitish. (Plate VI. fig. 24.)

14 specimens; 13 Mts. Waimea, Kauai, at 4000 feet; 1 Kaholuamano, Kauai, at 4000 feet; from April to June. Very variable.

(7) *Orthomecyna albicaudata* Butl.

*Orthomecyna albicaudata* Butl. Ent. Mo. Mag. XIX. p. 178; Meyr. Trans. Ent. Soc. Lond. 1888, p. 226.

Sufficiently described.

One specimen, Lanai, at 3000 feet, in July. Mr Blackburn's specimens were from the same island.

(8) *Orthomecyna epicausta*, sp. nov.

♂ ♀. 13—20 mm. Head, palpi, and thorax dark fuscous, sometimes mixed with whitish-ochreous. Abdomen ochreous or fuscous, towards apex whitish, genital tuft of ♂ blackish. Legs ochreous-whitish, anterior pair banded with fuscous. Forewings elongate, rather dark brown, more or less mixed and posteriorly or sometimes wholly suffused with dark fuscous; first and second lines obscurely pale or brownish-ochreous, often obsolete, approximated dorsally, first irregular, second curved on upper  $\frac{2}{5}$ , sometimes united to form a distinct whitish-ochreous dorsal blotch; a very obscure dark fuscous discal spot: cilia fuscous, with two suffused darker lines. Hindwings ochreous-yellow or whitish-yellowish; a moderately broad blackish-fuscous terminal fascia, more or less extended along dorsum; often a narrow median longitudinal streak of dark fuscous irroration, and another less marked beneath costa; cilia fuscous, sometimes becoming yellow-whitish towards tornus. (Plate VI. fig. 25.)

30 specimens, Kona, Hawaii, at 4000—6000 feet, from June to September.

(9) *Orthomecyna picrodes*, sp. nov.

♂ ♀. 21—23 mm. Head, palpi, thorax, abdomen, and legs rather dark slaty-fuscous. Forewings rather elongate, slaty-fuscous, darker-sprinkled, in ♀ whitish-sprinkled towards termen; first and second lines in ♂ obsolete, in ♀ obscurely whitish, first obtusely bent in middle, second curved on upper  $\frac{2}{3}$ ; in ♀ a very obscure dark discal dot: cilia fuscous, somewhat whitish-mixed, with darker subbasal line. Hindwings grey; a dull whitish-yellowish grey-sprinkled suffusion occupying whole of disc except an obscure median longitudinal streak; cilia as in forewings. (Plate VI. fig. 26.)

2 specimens, Hualalai, Hawaii, at 8000 feet, in August.

(10) *Orthomecyna aphanopis* Meyr.

*Orthomecyna aphanopis* Meyr. Trans. Ent. Soc. Lond. 1888, p. 227.

No specimens sent by Mr Perkins. The locality for this species is unrecorded, but probably it was Maui or Oahu, as most of Mr Blackburn's other specimens were thence.

(11) *Orthomecyna mesochasma*, sp. nov.

♂ ♀. 18—21 mm. Head, palpi, and thorax whitish mixed with grey. Abdomen light ochreous-yellow. Legs whitish, banded with grey. Forewings rather elongate, fuscous, much irrorated or sometimes suffused with whitish; first and second lines

whitish, sometimes edged internally with dark fuscous, first almost straight, somewhat indented in middle, second curved on upper  $\frac{3}{5}$ ; an undefined dark fuscous discal dot, and sometimes a second above it; subterminal line cloudy, dentate, whitish, sometimes obsolete: cilia fuscous, more or less whitish-mixed, with darker subbasal line. Hindwings clear ochreous-yellow; median and subdorsal streaks of blackish-grey irroration; a moderately broad blackish-grey terminal band, sharply interrupted on a quadrate space below middle; cilia light yellow, tips paler. (Plate VII. fig. 1.)

7 specimens; 3 Kaholuamano, Kauai, at 4000 feet; 4 Mts. Waimea, Kauai, at 4000 feet; from April to June, and in October.

(12) *Orthomecyna cupreipennis* Butl.

*Orthomecyna exigua*, var. *cupreipennis* Butl. Ent. Mo. Mag. XIX. p. 179.

♂. 18—20 mm. Abdomen light ochreous-yellowish. Forewings as in *O. exigua*. Hindwings pale dull ochreous-yellowish, faintly greyish-tinged; a moderate dark grey terminal band; cilia pale whitish-ochreous, suffused with grey towards base.

1 specimen, Lanai, at 2000 feet, in February. Several were obtained by Mr Blackburn from the same island, and as the differential characters appear to be constant, I think it advisable to allow the form specific rank.

(13) *Orthomecyna exigua* Butl.

*Mecyna exigua* Butl. Ent. Mo. Mag. xv. p. 271; Ann. Mag. Nat. Hist. (5) VII. 1881, p. 329.

*Orthomecyna exigua* Meyr. Trans. Ent. Soc. Lond. 1888, p. 227.

Abdomen varying from pale ochreous to grey; forewings usually more or less irrorated or sometimes much suffused with whitish; cilia of hindwings sometimes suffused with greyish. Otherwise sufficiently described.

19 specimens; 18 Molokai, at 3000—4000 feet; 1 Kilauea, Hawaii; in May, June, and September. Also taken commonly by Mr Blackburn in Maui.

(14) *Orthomecyna amphilyca*, sp. nov.

♂. 16—22 mm. Head, palpi, and thorax fuscous-grey. Abdomen greyish-ochreous. Legs dark grey, obscurely whitish-ringed. Forewings grey, irrorated with dark fuscous and whitish; first and second lines whitish, internally edged with some blackish scales, first angulated above middle, second curved on upper  $\frac{3}{5}$ ; a

small undefined blackish-fuscous discal spot; an undefined whitish subterminal line, followed by a row of blackish dots: cilia grey mixed with whitish, with a dark fuscous line. Hindwings whitish-ochreous densely irrorated throughout with fuscous, with a somewhat darker terminal band; cilia whitish, with a fuscous line.

2 specimens, Haleakala, Maui, at 9000 feet, in October.

PROTAULACISTIS, gen. nov.

Face rounded, oblique; ocelli present; tongue developed. Antennae  $\frac{3}{4}$ , in ♂ pubescent. Labial palpi moderately long, porrected, second joint with dense projecting scales attenuated forwards, terminal joint concealed. Maxillary palpi moderate, terminally dilated with loose scales. Tibial outer spurs  $\frac{3}{4}$ . Forewings normal. Hindwings with veins 3, 4, 5 closely approximated at base, 7 out of 6 near origin, anastomosing with 8 to near middle, lower median without distinct pecten; in ♂ with subdorsal groove above containing loose hair-pencil.

Although the ♂ has the subdorsal groove as in the preceding genus, all the veins of the hindwings are present in both sexes. The character of the markings is quite that of the *Pyrausta* group.

(1) *Protaulacistis cataphaea*, sp. nov.

♂♀. 17—21 mm. Head, palpi, thorax, abdomen, and legs rather dark fuscous. Forewings rather dark fuscous, strewn with ochreous-brown scales; roundish orbicular and 8-shaped discal spot very obscurely darker-outlined, sometimes obsolete; second line dark fuscous, very obscure, curved, waved, forming an abrupt loop inwards beneath discal spot; a terminal series of indistinct dark fuscous dots: cilia fuscous, with two faint darker lines. Hindwings dark fuscous, slightly purplish-tinted, darker terminally; cilia grey, with darker subbasal line, tips whitish. (Plate VII. fig. 2.)

13 specimens, Haleakala, Maui, at 6000 feet, in May.

SCOPARIA *Haw.*

I have recently come to the conclusion that *Xeroscopa* cannot be advantageously maintained as distinct from *Scoparia*, the point of distinction being so slight and sometimes hardly appreciable, whilst in other respects, structural and superficial, there is no difference at all. Probably all the following species show more or less of the discal hairs characteristic of *Xeroscopa*, though in some cases they are apparently reduced to the merest rudiment. All the species have the forewings comparatively narrow, some very narrow.



1. Forewings with rhomboidal black patch along central third of costa .....2.
- "    without such patch.....4.
2. Costal patch enclosing an elongate white costal spot.....(3) *amphicypella*.
- "    without white spot .....3.
3. Posterior edge of costal patch inwardly oblique .....(2) *rhombias*.
- "    "    outwardly oblique .....(1) *tetranesa*.
4. Forewings with entire black subterminal fascia .....5.
- "    without such fascia .....11.
5. Upper half of discal spot filled with white .....(14) *thalamias*.
- "    "    absorbed in black costal bar .....6.
6. Groundcolour of forewings pale ochreous-yellowish .....(11) *tyraula*.
- "    "    white or ochreous-white.....7.
7. Antemedian black fascia connected in disc with postmedian bar .....(12) *pentaspila*.
- "    "    not so connected .....8.
8. Antemedian black fascia connected in disc with subbasal fascia .....9.
- "    "    not so connected .....10.
9. Connection broad; hindwings grey-whitish .....(7) *orthoria*.
- "    narrow; hindwings grey .....(8) *mesoleuca*.
10. Head mixed with black... .....(10) *antimacha*.
- "    not mixed with black .....(9) *miantis*.
11. Groundcolour of forewings uniform shining ashy-grey .....(26) *siderina*.
- "    "    not uniform grey .....12.
12. Forewings with groundcolour orange or ferruginous .....13.
- "    "    not orange or ferruginous .....16.
13. First line well-marked, white .....14.
- "    hardly defined .....(36) *nyctombra*.
14. Orbicular and claviform blackish .....15.
- "    "    not blackish .....(28) *ianthes*.
15. Second line reduced in disc to dots .....(29) *marmarias*.
- "    entire in disc .....(30) *aeolias*.
16. First line doubled, well-marked, yellowish-tinged .....17.
- "    not doubled, or if so, not yellowish .....19.
17. Head yellowish-fuscous; hindwings grey.....(40) *zophochlora*.
- "    yellowish on crown; hindwings whitish-grey .....18.
18. Orbicular obliquely beyond claviform .....(39) *melichlora*.
- "    vertically above claviform.....(41) *hawaiiensis*.
19. Head and thorax shining coppery .....(34) *erebochalea*.
- "    "    not coppery .....20.
20. Head yellowish, or mixed with yellowish .....21.
- "    not yellowish .....22.
21. Lines white .....(31) *nectarias*.
- "    pale yellowish .....(27) *parachlora*.
22. Head clear white, at most with black frontal bar, or face sprinkled  
    with black .....23.
- "    more or less wholly mixed or suffused with fuscous or blackish .....34.
23. Discal spot 8-shaped .....24.
- "    absorbed in black costal bar.....25.
24. Thorax black-sprinkled .....(16) *halirrhoa*.
- "    not black-sprinkled .....(17) *actias*.

25. Posterior edge of subbasal fascia angulated, lower portion inwardly oblique ..... 26.  
 " " " not so formed ..... 28.
26. Forewings sprinkled with black ..... (6) *passalota*.  
 " not sprinkled with black ..... 27.
27. Posterior edge of antemedian fascia with middle third triangularly dilated... (4) *oxythyma*.  
 " " " with upwards-oblique quadrate median  
 projection ..... (5) *balanopis*.
28. Orbicular and claviform separate, distinct ..... (15) *loxocentra*.  
 " " confluent together or with antemedian fascia ..... 29.
29. Spot representing orbicular and claviform connected with postmedian bar..... 30.  
 " " " not so connected ..... 33.
30. Forewings more or less sprinkled with black..... 31.  
 " not sprinkled with black ..... 32.
31. Apical black blotch enclosing an oblique white apical mark ..... (23) *cryerodes*.  
 " " without such mark ..... (13) *pachysema*.
32. Spot representing orbicular and claviform quadrate ..... (20) *struthias*.  
 " " " pentagonal ..... (19) *formosa*.
33. Orbicular and claviform forming a trilobate projection of antemedian fascia (21) *triacma*.  
 " " an 8-shaped spot, at most connected to-  
 wards extremities with fascia ..... (22) *jucunda*.
34. Forewings with veins white-streaked, other markings obsolete ..... (57) *venosa*.  
 " " not white-streaked, markings more or less distinct ..... 35.
35. Forewings with a fine blackish line along submedian fold throughout..... (48) *peronetis*.  
 " without such line ..... 36.
36. First line sharply angulated below middle ..... 37.  
 " not angulated below middle..... 38.
37. Subterminal line obsolete ..... (46) *epimystis*.  
 " " distinct ..... (47) *frigida*.
38. Forewings with defined blackish subbasal fascia..... 39.  
 " without such fascia ..... 44.
39. Orbicular white, blackish-edged..... (44) *dactyliopa*.  
 " black..... 40.
40. Orbicular and claviform merged in dark suffusion of first line ..... (43) *demodes*.  
 " " distinct ..... 41.
41. Orbicular and claviform confluent into an 8-shaped spot..... 42.  
 " " separate ..... 43.
42. Postmedian bar connected beneath with apical blotch..... (24) *crataea*.  
 " not so connected ..... (18) *melanocephala*
43. Orbicular rather obliquely beyond claviform ..... (42) *empeda*.  
 " vertically above claviform..... (25) *ombrodes*.
44. Lines almost obsolete..... (56) *omichlopis*.  
 " more or less marked ..... 45.
45. Forewings with groundcolour fuscous or dark fuscous, sometimes orange-tinged... 46.  
 " " whitish ..... 51.
46. Forewings dark, tinged with yellowish, orange, or coppery ..... 47.  
 " appearing grey, without such tinge ..... 50.
47. Claviform conspicuous, blackish ..... 48.  
 " little marked ..... 49.
48. Claviform separate ..... (37) *clonodes*.  
 " connected with dark margin of first line ..... (32) *bucolica*.

