

logical discoveries on the one hand, and on the other those which are promised to us by submarine explorations, will gradually fill up these gaps, and perhaps one day enable naturalists to grasp the relations which exist between the different animals.

Our country has not remained indifferent to these researches; the Academy at its last meeting heard the interesting details given by M. de Lacaze-Duthiers upon the organization of his laboratory at Roscoff and the work that has been accomplished there. For my own part I am happy to be able to announce that the expedition accomplished last year in the Bay of Biscay by the 'Travailleur' will not be the last of its kind, and that this summer the same ship will undertake a series of dredgings in the Mediterranean, of which I shall have the honour to give you an account.

XXXII.—*On a Collection of Nocturnal Lepidoptera from the Hawaiian Islands.* By ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

THE collection of which the following is an account consists of eighty specimens forwarded to me last year by the Rev. Thomas Blackburn. It is particularly interesting as being to a large extent composed of Micro-Lepidoptera, of which we have hitherto received very few species from the Hawaiian Islands.

Sphingidæ.

1. *Deilephila calida*, sp. n.

General size, form, and pattern of *D. euphorbiæ*, but the primaries coloured as in *D. biguttata* of Madagascar, and the secondaries differing from all species of the genus in their dark outer border; on the under surface the general coloration is bright brick-red. Primaries above smoky grey; a broad dark olive-brown belt across the base, three unequal subcostal spots, and a tapering discal belt of the usual form and also of a dark olive-brown colour; a narrow transverse fasciole forking from the inner margin of the discal belt to the costa; below this fork the belt is edged internally by a golden ochreous line; outer borders of a dark and slightly purplish-grey colour, decidedly darker than the central area of the wing; fringe with a slender whitish basal line; secondaries black, with narrow diffused sooty-grey border, scarcely paler

than the ground-colour; a slightly irregular vermilion-red belt (a little narrower towards the costa) just beyond the middle of the wing; no trace of any white spot at the anal angle; costal border paler than the ground-colour; fringe white towards the anal angle, rose-coloured along the abdominal margin: body above dark olivaceous; the head, shoulders, and tegulæ bordered with sulphur-yellow; antennæ black, tipped with snow-white, ferruginous internally: abdomen with lateral white and black basal markings, nearly as in *D. euphorbiæ*, but narrower; three last segments bordered at the sides behind by narrow transverse cream-coloured spots; lateral margins dull rose-coloured. Wings below brick-red, crossed beyond the middle by two subparallel curved black lines (abbreviated in the secondaries); outer border rosy brown, with zigzag inner edge; discoidal area of primaries blackish, partly obscured towards the base by dull rosy hairs: body below pale rosy ferruginous; legs and palpi pale greyish brown, the base of the palpi and anterior tarsi whitish. Expanse of wings 2 inches 10 lines.

One specimen of this very distinct species was sent in a separate box. Mr. Blackburn gives the following description of the larva:—

“*Larva*. Pale green (belly whitish), sparingly dusted with white; dorsal and spiracular lines whitish, but rather obscure; first segment (*i. e.* the one behind the head) obscurely suffused with red; spiracles pink, with a crimson centre; head and legs green; claspers green, tipped with crimson; horn short and warty, black above, red beneath; head small; second and third segments behind the head much distended.

“Another individual was as follows:—Greenish grey, with a sooty appearance, sparingly sprinkled with rather large white spots; underside green; dorsal line yellow, very conspicuous; spiracular line white; spiracles yellow, with the centre dull orange; subspiracular line whitish, but very indistinct, excepting on last segment, where it forms a conspicuous white line on either side, converging to the horn. There is a general tendency in this form of the larva to a mauve-coloured suffusion in various parts of the body, which is very conspicuous when the larva is about half-grown.

“The two forms of larva described produced identical moths, though, I think, different sexes.

“I have taken it on several different plants (none of them known to me by name) in different mountain localities in Oahu. The imago flies by day in hot sunshine about flowers, and is also attracted by light in the evening.”