49. Forewings orange-tinged.....(35) *oenopis*.  
 „ not orange-tinged.....(38) *thyellopis*.  
 50. Orbicular obsolete.....(50) *melanopis*.  
 „ distinct.....(49) *ischnias*.  
 51. Claviform conspicuous, black.....(33) *pyrseutis*.  
 „ obsolete or merged in dark margin of first line.....52.  
 52. Dark markings suffused with brown.....(54) *platyscia*.  
 „ without brown tinge.....53.  
 53. Expanse 13 mm. or less.....(45) *geraea*.  
 „ 14 mm. or more.....54.  
 54. First line indented in middle.....55.  
 „ not indented in middle.....56.  
 55. Orbicular elongate or dash-like, blackish.....(55) *probolaea*.  
 „ not dash-like.....(51) *macrophanes*.  
 56. Orbicular forming a distinct black dot.....(53) *halmaea*.  
 „ not distinct or dot-like.....(52) *meristis*.

(1) *Scoparia tetranesa*, sp. nov.

♀. 16 mm. Head and thorax white, shoulders black. Palpi black, base and tips white. Abdomen whitish. Forewings white; a moderate black almost basal fascia, sharply angulated below middle; a rhomboidal black patch extending along costa from before  $\frac{1}{3}$  to before  $\frac{2}{3}$ , lower anterior angle touching middle of dorsum, lower posterior angle in disc at  $\frac{3}{4}$ ; a small undefined oblique blackish costal mark at  $\frac{4}{5}$ ; a moderate black apical spot, and smaller tornal spot: cilia white. Hindwings whitish-grey, terminally suffused with grey, more broadly at apex; cilia grey-whitish, with a grey basal line. (Plate VII. fig. 3.)

1 specimen, Haleakala, Maui, at 5000 feet, in October.

(2) *Scoparia rhombias*, sp. nov.

♂ ♀. 16—17 mm. Head and thorax white, shoulders black. Palpi black, base and tips white. Abdomen light grey, segmental margins white. Forewings ochreous-white; a moderate black almost basal fascia, sharply angulated about middle; a rhomboidal black patch extending along costa from beyond  $\frac{1}{4}$  to  $\frac{2}{3}$ , lower anterior angle not reaching middle of dorsum, but sometimes connected with it by a few black scales, lower posterior angle in disc at  $\frac{3}{4}$ ; two small undefined marks of blackish or grey irroration on costa towards apex, and sometimes a smaller one on tornus; a terminal series of blackish dots, sometimes incomplete: cilia white. Hindwings grey-whitish or whitish-grey, suffused with grey towards apex; cilia whitish.

5 specimens; 4 Kaholuamano, Kauai, at 4000 feet, in April; 1 Molokai, at 4000 feet, in June.

(3) *Scoparia amphicypella*, sp. nov.

♂. 18 mm. Head and thorax white, shoulders black. Palpi black, base and tips white. Abdomen grey, segmental margins white. Forewings white; a moderate blackish almost basal fascia, sharply angulated below middle; a rhomboidal blackish patch extending on costa from before  $\frac{1}{3}$  to before  $\frac{2}{3}$ , lower angles prominent, anterior not reaching dorsum, posterior in disc at  $\frac{2}{3}$ , enclosing an elongate semioval white costal spot; an inwardly oblique oblong blackish anteapical spot, and a smaller praeternal spot: cilia white. Hindwings grey-whitish, terminally suffused with grey; cilia whitish. (Plate VII. fig. 4.)

1 specimen, Mts. Waimea, Kauai, at 4000 feet, in May.

(4) *Scoparia oxythyma*, sp. nov.

♂ ♀. 15—18 mm. Head and thorax white, shoulders with a black spot. Palpi white, with black median bar. Abdomen bronzy-ochreous, segmental margins white. Forewings white; a moderate black almost basal fascia, sharply angulated about middle; a narrow black oblique fascia from  $\frac{1}{3}$  of costa to middle of dorsum, middle third triangularly dilated posteriorly; an oblique black bar from  $\frac{2}{3}$  of costa, reaching half across wing, lower extremity excavated; a black praeternal spot; an inwardly oblique oblong black anteapical spot, preceded by a black costal dot; two or three black sometimes confluent terminal dots towards middle: cilia white. Hindwings whitish-grey, terminally suffused with grey; cilia white.

11 specimens; 5 Mts. Waimea, Kauai, at 4000 feet; 6 Kaholuamano, Kauai, at 4000 feet; from April to June. This and the following species differ from those most similar to them by the broader white apical portion of the palpi, which reduces the black central portion to a comparatively narrow bar.

(5) *Scoparia balanopsis*, sp. nov.

♂ ♀. 15—17 mm. Head and thorax white, shoulders black. Palpi white, with black median bar. Abdomen ochreous-whitish, in ♂ more ochreous-tinged. Forewings white or ochreous-white; a moderate black almost basal fascia, angulated below middle; a narrow black oblique fascia from  $\frac{1}{3}$  of costa to middle of dorsum, anterior edge with a triangular central prominence, posterior with a strong upwards-oblique quadrate median projection; an oblique black bar from  $\frac{2}{3}$  of costa, reaching half across wing, lower extremity excavated; a black praeternal spot; an inwardly oblique oblong black anteapical spot, preceded by a black costal dot; a terminal series of more or less defined black dots, in middle usually coalescing into a

triangular spot: cilia white. Hindwings whitish-grey, suffused with grey towards termen, sometimes with a pale posterior line; cilia white. (Plate VII. fig. 5.)

11 specimens; 3 Kona, Hawaii, at 4000 feet; 5 Olaa, Hawaii, at 2000 feet; 3 Hilo, Hawaii, at 2000 feet; in July, September, November, and December.

(6) *Scoparia passalota*, sp. nov.

♂ ♀. 16—20 mm. Head white, face sometimes with blackish bar. Palpi blackish, base and tips white. Thorax white, a spot on shoulders and central dorsal spot black. Abdomen greyish-ochreous, segmental margins whitish. Forewings white, more or less sprinkled with black, dorsal half sometimes mixed with grey and irrorated with black; a moderate black almost basal fascia, sharply angulated in middle; a narrow oblique black fascia from beyond  $\frac{1}{4}$  of costa to before middle of dorsum, posterior edge with strong upwards-oblique subquadrate median projection; a moderate oblique black bar from costa before  $\frac{2}{3}$ , reaching half across wing, lower extremity excavated; anterior edge of second line more or less distinctly blackish, forming small spots at extremities; a rhomboidal black praeternal spot, broadest above; an inwardly oblique oblong black anteapical spot, connected beneath with a triangular black spot on middle of termen; a terminal series of undefined black dots: cilia pale fuscous, somewhat whitish-mixed, with interrupted darker subbasal line. Hindwings pale grey, terminally suffused with grey; cilia fuscous-whitish, with light fuscous subbasal line.

8 specimens; 7 Haleakala, Maui, at 5000 feet; 1 Lahaina, Maui, at 3000 feet; in April and May. Undoubtedly allied to the preceding species in essential characters, though differing much in the diffusion of black scales.

(7) *Scoparia orthoria*, sp. nov.

♂ ♀. 14—16 mm. Head ochreous-white. Palpi black, tips and base white. Thorax ochreous-white, shoulders and a central dorsal spot black. Abdomen pale greyish-ochreous, segmental margins broadly white. Forewings ochreous-white; a very broad oblique black almost basal fascia; a broad oblique black fascia from beyond  $\frac{1}{3}$  of costa to beyond middle of dorsum, narrowed beneath, produced on dorsum posteriorly, on upper half confluent with subbasal fascia except on costa; a rather broad oblique black bar from costa before  $\frac{2}{3}$ , reaching half across wing, lower extremity sometimes excavated, more or less confluent beneath with following fascia; a broad irregular black subterminal fascia, sometimes including a white costal dot; a terminal series of black dots, sometimes forming a median spot connected with preceding fascia: cilia white. Hindwings grey-whitish or whitish-grey, terminally suffused with grey; a suffused grey discal spot; cilia white. (Plate VII. fig. 6.)

4 specimens, Olaa, Hawaii, at 2000 feet, in June, July, and November.

(8) *Scoparia mesoleuca*, sp. nov.

♂ ♀. 15—17 mm. Head ochreous-white, with small black spot before antennae. Palpi black, tips and base white. Thorax ochreous-white, a spot on shoulders and a central dorsal spot black. Abdomen brownish-ochreous, segmental margins white. Forewings ochreous-white; a broad black oblique almost basal fascia; a broad black oblique fascia from  $\frac{1}{3}$  of costa to middle of dorsum, abruptly narrowed dorsally, followed by some black scales on dorsum, connected in middle with subbasal fascia; a moderately broad oblique black bar from costa about  $\frac{2}{3}$ , reaching half across wing, lower extremity excavated, confluent beneath with following fascia; a broad irregular black subterminal fascia, including a white costal dot; a terminal series of black dots, sometimes forming a median spot connected with preceding fascia; cilia white. Hindwings grey, darker terminally; cilia whitish.

7 specimens, Mts. Waimea, Kauai, at 3000—4000 feet, in May and June.

(9) *Scoparia miantis*, sp. nov.

♂. 14 mm. Head ochreous-white. Palpi black, base and tips white. Thorax ochreous-white, a spot on shoulders and small undefined dorsal spot black. Abdomen greyish-ochreous, segmental margins whitish. Forewings very narrow, ochreous-white, with some irregularly scattered black scales; a broad oblique black almost basal fascia, outer edge irregular; a broad oblique slightly curved black fascia from about  $\frac{1}{3}$  of costa to middle of dorsum, outer edge irregular; a moderately broad oblique black bar from costa about  $\frac{2}{3}$ , lower extremity almost circularly excavated or annular; a broad irregular black subterminal fascia, enclosing a white costal mark, and confluent with a black spot on middle of termen; a terminal series of black dots; cilia whitish, with two interrupted grey lines. Hindwings grey; cilia grey-whitish, with two cloudy grey lines.

1 specimen, Molokai, at 3500 feet, in June.

(10) *Scoparia antimacha*, sp. nov.

♀. 17 mm. Head and thorax white mixed with black. Palpi black, base and tips white. Abdomen ochreous-grey, segmental margins whitish-tinged. Forewings ochreous-white, irregularly sprinkled with black; basal area much mixed and suffused with black up to first line; a moderate oblique black fascia from  $\frac{1}{3}$  of costa to middle of dorsum, posterior edge broadly dilated from near costa to below middle; a black dorsal spot beyond this; a broad oblique black bar from costa before  $\frac{2}{3}$ ,

reaching half across wing, lower extremity annular, connected beneath with following fascia; a broad irregular black subterminal fascia, enclosing a white costal dot, anterior edge with long acute triangular projection below middle, posteriorly confluent with a black spot in middle of termen; a terminal series of black dots: cilia white, with much interrupted blackish antemedian line, tips round apex spotted with grey. Hindwings grey, terminally darker-suffused; cilia grey-whitish, with grey basal line.

1 specimen, Lahaina, Maui, at 2000 feet, in December.

(11) *Scoparia tyraula*, sp. nov.

♀. 14—16 mm. Head whitish-yellow, with black spots before antennae, sometimes almost confluent. Palpi black, base and tips yellow-whitish. Thorax whitish-yellow, a spot on shoulder and  $\Lambda$ -shaped dorsal mark black. Abdomen grey. Forewings pale ochreous-yellowish; a rather broad oblique black almost basal fascia, followed by undefined black subcostal, median, and subdorsal spots; a narrow oblique black fascia from before  $\frac{1}{3}$  of costa to before middle of dorsum, posteriorly confluent with a quadrate black blotch extending from near costa to below middle; some black irroration towards middle of costa; a thick oblique black bar from before  $\frac{2}{3}$  of costa, reaching half across wing, lower extremity annular, sometimes connected with preceding blotch; a small black dorsal spot beyond middle; a black costal strigula at  $\frac{3}{4}$ , sometimes connected beneath with preceding bar; a broad irregular black subterminal fascia, abruptly contracted below middle, anterior edge with acute triangular projection below middle: cilia whitish, more or less barred with grey, with interrupted blackish antemedian line. Hindwings grey, darker terminally; cilia grey-whitish, with grey basal line. (Plate VII. fig. 7.)

5 specimens; 3 Kaholuamano, Kauai, at 4000 feet; 2 Mts. Waimea, Kauai, at 4000 feet; from April to June.

(12) *Scoparia pentaspila*, sp. nov.

♂ ♀. 16—17 mm. (Head and thorax defaced.) Palpi black, base and tips white. Abdomen pale greyish-ochreous, segmental margins whitish. Forewings ochreous-white, with a few scattered black scales; a broad oblique black almost basal fascia, followed by black subcostal, median, and subdorsal marks; a moderate oblique black fascia from  $\frac{1}{3}$  of costa to middle of dorsum, narrow on dorsal third, posteriorly dilated from near costa to below middle to form a quadrate black blotch,

connected in middle with following bar; a broad oblique black bar from costa before  $\frac{2}{3}$ , reaching half across wing, lower extremity excavated, connected beneath with an inwardly oblique black mark from costa at  $\frac{3}{4}$ , and with following fascia; a broad irregular black subterminal fascia, on upper half very broad and nearly reaching termen, abruptly and narrowly contracted below this and again dilated downwards; a terminal series of black dots partially absorbed in this: cilia white, with two much interrupted lines becoming obsolete dorsally, first blackish, second dark grey. Hindwings light grey, terminally suffused with darker grey; cilia grey-whitish, with two cloudy grey lines.

2 specimens, Kaala Mts., Oahu, at 2000 feet, in March.

(13) *Scoparia pachysema* Meyr.

*Xeroscopa pachysema* Meyr. Trans. Ent. Soc. Lond. 1888, p. 236.

No specimen of this species was obtained by Mr Perkins; the locality of the original type is not recorded, but I should be disposed to conjecture Haleakala, Maui. It is a peculiar species, not very near any other, markedly narrower-winged than most others, with the black markings largely developed. The narrowed wings and dark colouring are somewhat characteristic of Haleakala species, and many of Mr Blackburn's other insects are from that locality.

(14) *Scoparia thalamias*, sp. nov.

♂. 18—21 mm. Head blackish, somewhat white-sprinkled, face mostly suffused with white. Palpi blackish, base white. Thorax blackish, variably mixed or much suffused with white dorsally, patagia margined with white, tips grey. Abdomen greyish-ochreous, segmental margins sometimes whitish. Forewings white, irregularly irrorated with black; basal area irregularly suffused with black; first line white, rather curved, oblique, sharply indented in middle, followed by some black suffusion; orbicular and claviform confluent into an irregular blackish blotch, preceded by a clearer white spot; discal 8-shaped, well-defined, black, halves filled with white, connected above with costa, beneath confluent with a very broad blackish terminal fascia, containing white costal and dorsal marks, and irregular interrupted subterminal series of white dots; an interrupted white terminal line: cilia white, barred with dark fuscous, with interrupted blackish antemedian line. Hindwings grey, terminally darker-suffused; cilia whitish, with dark grey subbasal line. (Plate VII. fig. 8.)

7 specimens; 4 Mts. Waimea, Kauai, at 4000 feet; 3 Kaholuamano, Kauai, at 4000 feet; from April to June.



(15) *Scoparia loxocentra*, sp. nov.

♀. 17—21 mm. Head white. Palpi white, with black median bar. Thorax white, a spot on shoulders and two dorsal marks black. Abdomen white, sometimes light ochreous towards base of segments. Forewings ochreous-white, with a very few scattered black scales; a rather narrow oblique black almost basal fascia, posterior edge with acute median and dorsal projections; a narrow irregular oblique black fascia from about  $\frac{1}{4}$  of costa to before middle of dorsum, almost interrupted (reduced to a very fine line) below middle; orbicular and claviform small, round, black, orbicular obliquely beyond claviform, remote from preceding fascia, claviform near or in one specimen confluent with lower portion of preceding fascia; a rather narrow irregular oblique black bar from  $\frac{2}{3}$  of costa, sometimes almost obsolete on costa, reaching half across wing, lower extremity excavated; a rhomboidal black praeternal spot, broadest above, preceded by a black dorsal dot; an inwardly oblique oblong black antepical spot, preceded by a black costal dot; an undefined triangular blackish spot in middle of termen; a terminal series of black dots: cilia white. Hindwings grey-whitish, terminally suffused with grey, more strongly towards apex; an obscure grey discal mark; cilia white, round apex with faint grey line. (Plate VII. fig. 9.)

3 specimens; 1 Kona, Hawaii, at 2000 feet; 1 Kilauea, Hawaii; 1 Hualalai, Hawaii, at 8000 feet; from July to September.

(16) *Scoparia halirrhoa*, sp. nov.

♂♀. 15—16 mm. Head ochreous-white, face black-sprinkled, antennal orbits black. Palpi black, base and tips white. Thorax ochreous-white, irregularly irrorated with black. Abdomen fuscous or pale grey, segmental margins white. Forewings ochreous-white, sprinkled with black; a narrow angulated black almost basal fascia, followed by some black irroration; a narrow irregular oblique black fascia from  $\frac{1}{4}$  of costa to before middle of dorsum, almost interrupted below middle; orbicular and claviform small, black, orbicular obliquely beyond claviform, widely remote from preceding fascia, claviform not touching fascia; discal 8-shaped, black, more or less connected with costa, halves filled with white or in one specimen upper half wholly black; an irregular rhomboidal black praeternal spot, broadest above, preceded by a black dorsal dot; two inwardly oblique black marks from costa before apex, connected together beneath and with a triangular black spot on middle of termen; a terminal series of black partially confluent dots: cilia ochreous-white, with two interrupted blackish lines. Hindwings whitish-grey, posteriorly suffused with grey; cilia grey-whitish, with a grey line.

3 specimens; 2 Olaa, Hawaii; 1 Hilo, Hawaii, at 2000 feet; in January and June.

(17) *Scoparia actias*, sp. nov.

♂ ♀. 16—17 mm. Head white. Palpi black, base and tips, and apex of second joint white. Thorax white, a spot on shoulders and a  $\Lambda$ -shaped dorsal mark black. Abdomen brownish-ochreous, segmental margins white. Forewings white, with some scattered black scales; a moderate irregular-edged oblique black almost basal fascia; a narrow irregular oblique black fascia from  $\frac{1}{3}$  of costa to middle of dorsum, sharply attenuated in middle, sometimes expanded posteriorly on dorsum with black suffusion; orbicular and claviform small, round, black, transversely placed, separate or confluent, sometimes connected separately with preceding fascia; discal 8-shaped, black-outlined, lower half incomplete, upper touching a small black costal spot; a rhomboidal black praeternal spot, broadest above, anterior edge sharply indented; an inwardly oblique oblong black antepical spot, preceded by a small black costal mark, and connected beneath with a triangular black spot on middle of termen; a terminal series of black dots: cilia white, with a thick blackish interrupted antemedian line, tips obscurely spotted with blackish. Hindwings whitish-grey, posteriorly suffused with darker grey, with obscure pale posterior line; a grey discal mark; cilia whitish, with a grey line. (Plate VII. fig. 10.)

4 specimens; 3 Olaa, Hawaii, at 2000 feet; 1 Kona, Hawaii, at 2000 feet; in July, September, and November.

(18) *Scoparia melanocephala*, sp. nov.

♂. 17 mm. Head black, centre of face and sides of crown white. Palpi black, base and tips white. Thorax white mixed with black, anteriorly broadly black. Abdomen brownish-ochreous, segmental margins white. Forewings ochreous-white, with some scattered black scales; a moderate oblique black almost basal fascia, posterior edge with median and dorsal projections, followed by some black irroration; a rather narrow oblique black fascia from beyond  $\frac{1}{4}$  of costa to before middle of dorsum, almost interrupted (reduced to a fine line) towards middle; orbicular and claviform confluent into an 8-shaped transverse black spot, connected above and below middle with preceding fascia, and in middle with postmedian bar; a broad oblique black bar from costa at  $\frac{3}{5}$ , reaching half across wing, lower extremity excavated; a rhomboidal black praeternal spot, broadest above; an inwardly oblique black mark from costa at  $\frac{4}{5}$ , reaching nearly half across wing; a rhomboidal black apical blotch, containing an oblique white mark not reaching apex; two black dots on lower part of termen: cilia white, with an interrupted black subbasal line, and tips spotted with dark grey round apex. Hindwings whitish-grey, terminally suffused with grey; cilia whitish, with a dark grey line becoming obsolete towards tornus.

1 specimen, Kona, Hawaii, at 4000 feet, in September.

(19) *Scoparia formosa* Butl.

*Scoparia jucunda*, var. *formosa* Butl. Ann. Mag. Nat. Hist. 1881, p. 331.

*Xeroscopa formosa* Meyr. Trans. Ent. Soc. Lond. 1888, p. 237.

♂♀. 17—18 mm. Head white. Palpi black, base and tips white. Thorax white, a spot on shoulders and  $\Lambda$ -shaped dorsal mark black. Abdomen ochreous, segmental margins broadly white. Forewings white or ochreous-white; a moderate black almost basal oblique fascia, posteriorly with sharp median and longer dorsal projections, on costa generally followed by some black scales; a narrow oblique black fascia from before  $\frac{1}{3}$  of costa to middle of dorsum; orbicular and claviform confluent into an irregular pentagonal black spot, anteriorly wholly confluent with preceding fascia, posterior angle shortly produced to coalesce with postmedian bar; a thick oblique black bar from costa before  $\frac{2}{3}$ , reaching half across wing, lower extremity excavated; a rhomboidal black praeternal spot, broadest above, preceded by a black dorsal dot; a rhomboidal black apical blotch, preceded by a black costal dot, and containing an oblique white apical mark; usually one or two black terminal dots below this: cilia white. Hindwings whitish-grey, terminally suffused with grey; cilia whitish, with a faint greyish line.

2 specimens, Haleakala, Maui, at 5000 feet, in May. Two others previously sent by Mr Blackburn from the same locality, at about 4000 feet.

(20) *Scoparia struthias*, sp. nov.

♂. 15—16 mm. Head white. Palpi black, base and tips white. Thorax white, a spot on shoulders and  $\Lambda$ -shaped dorsal mark black. Abdomen light ochreous, segmental margins white. Forewings white; a thick black almost basal oblique fascia, posteriorly with sharp median and longer dorsal projections; a narrow oblique black fascia from beyond  $\frac{1}{3}$  of costa to beyond middle of dorsum, anterior edge with triangular central prominence, posterior with a quadrate upwards-oblique median projection, its posterior angle shortly produced to coalesce with postmedian bar; a thick oblique black bar from costa before  $\frac{2}{3}$ , reaching half across wing, lower extremity almost circularly excavated; a rhomboidal black praeternal spot, broadest above, upper posterior angle sometimes connected with apical blotch; a rhomboidal black apical blotch, preceded by a black costal dot, and containing an oblique white apical mark: cilia white. Hindwings grey-whitish; a grey discal mark, and terminal suffusion; cilia white. (Plate VII. fig. 11.)

2 specimens, Mts. Waimea, Kauai, at 3000—4000 feet, in May.

(21) *Scoparia triacma*, sp. nov.

♂♀. 14—17 mm. Head white. Palpi black, base and tips white. Thorax white, a spot on shoulders and  $\Lambda$ -shaped dorsal mark black. Abdomen ochreous-whitish or light ochreous. Forewings white; a moderate black oblique almost basal fascia, posterior edge with sharp median and dorsal projections; a narrow oblique black fascia from  $\frac{1}{3}$  of costa to middle of dorsum, anterior edge somewhat concave, generally more or less prominent in middle, posterior edge with strong usually three-lobed or three-pointed median projection, lowest point seldom obsolete; a variable oblique black bar from costa about  $\frac{2}{3}$ , reaching half across wing, lower extremity excavated; a rhomboidal black praeternal spot, broadest above, sometimes preceded by a black dorsal dot; an inwardly oblique oblong black anteapical spot, sometimes preceded by a black costal dot, and tending to be connected beneath with a triangular black spot on middle of termen: cilia white. Hindwings grey-whitish, terminally suffused with grey; cilia white, sometimes with a faint grey line. (Plate VII. fig. 12.)

17 specimens; 6 Mts. Waimea, Kauai, at 4000 feet; 11 Kaholuamano, Kauai, at 4000 feet; from April to June.

(22) *Scoparia jucunda* Butl.

*Scoparia jucunda* Butl. Ann. Mag. Nat. Hist. (5) VII. 1881, p. 331.

*Xeroscopa jucunda* Meyr. Trans. Ent. Soc. Lond. 1888, p. 238.

♂♀. 14—17 mm. Head white. Palpi black, base and tips white. Thorax white, a spot on shoulders and central dorsal spot black. Abdomen ochreous, segmental margins whitish. Forewings white or ochreous-white, with a few scattered black scales; a moderate oblique black almost basal fascia, posterior edge with acute median and dorsal projections; a narrow irregular oblique black fascia from before  $\frac{1}{3}$  of costa to about middle of dorsum; an irregularly 8-shaped transverse black mark (representing orbicular and claviform) close beyond this, often more or less connected with it above and below middle; a moderate or narrow irregular oblique black bar from costa before  $\frac{2}{3}$ , reaching half across wing, lower extremity excavated; a rhomboidal black praeternal spot, broadest above, preceded by a black dorsal dot; an inwardly oblique oblong black anteapical spot, preceded by a black costal dot, tending to be connected beneath with a triangular black spot on middle of termen; a terminal series of black dots: cilia white. Hindwings whitish-grey, terminally suffused with grey, sometimes with faint pale darker-edged posterior line; cilia whitish, with more or less marked grey line.

9 specimens; 8 Kona, Hawaii, at 2000—5000 feet; 1 Lanai, at 2000 feet; in February, and from June to September.

(23) *Scoparia cryerodes*, sp. nov.

♂♀. 13—17 mm. Head white, with black spot before antennae. Palpi black, base and apex white. Thorax white, a spot on shoulders and  $\wedge$ -shaped dorsal mark black, in ♀ more mixed with black. Abdomen grey, segmental margins whitish. Forewings white, with some scattered black scales, in ♀ irregularly irrorated with black; a moderate oblique black almost basal fascia, posterior edge with acute median and dorsal projections; a narrow irregular curved oblique black fascia from before  $\frac{1}{3}$  of costa to middle of dorsum; an irregularly 8-shaped transverse black mark (representing orbicular and claviform) close beyond this, connected with it above and below middle, and connected in middle with postmedian bar; a moderate oblique black bar from costa before  $\frac{2}{3}$ , reaching half across wing, lower extremity excavated or in ♀ annular; a rhomboidal black praeternal spot, broadest above, posterior edge indented, in ♀ slenderly connected above with apical blotch; a rhomboidal black apical blotch, preceded by a black costal dot (in ♀ extended to indicate margin of second line on upper half), and including an oblique white apical mark; a terminal series of black dots partially absorbed in this: cilia white, in ♀ with blackish interrupted subbasal line. Hindwings in ♂ pale grey, in ♀ grey, terminally darker-suffused; cilia pale grey, in ♀ with darker basal line. (Plate VII. fig. 13.)

53 specimens; 24 Mts. Waimea, Kauai, at 4000 feet; 29 Kaholuamano, Kauai, at 4000 feet; from April to June. This is the only species of the genus, so far as appears, which shows a notable difference in colouring between the sexes; although this consists essentially only of an increase in the black scales of the ♀, the result is sufficiently marked and constant to allow of the sexes being mistaken for distinct species.

(24) *Scoparia crataea*, sp. nov.

♂♀. 15—20 mm. Head and thorax white, much mixed or partly suffused with black. Palpi black, base and tips white. Abdomen grey, segmental margins whitish. Forewings white, irregularly irrorated with black; a moderate oblique black almost basal fascia, outer edge with acute median and subdorsal projections, often obscured by irroration; first line clear white, edged posteriorly by a rather narrow curved oblique black fascia from before  $\frac{1}{3}$  of costa to middle of dorsum; a rather outwardly oblique 8-shaped black spot (representing orbicular and claviform), more or less suffusedly connected with preceding fascia and with postmedian bar; a moderate oblique black bar from costa before  $\frac{2}{3}$ , reaching half across wing, lower extremity excavated or annular, connected beneath with apical blotch; an irregular rhomboidal black praeternal

spot, broadest above; an irregular rhomboidal black apical blotch, enclosing a white costal strigula, and double white anteapical spot; a terminal series of confluent black dots, partly absorbed in this: cilia white, barred with grey, with dark grey subbasal line. Hindwings grey, suffused with darker towards termen; cilia grey-whitish, with grey basal line.

29 specimens; 23 Olaa, Hawaii, at 2000 feet; 6 Hilo, Hawaii, at 2000 feet; in January, June, July, and November.

(25) *Scoparia ombrodes* Meyr.

*Xeroscopa ombrodes* Meyr. Trans. Ent. Soc. Lond. 1888, p. 234.

♂ ♀. 13—16 mm. Head and thorax blackish mixed with whitish. Palpi blackish, base and tips whitish. Abdomen fuscous. Forewings white or ochreous-white, variably irrorated or suffusedly mixed with black; an undefined irregular oblique almost basal fascia, narrowed on costa; first line white, curved, oblique, edged posteriorly with blackish suffusion; orbicular and claviform small, round, black, separate, vertically placed; discal 8-shaped, black, connected above with costa, lower half filled with white, upper half sometimes whitish-mixed; second line white, more or less blackish-edged anteriorly, terminal area beyond this black; subterminal line white, connected with second in middle, interrupted above this; a terminal series of white dots: cilia whitish, more or less barred with fuscous, with a dark fuscous antemedian line. Hindwings in ♂ pale grey, in ♀ grey, darker terminally; cilia whitish or whitish-grey, with grey subbasal line. (Plate VII. fig. 14.)

41 specimens; 15 Kona, Hawaii, at 1500—4000 feet; 2 Olaa, Hawaii; 4 Lanai, at 2000 feet; 7 Molokai, at 3000 feet; 9 Waianae Mts., Oahu, at 1500 feet; 2 Mts. Waimea, Kauai, at 4000 feet; 1 Kaholuamano, Kauai, at 4000 feet; 1 Lihui, Kauai, at 1500 feet; from February to September. The two original specimens sent by Mr Blackburn were without note of locality.

(26) *Scoparia siderina*, sp. nov.

♂ ♀. 14—18 mm. Head, palpi, and thorax fuscous-grey, base of palpi white. Abdomen fuscous. Forewings rather dark shining ashy-grey; a slender blackish subbasal fascia; an irregular transverse blackish blotch on costa before middle, reaching half across wing, connected with dorsum by an undefined blackish line; traces of a very undefined postmedian band of fuscous suffusion; a small undefined blackish spot on costa at  $\frac{3}{4}$ , sometimes preceded and followed by dots of ochreous-white suffusion: cilia ashy-grey. Hindwings grey, darker terminally; cilia grey. (Plate VII. fig. 15.)

12 specimens; 7 Mts. Waimea, Kauai, at 4000 feet; 4 Kaholuamano, Kauai, at 4000 feet; 1 Haleakala, Maui, at 5000 feet; from April to June, and in October.

(27) *Scoparia parachlora*, sp. nov.

♀. 13—15 mm. Head, palpi, and thorax dark fuscous, mixed with pale yellowish, base of palpi yellow-whitish. Abdomen grey. Forewings dark fuscous, much mixed with pale ochreous-yellowish; a narrow interrupted blackish subbasal fascia, and a blackish spot in disc beyond this; first line oblique, pale yellowish, edged posteriorly on upper  $\frac{2}{3}$  by an oblong blackish blotch from costa, its lower angle including claviform; orbicular small, blackish, obliquely beyond this, separate; discal 8-shaped, blackish-outlined on sides of upper half, otherwise little defined; second and subterminal lines pale yellowish, little defined, confluent in middle; a terminal series of cloudy blackish dots: cilia grey, basal half dark grey, obscurely barred with yellow-whitish. Hindwings grey, darker posteriorly; cilia light grey, with darker subbasal line. (Plate VII. fig. 16.)

4 specimens, Olaa, Hawaii, at 2000 feet, in June, July, and November.

(28) *Scoparia ianthes*, sp. nov.

♂ ♀. 15—17 mm. Head orange, antennal orbits black. Palpi dark fuscous, mixed with yellowish. Thorax orange, irrorated with blackish, with whitish central patch. Abdomen whitish to light greyish-ochreous. Forewings orange, irrorated with dark fuscous or blackish; two white basal dots; first line white, oblique, irregular, rather remotely preceded by a less marked similar line; orbicular sometimes represented by a white dot; an irregular angular white median spot beyond this, one angle sometimes touching it; a smaller white spot beneath median; upper half of discal spot represented by a white dot surrounded by blackish suffusion (sometimes obsolete), lower half by a longitudinal white mark; a white costal mark about  $\frac{2}{3}$ ; second line white, sometimes interrupted; subterminal white, irregular, more or less interrupted in middle, beneath this nearly approaching second line: cilia ochreous-whitish, with two interrupted fuscous lines. Hindwings grey-whitish, posteriorly greyer except on a whitish posterior line; cilia white or ochreous-whitish. (Plate VII. fig. 17.)

4 specimens; 2 Mts. Waimea, Kauai, at 4000 feet; 2 Kaholuamano, Kauai, at 4000 feet; from April to June.

(29) *Scoparia marmarias*, sp. nov.

♂ ♀. 17—20 mm. Head orange, more or less mixed with blackish, with a white line between eyes and antennae. Palpi dark fuscous mixed with yellowish. Thorax orange, mixed with black and spotted with white. Abdomen silvery-white. Forewings ferruginous-orange, mixed with black or dark fuscous, sometimes more or less mixed

irregularly with silvery-white; first line silvery-white, oblique, rather irregular; orbicular and claviform undefined, blackish, preceded and followed by silvery-white spots, orbicular rather obliquely beyond claviform; discal represented by an undefined subquadrate spot of blackish suffusion; a silvery-whitish costal suffusion beyond this; second line silvery-white, much interrupted and in disc reduced to dots; subterminal silvery-white, irregular, interrupted above middle and sometimes partially reduced to dots: cilia fuscous, barred with silvery-white, with an interrupted dark fuscous antemedian line. Hindwings shining fuscous-whitish, posteriorly greyish-tinged; cilia white.

9 specimens; 8 Oloa, Hawaii; 1 Hilo, Hawaii, at 2000 feet; in June, September, November, and December.

(30) *Scoparia aeolias*, sp. nov.

♂. 17 mm. Head ferruginous, with blackish spot before antennae and central dot on crown. Palpi ferruginous, somewhat mixed with dark fuscous. Thorax ferruginous, mixed with whitish and black. Abdomen pale ochreous, segmental margins whitish. Forewings ferruginous, irrorated with black; first line slender, irregular, oblique, silvery-white, preceded by a less marked similar line; orbicular and claviform roundish, black, separate, preceded and followed by irregular silvery-white spots, orbicular obliquely beyond claviform; discal undefined, 8-shaped, mostly suffused with black, with a white dot in lower half; median area mixed with silvery-white suffusion towards dorsum; a silvery-white costal spot about  $\frac{2}{3}$ ; second and subterminal lines silvery-white, confluent in middle, somewhat interrupted: cilia white, barred with fuscous (imperfect). Hindwings whitish-grey, terminally grey-suffused; cilia white.

1 specimen, in only moderate condition, Oahu, at 2000 feet, in April.

(31) *Scoparia nectarias*, sp. nov.

♀. 16—19 mm. Head pale ochreous-yellowish, sprinkled with dark fuscous. Palpi pale yellowish, mixed with dark fuscous. Thorax yellow-whitish, patagia pale yellowish mixed with dark fuscous. Abdomen grey or pale grey, segmental margins white. Forewings light ochreous-yellow, closely irrorated with dark fuscous; first line white, very oblique, indented in middle, rather remotely preceded by a little-defined similar line; orbicular and claviform blackish, dot-like, claviform touching first line beneath, preceded and followed by small white spots, orbicular obliquely beyond claviform, sometimes whitish-centred or preceded by a white dot, separated from discal by a white spot; discal spot represented by two white dots connected by a blackish suffusion; second and subterminal lines well-marked, white, more or less confluent



in middle: cilia white, somewhat mixed with fuscous towards tips, with a blackish or dark yellowish-fuscous antemedian line. Hindwings pale grey, becoming darker posteriorly, sometimes with faint whitish posterior line; cilia whitish-grey or whitish, with more or less marked dark grey subbasal line. (Plate VII. fig. 18.)

5 specimens; 4 Hilo, Hawaii, at 2000 feet; 1 Lanai, at 2000 feet; in January.

(32) *Scoparia bucolica*, sp. nov.

♂. 17—20 mm. Head and thorax yellowish-fuscous, somewhat whitish-sprinkled. Palpi dark fuscous, base and tips whitish. Abdomen fuscous, mixed or suffused with whitish. Forewings yellowish-fuscous, irrorated with whitish, sometimes much suffused with ochreous-yellowish, more or less sprinkled with black, veins posteriorly sometimes marked with black lines; basal area with irregular median blackish streak, and two blackish dashes towards dorsum; first line somewhat curved, oblique, whitish, posteriorly strongly edged with black suffusion; claviform moderate, roundish, black, confluent with this suffusion; orbicular annular, partly outlined with black, connected with discal by a streak or spot of whitish suffusion; discal 8-shaped, little defined, towards middle much suffused with black; second line whitish, well-defined, nearer termen than usual; subterminal cloudy, whitish, confluent with second in middle, sometimes obsolete; a terminal series of cloudy blackish marks: cilia whitish, mixed with fuscous, with darker fuscous antemedian line. Hindwings whitish-grey, terminally grey-suffused; cilia whitish, with grey subbasal line.

3 specimens, Molokai, at 4000—4500 feet, from June to August.

(33) *Scoparia pyrseutis*, sp. nov.

♀. 16—19 mm. Head and thorax whitish, more or less mixed or irrorated with dark fuscous. Palpi fuscous, base and tips whitish. Abdomen fuscous, segmental margins whitish-suffused. Forewings whitish, finely sprinkled with fuscous and blackish, sometimes partly tinged with ochreous-yellow suffusion; first line rather strongly oblique, straight, white, rather remotely preceded by a similar fainter line, and posteriorly edged with darker suffusion; a short black mark beyond this above middle; claviform elongate, black, touching posterior margin of first line; orbicular small, black, somewhat transverse, obliquely beyond claviform, separated from discal by a whitish spot; discal 8-shaped, little defined, lower half whitish, upper half laterally edged with black; second line white, tolerably defined; subterminal cloudy, whitish, ill-defined, approximated to second in middle; a terminal series of dark fuscous or blackish dots: cilia whitish, faintly barred with fuscous, with two interrupted or little marked dark fuscous lines. Hindwings whitish, terminally grey-suffused; cilia white.

2 specimens, Kona, Hawaii, at 3000—6000 feet, in August and October.

(34) *Scoparia erebochalca*, sp. nov.

♂♀. 15—16 mm. Head and thorax shining coppery, sometimes purplish-tinged. Palpi coppery-fuscous, base white. Abdomen ochreous-grey. Forewings shining ferruginous-coppery, irrorated with dark fuscous, sometimes purple-shining, sprinkled with whitish; no defined markings, but second and subterminal lines sometimes indicated with white scales: cilia light coppery-fuscous, somewhat whitish-sprinkled, sometimes whitish-barred and with dark fuscous subbasal line. Hindwings pale grey, coppery-tinged, terminally grey-suffused; cilia whitish, with grey subbasal line.

9 specimens; 7 Hilo, Hawaii, at 2000 feet; 2 Kilauea, Hawaii; in August and December.

(35) *Scoparia oenopis*, sp. nov.

♂♀. 18—23 mm. Head dark fuscous, sometimes ochreous-tinged, with a white line between eyes and antennae. Palpi dark fuscous, base white. Thorax dark coppery-fuscous, sprinkled or spotted with white. Abdomen grey or whitish-grey. Forewings dark orange-fuscous, more or less sprinkled irregularly with silvery-white; first line slender, oblique, silvery-white; orbicular, claviform, and discal spot sometimes indicated by darker suffusion, orbicular rather obliquely beyond claviform, claviform touching first line; a median band of silvery-white irroration; a costal spot of white suffusion at  $\frac{2}{3}$ ; second line silvery-white, more or less interrupted and undefined; subterminal silvery-white, irregular, undefined; a terminal series of white dots: cilia fuscous, barred with white, with dark fuscous antemedian line. Hindwings light fuscous or whitish-fuscous, darker terminally; cilia whitish, with a fuscous line. (Plate VII. fig. 19.)

6 specimens; 3 Haleakala, Maui, at 5000 feet; 2 Hilo, Hawaii, at 2000 feet; 1 Molokai, at 3000 feet; in April, May, June, and December.

(36) *Scoparia nyctombra*, sp. nov.

♀. 17—18 mm. Head dark fuscous, ferruginous-tinged. Palpi rather dark fuscous, ferruginous-tinged, base whitish. Thorax dark fuscous, somewhat sprinkled with ferruginous and whitish. Abdomen rather dark fuscous. Forewings ferruginous-orange, much mixed with dark fuscous; irregularly scattered groups of white scales, indicating first, second, and subterminal lines, and some markings in disc, but all undefined: cilia fuscous, basal fourth dark fuscous spotted with white, tips spotted with whitish. Hindwings rather dark fuscous, darker terminally; cilia fuscous, with a darker basal line.

2 specimens, Molokai, at 4500 feet, in September.

(37) *Scoparia clonodes*, sp. nov.

♂ ♀. 18—23 mm. Head dark fuscous, with a white line above eyes. Palpi dark fuscous, basal joint white. Thorax dark fuscous, somewhat whitish-sprinkled. Abdomen grey, segmental margins narrowly whitish. Forewings dark fuscous, irrorated with white, sometimes tinged or partially suffused with ferruginous-ochreous, veins posteriorly sometimes streaked with black; first line very obscure, pale, oblique, curved, somewhat indented in middle, preceded by a similar line, and edged posteriorly with blackish suffusion; orbicular and claviform blackish, round, separate, claviform sometimes rather large, orbicular rather obliquely beyond claviform; discal 8-shaped, blackish, filled up with ochreous, more or less connected with costa; second line pale, very obscure, anteriorly edged with blackish suffusion; space between second and subterminal lines blackish-suffused; subterminal line whitish, distinct or sometimes obscure, touching second in middle; a terminal series of white dots: cilia whitish, obscurely barred with grey, with dark fuscous antemedian line. Hindwings pale grey, slightly yellowish-tinged, suffused posteriorly with fuscous; cilia ochreous-whitish, with a grey line. (Plate VII. fig. 20.)

13 specimens, Haleakala, Maui, at 5000 feet, in May. The conspicuously marked spots distinguish this from the next species.

(38) *Scoparia thyellopis*, sp. nov.

♂ ♀. 15—18 mm. Head dark fuscous or black, with a white line above eyes, and a more or less marked white central line on crown. Palpi dark fuscous, basal joint white. Thorax dark fuscous or black, sprinkled with white. Abdomen light ochreous, segmental margins narrowly whitish, sometimes with ferruginous-tinged antemedian band. Forewings fuscous or brown, somewhat tinged with purplish or coppery, mixed or sometimes much suffused with dark fuscous or blackish, and sprinkled with white; first, second, and subterminal lines indicated by white irroration, usually undefined, little marked, first oblique, curved, sharply indented in middle, sometimes edged posteriorly with dark suffusion, subterminal approximated to second in middle; orbicular and claviform round, dark fuscous, separate, little marked, orbicular rather obliquely beyond claviform; discal 8-shaped, dark fuscous, usually hardly traceable or only by dark central suffusion, sometimes with whitish dot in lower half; a terminal series of white dots: cilia whitish, barred with fuscous, with dark fuscous antemedian line. Hindwings pale fuscous or grey, somewhat darker posteriorly; cilia grey-whitish, with a fuscous subbasal line.

28 specimens; 16 Kaholuamano, Kauai, at 4000 feet; 8 Mts. Waimea, Kauai, at

4000 feet; 1 Waianae Mts., Oahu; 3 Lanai, at 3000 feet; from April to July. Differs from the preceding by the smaller size, somewhat narrower forewings, the frequent presence of a distinct white central line on crown, and the indistinctness of the normal spots, which are often almost obsolete.

(39) *Scoparia melichlora*, sp. nov.

♂ ♀. 15—20 mm. Head pale yellowish, with a blackish spot before antennae. Palpi black, tips and apex of basal joint yellow-whitish. Thorax pale yellowish, more or less sprinkled with dark fuscous, a spot on shoulders and central dorsal spot blackish. Abdomen silvery-grey, segmental margins whitish. Forewings pale ochreous-yellow, sprinkled with black; a moderate oblique black almost basal fascia; first line pale yellow, very oblique, edged anteriorly by an irregular black line narrowly separated from edge of basal fascia, and posteriorly by a thicker black line or slender fascia; orbicular and claviform black, dot-like, claviform confluent with posterior edge of first line, orbicular obliquely beyond claviform; discal 8-shaped, black, more or less connected by suffusion with costa, upper half pale-centred or wholly black, lower half filled with pale yellowish; a small blackish mark on costa at  $\frac{3}{4}$ ; an inwardly oblique oblong black antepical spot, more or less connected beneath with a triangular black spot on middle of termen; a rhomboidal black praeternal spot, broadest above, posterior edge sharply indented, with a triangular black terminal mark entering the indentation: cilia whitish, with two more or less marked interrupted lines, first blackish, second cloudy grey. Hindwings whitish-grey, termen grey-suffused; cilia whitish, with grey subbasal line. (Plate VII. fig. 21.)

139 specimens; 91 Hilo, Hawaii, at 2000 feet; 47 Oloo, Hawaii; 1 Kona, Hawaii, at 2000 feet; in January, June, July, September, and December.

(40) *Scoparia zophochlora*, sp. nov.

♂ ♀. 18—20 mm. Head yellowish-fuscous, with a dark fuscous spot before antennae. Palpi dark fuscous, somewhat mixed with pale scales. Thorax dark fuscous, mixed with pale yellowish. Abdomen fuscous, segmental margins whitish-mixed. Forewings dark fuscous, somewhat sprinkled with pale yellowish; first line very oblique, somewhat sinuate, pale ochreous-yellow, preceded by a less marked similar line; orbicular and claviform indicated by blackish suffusion, claviform touching first line beneath, orbicular obliquely beyond claviform, preceded by a more or less marked yellow-whitish dot, and separated from discal by an irregular yellow-whitish spot; discal 8-shaped, blackish, lower half filled with pale ochreous-yellow; lower half of median area much suffused with pale yellowish; second and subterminal lines pale

ochreous-yellow, well-marked, confluent in middle: cilia fuscous-whitish, barred with fuscous, with an interrupted dark fuscous antemedian line. Hindwings grey, darker terminally; cilia grey, more whitish basally, with a dark grey subbasal line.

2 specimens, Molokai, at 4500 feet, in June and September.

(41) *Scoparia hawaiiensis* Butl.

*Scoparia hawaiiensis* Butl. Ann. Mag. Nat. Hist. (5) VII. 1881, p. 330.

*Xeroscopa hawaiiensis* Meyr. Trans. Ent. Soc. Lond. 1888, p. 235.

♂ ♀. 15—18 mm. Head ochreous-yellow on crown, sides somewhat mixed with dark fuscous, face dark fuscous, somewhat sprinkled with yellowish, with blackish spots before antennae. Palpi dark fuscous, base and tips whitish. Thorax yellow-whitish mixed with blackish. Abdomen grey or pale greyish-ochreous, segmental margins often whitish. Forewings yellow-whitish, irrorated or mixed with blackish; a moderate irregular oblique black almost basal fascia; first line yellow-whitish or pale yellow, oblique, sinuate outwards above and below middle, closely preceded by and sometimes partly confluent with a similar line, and followed by a more or less marked fascia of black suffusion; orbicular and claviform separate, black, usually suffused and little defined, vertically placed; discal 8-shaped, black, upper half wholly black or only obscurely pale-centred, lower filled with yellow-whitish; second line obscure, little marked, followed on costa and dorsum by black spots; a terminal series of black dots, confluent in middle into a triangular spot: cilia whitish, barred with grey, with an interrupted blackish antemedian line. Hindwings whitish-grey, towards termen grey-suffused; cilia whitish, with a grey line.

83 specimens; 54 Oloa, Hawaii; 26 Hilo, Hawaii, at 2000 feet; 2 Kona, Hawaii, at 2000 and 4000 feet; 1 Molokai, at 4500 feet; in January, June, July, September, November, and December. Mr Blackburn's specimens were from Mauna Kea, Hawaii, at 7000 feet. This species can always be distinguished from *S. empeda* by the distinctly yellow (sometimes almost orange) crown of the head. I am disposed to doubt the Molokai locality.

(42) *Scoparia empeda*, sp. nov.

♂ ♀. 17—20 mm. Head ochreous-whitish, face dark fuscous. Palpi dark fuscous, base and tips whitish. Thorax ochreous-whitish, much mixed with blackish. Abdomen fuscous, segmental margins sometimes whitish. Forewings ochreous-whitish, mixed with blackish; a nearly basal oblique undefined blackish fascia; first line strong, oblique, ochreous-whitish, preceded by a similar nearly confluent line, appearing to

form together a conspicuous fascia, edged posteriorly with blackish suffusion; orbicular and claviform roundish, blackish, undefined, separate, orbicular somewhat obliquely beyond claviform; discal 8-shaped, blackish, halves filled with whitish or upper half mostly suffused with blackish; second line ochreous-whitish, well-defined; terminal area beyond it suffused with blackish, subterminal line cloudy, ochreous-whitish, confluent in middle with second, interrupted above this; a terminal series of whitish dots: cilia ochreous-whitish, more or less indistinctly barred with grey, with a dark fuscous antemedian line. Hindwings light grey, darker posteriorly; cilia grey-whitish, with grey subbasal line.

5 specimens; 3 Haleakala, Maui, at 5000 feet; 2 Lanai, at 2000 feet; in January, May, and December.

(43) *Scoparia demodes* Meyr.

*Xeroscopa demodes* Meyr. Trans. Ent. Soc. Lond. 1888, p. 234.

♀. 17 mm. Head and thorax fuscous, mixed with white. Palpi dark fuscous, base white, second joint somewhat mixed with white, at least at apex. Forewings white, irregularly irrorated with fuscous or ochreous-fuscous; a narrow irregular almost basal blackish fascia; first line white, oblique, curved, indented in middle, edged posteriorly with blackish suffusion, space between this and subbasal fascia appearing to form a broad whitish band; orbicular and claviform merged in the dark suffusion or obsolete; discal undefined, 8-shaped, partially blackish-edged laterally, lower half whitish-filled; second and subterminal lines white, defined or cloudy, confluent in middle; a terminal series of dark fuscous dots: cilia ochreous-whitish, indistinctly barred with fuscous, with a darker fuscous antemedian line. Hindwings pale fuscous, darker posteriorly; cilia whitish, with a grey subbasal line.

1 specimen, Mts. Waimea, Kauai, at 4000 feet, in May; in conjunction with which I have redescribed the original type, which entirely agrees with it, and may probably be from the same island, though its locality is not recorded.

(44) *Scoparia dactyliopa*, sp. nov.

♂ ♀. 18—21 mm. Head and thorax white mixed with dark fuscous. Palpi dark fuscous mixed with whitish, with a blackish median band, base white. Abdomen fuscous, mixed with whitish. Forewings white, irrorated with fuscous and black; an undefined narrow blackish almost basal fascia; first line white, oblique, rather curved, indented in middle, edged posteriorly with black suffusion; orbicular somewhat reniform, clear white, black-edged, touching black suffusion of first line; claviform very

small, irregular, white, black-edged, touching first line; discal 8-shaped, white, black-edged except at top and bottom; second line white, obsolete except at extremities; subterminal cloudy, whitish, interrupted above middle: cilia whitish, indistinctly barred with fuscous, with an interrupted blackish antemedian line. Hindwings light fuscous, darker towards termen; cilia whitish, basal third fuscous. (Plate VII. fig. 22.)

2 specimens, Molokai, at 4500 feet, in September.

(45) *Scoparia geraea*, sp. nov.

♂ ♀. 12—13 mm. Head and thorax whitish, sprinkled with grey. Palpi blackish, sprinkled with whitish, base white. Abdomen grey. Forewings whitish, finely sprinkled with blackish; a spot of blackish suffusion on base of costa, and one in middle near base; first line white, curved, oblique, indented in middle, edged posteriorly with blackish irroration; orbicular small, roundish, blackish-grey, separate; claviform obsolete; discal 8-shaped, halves white, little-defined, separated by blackish-grey suffusion; second and subterminal lines white, confluent in middle, surrounded with blackish-grey irroration: cilia white, with grey antemedian line. Hindwings whitish-grey, termen suffused with grey; cilia whitish, with indistinct greyish subbasal line. (Plate VII. fig. 23.)

3 specimens; 2 Waianae Mts., Oahu, at 2000—3000 feet; 1 Mts. Waimea, Kauai, at 3000—4000 feet; in April and May. Distinct by its small size and pallid appearance.

(46) *Scoparia epimystis*, sp. nov.

♂. 19 mm. Head and thorax fuscous, mixed with whitish. Palpi dark fuscous, base and extreme tips white. Abdomen greyish-ochreous, segmental margins whitish-suffused. Forewings fuscous, irrorated with white, more suffusedly towards middle of disc; short black subcostal and median streaks from base; first line white, anteriorly suffused, acutely angulated below middle, upper portion very oblique, lower edged posteriorly with dark fuscous; orbicular small, blackish, white-centred, placed in a blackish-fuscous dash reaching first line; claviform small, blackish-fuscous, resting on first line above angle; discal 8-shaped, dark fuscous, halves obscurely filled with whitish, lower little defined; second line obscurely whitish, very undefined; subterminal obsolete; a terminal series of elongate blackish-fuscous dots: cilia whitish, with dark fuscous antemedian and fuscous subapical line. Hindwings light fuscous, termen darker-suffused; cilia whitish, basal third and subapical line fuscous.

1 specimen, Kona, Hawaii, at 4000 feet, in August.

(47) *Scoparia frigida* Butl.

*Scoparia frigida* Butl. Ann. Mag. Nat. Hist. (5) VII. 1881, p. 331.

♂♀. 17—19 mm. Head and thorax dark fuscous mixed with whitish, head sometimes mostly suffused with whitish. Palpi dark fuscous, base and tips white. Abdomen fuscous. Forewings very narrow, whitish, irregularly mixed with fuscous; basal area with some dark fuscous scales tending to form longitudinal streaks; first line white, angulated below middle, upper portion straight or slightly curved, very oblique, indistinctly edged posteriorly with dark fuscous; orbicular small, irregular, partly edged with blackish-fuscous, separate or connected with first line; claviform only indicated by some blackish-fuscous scales on angle of first line; upper half of discal incompletely margined with blackish-fuscous; second and subterminal lines white, rather thick, cloudy, confluent in middle, included spaces mixed or suffused with dark fuscous; a terminal series of cloudy dark fuscous dots: cilia white, with fuscous subapical and dark fuscous antemedian lines. Hindwings rather light fuscous; cilia whitish, basal third fuscous.

4 specimens; 2 Lanai, at 3000 feet, in July; 2 Haleakala, Maui, at 5000 and 10,000 feet, in April and May. The original type is also from Haleakala, Maui, at 4000 feet; but the second specimen, from Mauna Kea, Hawaii, is *S. meristis*.

(48) *Scoparia peronetis*, sp. nov.

♀. 16 mm. Head fuscous, crown suffused with whitish. Palpi dark fuscous, base and extreme tips white. Thorax dark fuscous, somewhat whitish-mixed. Abdomen light greyish-ochreous, segmental margins whitish. Forewings whitish, irrorated with fuscous; a slender irregular blackish longitudinal line from middle of base to middle of first line, continued less distinctly along submedian fold to tornus; first line white, indistinct, angulated above middle, upper portion very oblique, indented in middle, towards dorsum followed by a dot of dark fuscous suffusion; orbicular and claviform small, blackish, undefined, claviform placed in an indentation of first line, orbicular rather obliquely beyond it; discal 8-shaped, hardly indicated except by a blackish median dash, and a mark on anterior side of upper half; second and subterminal lines obsolete; veins somewhat marked with black posteriorly, and a terminal series of elongate blackish dots: cilia whitish, obscurely barred with fuscous, with a dark fuscous antemedian line. Hindwings grey-whitish, terminally grey-suffused; cilia whitish.

1 specimen, Kona, Hawaii, at 3000 feet in October.



(49) *Scoparia ischnias* Meyr.

*Xeroscopia ischnias* Meyr. Trans. Ent. Soc. Lond. 1888, p. 235.

♂♀. 17—21 mm. Head and thorax dark fuscous, more or less mixed with white. Palpi dark fuscous, base and tips white. Antennae in ♂ pubescent-ciliated over whole surface. Abdomen ochreous-grey. Forewings very narrow, fuscous, irregularly irrorated with white and black; a streak of blackish suffusion along fold from base to first line, interrupted by an undefined white central dot; first line white, almost straight, rather strongly oblique, posteriorly dark-edged; orbicular and claviform dot-like, undefined, blackish, separate, orbicular obliquely beyond claviform; discal undefined, X-shaped, blackish, preceded by a small cloudy white spot; second and subterminal lines cloudy, white, approximated in middle, second interrupted towards dorsum: cilia white, with fuscous subapical and dark fuscous subbasal lines. Hindwings fuscous-whitish, termen suffused with light fuscous; cilia white, with light fuscous basal line. (Plate VII. fig. 24.)

5 specimens, Haleakala, Maui, at 9000—10,000 feet, in April and May. Probably the original type was from the same locality.

(50) *Scoparia melanopsis* Meyr.

*Scoparia coarctata* var. ? *montana* Butl. Trans. Ent. Soc. Lond. 1882, p. 41.

*Xeroscopia melanopsis* Meyr. Trans. Ent. Soc. Lond. 1888, p. 233.

No examples of this species were obtained by Mr Perkins; there is one in the British Museum, and two in my collection; Mr Blackburn gives as locality the mountains near Honolulu, Oahu. Two specimens are mentioned by Butler in the reference quoted above, but one of these is, I think, a poor example of *frigida*; the other is this species, and now bears a type-label, which it did not in 1888. Considering this fact, and also that (1) Butler's name is varietal, not specific, being wrongly identified with *angustea* (*coarctata*), (2) there is practically no description accompanying it, I have therefore not used his name.

(51) *Scoparia macrophanes* Meyr.

*Scoparia macrophanes* Meyr. Trans. Ent. Soc. Lond. 1888, p. 231.

♀. 17—20 mm. Head, palpi, and thorax fuscous mixed with white, palpi with dark fuscous median band, base white. Abdomen grey, segmental margins whitish. Forewings very narrow, fuscous, suffusedly irrorated with white, with scattered black scales; indications of a dark subbasal fascia; first line white, moderately oblique,

rather curved, indented in middle, edged posteriorly with dark fuscous suffusion; orbicular small, irregular, detached, laterally edged with dark fuscous; claviform dark fuscous, more or less merged in dark suffusion of first line; discal 8-shaped, partially outlined with blackish; second line white, distinct; subterminal cloudy, white, confluent with second in middle; a terminal series of cloudy blackish dots: cilia whitish, with dark fuscous antemedian and fuscous subapical line. Hindwings whitish-fuscous, termen suffused with fuscous; cilia as in forewings.

2 specimens, Haleakala, Maui, at 5000 feet, in May. The original type may probably be from the same locality.

(52) *Scoparia meristis*, sp. nov.

*Scoparia frigida* Meyr. Trans. Ent. Soc. Lond. 1888, p. 231, *non* Butl.

♂♀. 14—20 mm. Head and thorax fuscous, more or less mixed with white. Palpi dark fuscous, base and tips white. Abdomen light greyish-ochreous. Forewings suffusedly irrorated with white and sometimes sprinkled with black; sometimes a blackish median longitudinal streak in basal area; veins posteriorly sometimes streaked with blackish; first line whitish, little curved, very oblique, posteriorly narrowly edged with blackish-fuscous suffusion; orbicular small, roundish, more or less edged with blackish-fuscous, separate; claviform obsolete; discal X-shaped, blackish, often imperfectly defined; second and subterminal lines whitish, ill-defined, confluent in middle; a terminal series of suffused dark fuscous elongate dots: cilia whitish, with dark fuscous subbasal and fuscous subapical line. Hindwings pale fuscous, darker terminally; cilia whitish, with fuscous subbasal line.

31 specimens; 24 Kona, Hawaii, at 4000—6000 feet; 7 Molokai, at 3000—4000 feet; from June to September. Of the two examples referred by Butler to his *frigida*, one (from Mauna Kea, Hawaii, at 7000 ft.) is this species, but the type (as identified above) is the other; the description also clearly indicates the angulated first line characteristic of the Maui species, but in 1888 I had not recognised their distinctness.

(53) *Scoparia halmaea*, sp. nov.

♂♀. 14—20 mm. Head and thorax white, more or less mixed with fuscous and blackish. Palpi dark fuscous, base and tips white. Abdomen greyish-ochreous, segmental margins whitish-suffused. Forewings white, more or less irrorated with fuscous or dark fuscous; a dark fuscous suffusion at base of costa, sometimes extended to reach a blackish median dash; first line white, somewhat curved, very oblique,

posteriorly edged with dark fuscous suffusion mixed with black; orbicular small, irregularly dot-like, blackish, sometimes connected with preceding suffusion; claviform obsolete; discal X-shaped, blackish; second and subterminal lines cloudy, whitish, confluent in middle; a terminal series of indistinct dark fuscous dots, confluent into a triangular spot in middle: cilia white, with interrupted dark fuscous antemedian and traces of fuscous subapical line. Hindwings whitish-fuscous, terminally suffused with fuscous; cilia whitish, with a fuscous subbasal line. (Plate VII. fig. 25.)

53 specimens; 12 Mts. Waimea, Kauai, at 4000 feet; 41 Kaholuamano, Kauai, at 4000 feet; from April to June. Closely allied to the preceding species, but apparently somewhat shorter-winged, with the ground colour more suffused with white, and the black scales better developed, so that the markings are more distinct, and in particular the orbicular forms a conspicuous black dot.

(54) *Scoparia platyscia*, sp. nov.

♂♀. 14—23 mm. Head and thorax dark brown, more or less mixed with whitish. Palpi dark fuscous, tips whitish-mixed, base white. Abdomen ochreous, segmental margins whitish. Forewings whitish, variably mixed with ferruginous or dark brown; an undefined dark ferruginous-brown basal suffusion; first line whitish, oblique, little curved, followed by a variable fascia of dark ferruginous-brown suffusion; claviform dot-like, blackish-fuscous, undefined, touching or merged in preceding suffusion; orbicular small, whitish, edged with dark brown or blackish, obliquely beyond claviform; discal 8-shaped, lower half undefined except at top, upper half merged in a ferruginous or dark brown bar from costa, but sometimes partially blackish-edged, seldom filled with whitish; second and subterminal lines obscure, whitish, confluent in middle, surrounded with ferruginous or dark brown suffusion: cilia whitish, obscurely barred with fuscous, with interrupted darker fuscous antemedian line. Hindwings whitish-grey, termen grey-suffused; cilia whitish, sometimes with faint greyish line. (Plate VII. fig. 26.)

34 specimens; 13 Mts. Waimea, Kauai, at 4000 feet; 4 Kaholuamano, Kauai, at 4000 feet; 4 Molokai, at 4000 feet; 3 Kona, Hawaii, at 2000—4000 feet; 8 Olanu, Hawaii; 2 Hilo, Hawaii, at 2000 feet; in December, January, and from April to October.

(55) *Scoparia probolaea*, sp. nov.

♂♀. 21—25 mm. Head and thorax white mixed with fuscous. Palpi long ( $3\frac{1}{2}$ —4), dark fuscous, base white, apex mixed with white. Abdomen pale greyish-ochreous or whitish-ochreous. Forewings white, irrorated with fuscous; short dark fuscous subcostal and median dashes near base, sometimes obsolete; first line cloudy,

whitish, curved, very oblique, sharply indented in middle, edged posteriorly with dark fuscous suffusion mixed with black; orbicular elongate or dash-like, black, detached; claviform dot-like, blackish, touching first line and sometimes merged in dark suffusion; discal X-shaped, blackish, separated from orbicular by a clear white spot; second and subterminal lines cloudy, white, hardly defined, confluent in middle; a terminal series of cloudy blackish dots: cilia white, with two interrupted fuscous lines. Hindwings whitish-fuscous, termen fuscous-suffused; cilia whitish, with a fuscous basal line. (Plate VII. fig. 27.)

13 specimens; 8 Kaholuamano, Kauai, at 4000 feet; 5 Mts. Waimea, Kauai, at 4000 feet; from April to June.

(56) *Scoparia omichlopis*, sp. nov.

♂♀. 15—25 mm. Head and thorax whitish, suffusedly irrorated with pale brownish-ochreous, shoulders usually dark fuscous. Palpi long ( $3\frac{1}{2}$ —4), dark fuscous, base whitish, apex more or less mixed with whitish. Abdomen pale whitish-ochreous. Forewings white, finely irrorated with brownish-ochreous; a very short fine blackish subcostal dash from base, sometimes obsolete; first line whitish, almost obsolete, curved, very oblique, indented in middle, followed by a dark fuscous mark towards dorsum, and usually two or three dots of dark fuscous suffusion towards costa; a dark fuscous dot indicating orbicular, remote from first line; claviform obsolete; discal indicated by a short dark fuscous dash and two dark fuscous dots above it; second and subterminal lines very faint or obsolete; a terminal series of indistinct dark fuscous dots: cilia whitish, with an indistinct brownish-ochreous antemedian line. Hindwings whitish-fuscous; cilia whitish, with a faint fuscous subbasal line. (Plate VII. fig. 28.)

33 specimens; 8 Mts. Waimea, Kauai, at 4000 feet; 16 Kaholuamano, Kauai, at 4000 feet; 6 Oloa, Hawaii; 3 Hilo, Hawaii, at 2000 feet; in January, from April to July, September and December.

(57) *Scoparia venosa* Butl.

*Scoparia venosa* Butl. Ann. Mag. Nat. Hist. (5) VII. 1881, p. 332.

*Xeroscopa venosa* Meyr. Trans. Ent. Soc. Lond. 1888, p. 233.

♂♀. 16—22 mm. Head and thorax white, sprinkled with fuscous. Palpi dark fuscous, base and tips white. Abdomen light ochreous-grey, segmental margins whitish. Forewings very narrow, fuscous, more or less mixed with blackish; all veins marked by more or less defined white streaks; normal lines and spots hardly perceptible or wholly obsolete: cilia white with dark fuscous antemedian and fuscous

subapical lines. Hindwings pale whitish-fuscous, termen somewhat darker-suffused; cilia whitish, with fuscous subbasal line.

6 specimens; 2 Kona, Hawaii, at 4000 feet; 2 Kilauea, Hawaii; 2 Haleakala, Maui, at 5000 feet; in May, July to September, November, December. Mr Blackburn's examples were from Mauna Loa, Hawaii, at 4000 feet.

## PYRALIDIDAE.

PYRALIS *Linn.*

Cilia of forewings yellow .....	(1) <i>mauritalis</i> .
„ „ not yellow .....	(2) <i>manihotalis</i> .

(1) *Pyralis mauritalis* Boisd.

6 specimens, Lihui, Kauai. One of these is stated to have been bred by G. C. Munro from a larva feeding in the old nest of a wasp of the genus *Polistes* (*Vespidae*). The species occurs in Australia, the Malay Archipelago, China, India, and S. Africa, but I am not aware that the larval habit has been previously noticed.

(2) *Pyralis manihotalis* Guen.

*Pyralis achatina* Butl. Ent. Mo. Mag. xiv. p. 49.

*Asopia gerontialis* Walk., Meyr. Trans. Ent. Soc. Lond. 1888, p. 212.

1 specimen, Honolulu, Oahu. Doubtless Mr Blackburn's types were from the same place. The species ranges through the tropical regions of Australia, the Malay Archipelago, S. Asia, Africa, and S. America.

DESCRIPTION OF PLATE III. (VOL. I.)

MACROLEPIDOPTERA.

ILLUSTRATING VARIATION IN COLOUR.

- Fig. 1. *Leucania euclidias*, Male; 1 a, *Leucania euclidias*, Female; 1 b to 1 h, front wings of varieties of *Leucania euclidias*.  
Fig. 2. *Nesamiptis obsoleta*; 2 a to 2 g, front wings of varieties of *Nesamiptis obsoleta*.  
Fig. 3. *Eucymatoge monticolans*; 3 a to 3 i, front wings of varieties of *Eucymatoge monticolans*.  
Fig. 4. *Scotorythra pachypila*, Male; 4 a to 4 d, front wings of varieties of *Scotorythra pachypila*.  
Fig. 5. *Scotorythra rara*, Male; 5 a to 5 d, front wings of varieties of *Scotorythra rara*.

All natural size.



*Edwin Wilson, lith. Cambridge.*

Meyrick. Macrolepidoptera.

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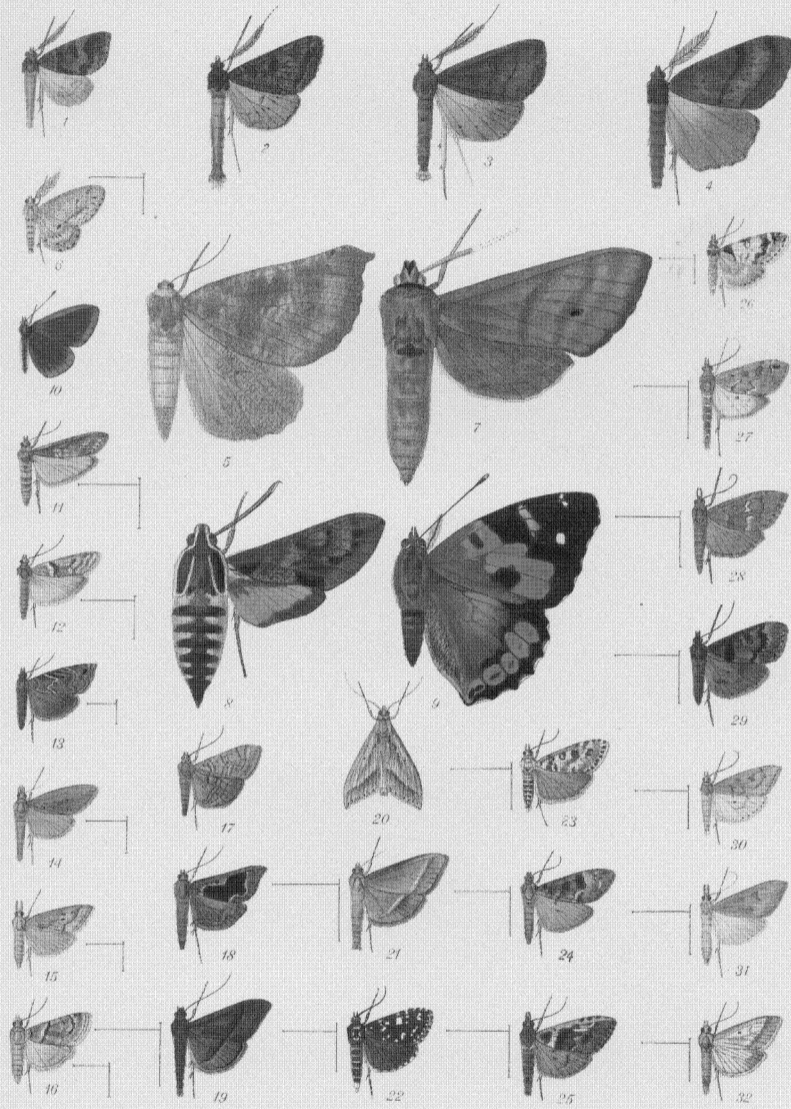




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Edwin Wilson, Lith. Cambridge

Meyrick Macrolepidoptera

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DESCRIPTION OF PLATE VI. (VOL. I.)

MACROLEPIDOPTERA.

- Fig. 1. *Pyrausta bryochloris*.
- Fig. 2. *P. draconias*.
- Fig. 3. *P. thermantis*.
- Fig. 4. *P. psychropa*.
- Fig. 5. *P. phethontia*.
- Fig. 6. *Mecyna aurora*.
- Fig. 7. *Loxostege melanopis*.
- Fig. 8. *L. helioxantha*.
- Fig. 9. *Promylaea pyropa*.
- Fig. 10. *Mestolobes amethystias*.
- Fig. 11. *M. chrysomolybda*.
- Fig. 12. *M. erinnys*.
- Fig. 13. *M. epidelta*.
- Fig. 14. *M. iochrysa*.
- Fig. 15. *M. ombrias*.
- Fig. 16. *M. scleropis*.
- Fig. 17. *M. orthrias*.
- Fig. 18. *M. pessias*.
- Fig. 19. *M. mesacma*.
- Fig. 20. *M. perixantha*.
- Fig. 21. *M. autodoxa*.
- Fig. 22. *Orthomecyna metalycia*.
- Fig. 23. *O. heterodyas*.
- Fig. 24. *O. chrysophanes*.
- Fig. 25. *O. epicausta*.
- Fig. 26. *O. picrodes*.



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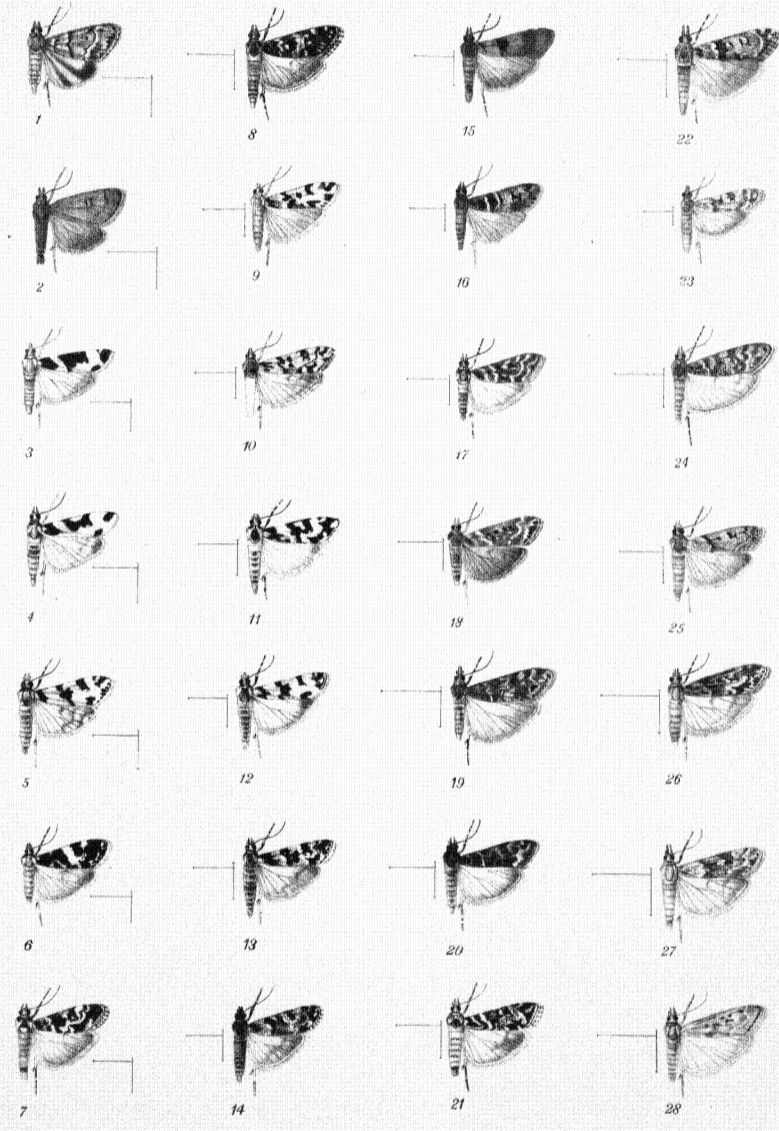




DESCRIPTION OF PLATE VII. (VOL. I.)

MACROLEPIDOPTERA.

- Fig. 1. *Orthomecyna mesochasma.*
- Fig. 2. *Protaulacistis cataphaea.*
- Fig. 3. *Scoparia tetranesa.*
- Fig. 4. *S. amphicypella.*
- Fig. 5. *S. balanopis.*
- Fig. 6. *S. orthoria.*
- Fig. 7. *S. tyraula.*
- Fig. 8. *S. thalamias.*
- Fig. 9. *S. loxocentra.*
- Fig. 10. *S. actias.*
- Fig. 11. *S. struthias.*
- Fig. 12. *S. triacna.*
- Fig. 13. *S. cryerodes.*
- Fig. 14. *S. ombrodes.*
- Fig. 15. *S. siderina.*
- Fig. 16. *S. parachlora.*
- Fig. 17. *S. ianthes.*
- Fig. 18. *S. nectarias.*
- Fig. 19. *S. oenopis.*
- Fig. 20. *S. clonodes.*
- Fig. 21. *S. melichlora.*
- Fig. 22. *S. dactyliopa.*
- Fig. 23. *S. geraea.*
- Fig. 24. *S. ischnias.*
- Fig. 25. *S. halmaea.*
- Fig. 26. *S. platyscia.*
- Fig. 27. *S. probolaea.*
- Fig. 28. *S. omichlopis.*



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DESCRIPTION OF PLATE III. (VOL. I.)

MACROLEPIDOPTERA.

ILLUSTRATING VARIATION IN COLOUR.

- Fig. 1. *Leucania euclidias*, Male; 1 a, *Leucania euclidias*, Female; 1 b to 1 h, front wings of varieties of *Leucania euclidias*.  
Fig. 2. *Nesamiptis obsoleta*; 2 a to 2 g, front wings of varieties of *Nesamiptis obsoleta*.  
Fig. 3. *Eucymatoge monticolans*; 3 a to 3 i, front wings of varieties of *Eucymatoge monticolans*.  
Fig. 4. *Scotorythra pachypila*, Male; 4 a to 4 d, front wings of varieties of *Scotorythra pachypila*.  
Fig. 5. *Scotorythra rara*, Male; 5 a to 5 d, front wings of varieties of *Scotorythra rara*.

All natural size.



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DESCRIPTION OF PLATE IV. (VOL. I.)

MACROLEPIDOPTERA.

- Fig. 1. *Leucania anthracias*.
- Fig. 2. *L. compsias*.
- Fig. 3. *L. pyrrhias*.
- Fig. 4. *Agrotis microreas*.
- Fig. 5. *A. panoplias*.
- Fig. 6. *A. aulacias*.
- Fig. 7. *A. xiphias*.
- Fig. 8. *A. spoderopa*.
- Fig. 9. *A. epicremna*.
- Fig. 10. *A. neurogramma*.
- Fig. 11. *A. psammophaea*.
- Fig. 12. *Hyphenodes epichalca*.
- Fig. 13. *H. cyanias*.
- Fig. 14. *H. oxygramma*.
- Fig. 15. *Nesamiptis plagiota*.
- Fig. 16. *Cosmophila noctivolans*.
- Fig. 17. *Eucymatoge scoriodes*.
- Fig. 18. *E. staurophragma*.
- Fig. 19. *E. niphoreas*.
- Fig. 20. *E. rhodopyra*.
- Fig. 21. *E. orichloris*.
- Fig. 22. *Hydriomena aphoristis*.
- Fig. 23. *Xanthorhoe ioxantha*.
- Fig. 24. *X. leucoxylla*.
- Fig. 25. *Progonostola cremnopsis*.
- Fig. 26. *Dasyuris holombra*.
- Fig. 27. *Sisyrophyta gomphias*.
- Fig. 28. *Scotorythra syngonopa*.
- Fig. 29. *S. aruraea*.
- Fig. 30. *S. trapezias*.
- Fig. 31. *S. idolias*.
- Fig. 32. *S. demetrias*.



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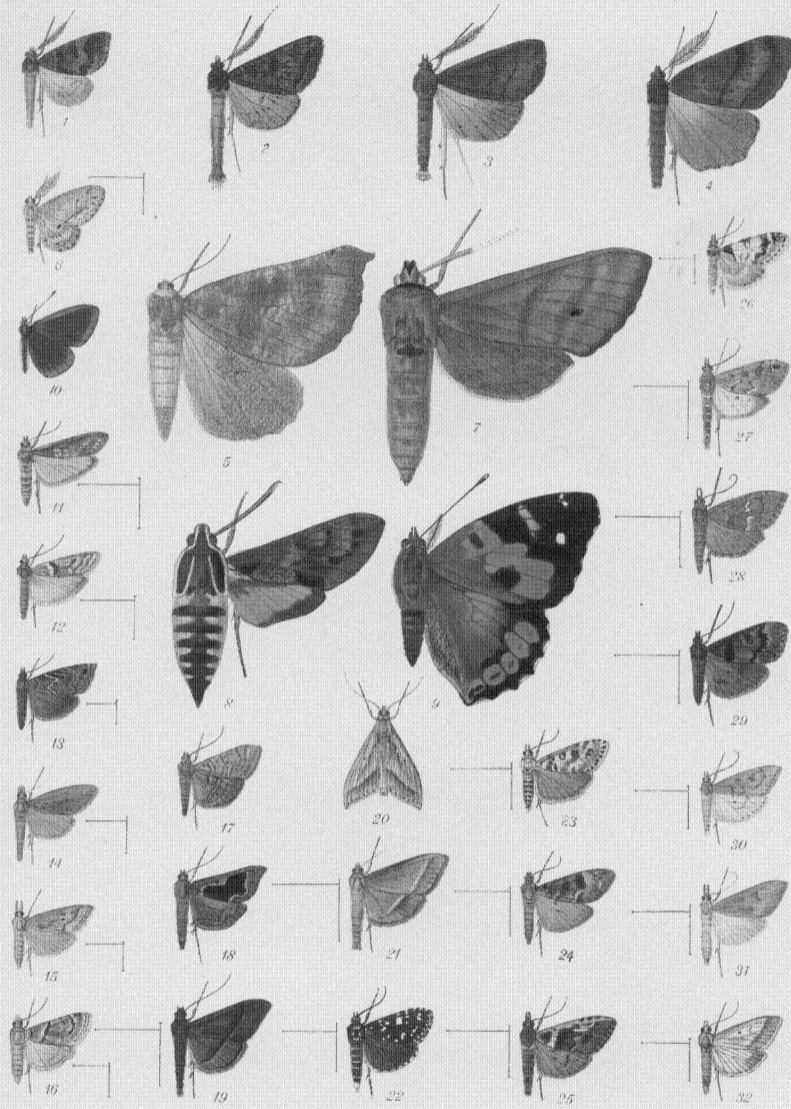
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DESCRIPTION OF PLATE V. (VOL. I.)

MACROLEPIDOPTERA.

- Fig. 1. *Scotorythra ortharcha* ♂.  
Fig. 2. *S. macrosoma* ♂.  
Fig. 3. *S. brachytarsa* ♂.  
Fig. 4. *S. euryphaea* ♂.  
Fig. 5. *S. megalophylla* ♀.  
Fig. 6. *Tritocleis microphylla* ♂.  
Fig. 7. *Deilephila? smaragdilis*. (The antennae of the unique specimen are very much damaged.)  
Fig. 8. *D. pyrias*.  
Fig. 9. *Vanessa tammeamea*.  
Fig. 10. *Lycaena blackburni*.  
Fig. 11. *Genophantis iodora*.  
Fig. 12. *Homoeosoma amphibola*.  
Fig. 13. *Prionopteryx exonoma*.  
Fig. 14. *Talis geralea*.  
Fig. 15. *T. hyacinthina*.  
Fig. 16. *T. floricolans*.  
Fig. 17. *Margaronia cyanomichla*.  
Fig. 18. *Omiodes euryprora*.  
Fig. 19. *O. iridias*.  
Fig. 20. *O. telegrapha*.  
Fig. 21. *O. monogramma*.  
Fig. 22. *Phlyctaenia calliastra*.  
Fig. 23. *P. chalcophanes*.  
Fig. 24. *P. ephippias*.  
Fig. 25. *P. iocrossa*.  
Fig. 26. *P. eucrena*.  
Fig. 27. *P. metasema*.  
Fig. 28. *P. ommatias*.  
Fig. 29. *P. pachygramma*.  
Fig. 30. *P. liopis*.  
Fig. 31. *P. pyranthes*.  
Fig. 32. *P. heterodoxa*.





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DESCRIPTION OF PLATE VI. (VOL. I.)

MACROLEPIDOPTERA.

- Fig. 1. *Pyrausta bryochloris*.
- Fig. 2. *P. draconias*.
- Fig. 3. *P. thermantis*.
- Fig. 4. *P. psychropa*.
- Fig. 5. *P. phethontia*.
- Fig. 6. *Mecyna aurora*.
- Fig. 7. *Loxostege melanopis*.
- Fig. 8. *L. helioxantha*.
- Fig. 9. *Promylaea pyropa*.
- Fig. 10. *Mestolobes amethystias*.
- Fig. 11. *M. chrysomolybda*.
- Fig. 12. *M. erinnys*.
- Fig. 13. *M. epidelta*.
- Fig. 14. *M. iochrysa*.
- Fig. 15. *M. ombrias*.
- Fig. 16. *M. scleropis*.
- Fig. 17. *M. orthrias*.
- Fig. 18. *M. pessias*.
- Fig. 19. *M. mesacma*.
- Fig. 20. *M. perixantha*.
- Fig. 21. *M. autodoxa*.
- Fig. 22. *Orthomecyna metalycia*.
- Fig. 23. *O. heterodyas*.
- Fig. 24. *O. chrysophanes*.
- Fig. 25. *O. epicausta*.
- Fig. 26. *O. picrodes*.



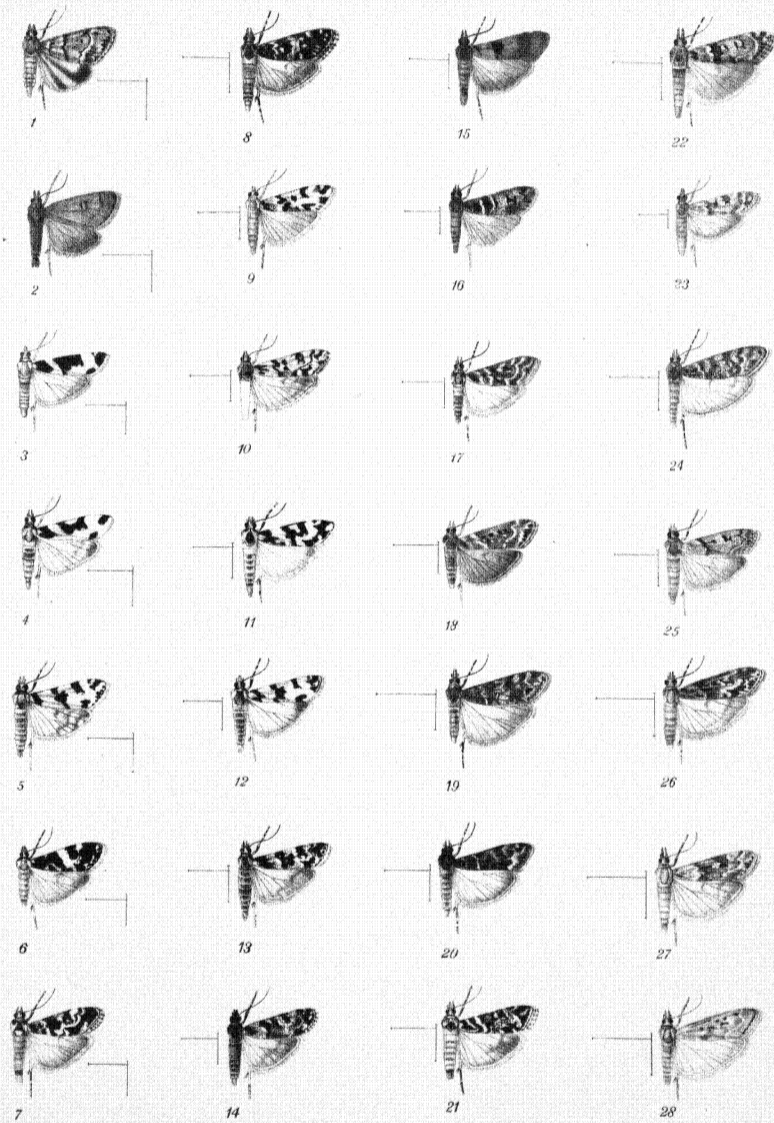
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DESCRIPTION OF PLATE VII. (VOL. I.)

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