Mr. Blackburn has also forwarded the following descrip-

tion of the larva of another hawk-moth, which I named in a previous paper *Protoparce Blackburnii*:—

“*Description of full-grown larva.* Green or ashy grey, more or less sprinkled with white; spiracular line white, emitting upwards and backwards (*i. e.* so that they slant upwards in a backward direction) seven white stripes, the first of which is on the fourth segment (not counting the head as a segment), the last on the tenth; on the eleventh segment is a small white stripe bent backwards over the spiracle, being much smaller than the white lines on the other segments; head with two well-defined black longitudinal lines, and clouded with black laterally; spiracles black, surrounded with a bright blue ring; horn long, shining black, bent backwards; claspers of the ground-colour. In the ashy grey larvæ the whole dorsal surface is sprinkled with white; the segment behind the head is shining black, bordered with white; the last claspers and space round the anus are shining black (at least partially); and the legs are blackish at base, becoming red towards apex. In the green larvæ only a few segments near the head are sprinkled with white, and the segment next behind the head, the last claspers and the space round the anus are olivaceous rather than black; the legs, too, are more conspicuously red.

“Feeds on a very common weed growing about 2 feet high, also on a shrub growing some 6 feet high, neither of which is known to me by name.”

Larentiidæ.

2. *Scotosia corticea*, sp. n. (No. 116).

Bronzy brown: wings mottled all over with dark slaty grey, most distinctly on the primaries, where the mottling forms transverse striations; a rather broad central belt, formed of two stripes of a dark slaty-grey colour and the space between them, which is slightly paler; the outer stripe dentate-sinuate externally, both stripes inarched towards the costa of primaries; a discal stripe limiting the external border, parallel to the central belt, almost obsolete on the secondaries: primaries with traces of a curved slaty-grey stripe at basal fourth, and with the external border densely mottled with this colour: body greyish. Under surface paler than above, the wings very slightly striated with grey, excepting towards apex of primaries; an oval discocellular grey spot on each wing, largest on the primaries, the costal margin of these wings straw-yellow, mottled with black: body below

• whitish; venter transversely banded with grey; anus yellowish. Expanse of wings 1 inch 6 lines.

One specimen, in which the left primary is dwarfed; it has somewhat the aspect of a *Eubolia*, as noticed by Mr. Blackburn, but seems to agree better with *Scotosia*. Mr. Blackburn says:—"I captured two of this, at an elevation of about 4000 feet, on Haleakala, Maui, May 1880. The one sent was just out of pupa when taken; one side did not expand properly."

3. *Eupithecia monticolens*, sp. n. (No. 117).

Very closely allied to *E. bilineolata* from New Zealand, but darker, and with slightly less angular bands. Sordid shining greyish white: wings crossed by numerous subparallel undulated grey and brown lines, the interspaces between some of which are filled in with grey, so as to form fairly well-defined bands; the banding of the primaries is as follows:—two basal irregular bands, followed by a line; then comes the central belt, bounded on each side by a band and traversed by two lines; at the end of the cell is a transverse black spot on a scarcely perceptible diffused reddish shade; immediately beyond the central belt is a band of almost pure white, traversed by a single line; a submarginal slightly brownish band, the inner line of which is black; outer border grey; the veins varied with black and white, so as to form little black longitudinal dashes upon the dark bands: secondaries with a whitish band across the disk as in the primaries, but with no distinct dark bands, excepting on each side of the whitish one upon the abdominal area: body varied with grey; the abdomen crossed by two subbasal and one subanal black band; between these bands is also a dorsal series of four black dots. Primaries below greyish white; the discocellulars and the veins just beyond the cell black; apical area broadly bronzy, crossed by two curved ill-defined greyish stripes, and with the border of the same colour; these markings, however, entirely disappear in certain lights: secondaries sordid creamy white; a curved band just beyond the cell, formed entirely by a series of black longitudinal dashes on the veins; a marginal series of black dots: body below white; legs partly black above. Expanse of wings 10–11 lines.

Two specimens. "Not very rare about 4000 feet up Haleakala, Maui; I took it also at the summit of the mountain, 10,000 feet above the sea" (*T. B.*).

Noctuidæ.

4. *Spælotis crinigera*, sp. n. (No. 11).

Colour of primaries and thorax similar to *S. ravidæ*, and exhibiting the same slight variations of tint from brownish to slaty grey, always as sericeous and sometimes more so than in that species; the markings on the primaries agree with those of *S. pyrophila*, excepting that they are black, with scarcely perceptibly paler borders: secondaries only differing from *S. pyrophila* in having the yellow line at the base of the fringe sharply defined and limited externally by an interrupted dusky line; abdomen greyish brown, the male with a very large anal tuft of long stramineous hair. Under surface shining white in the male, greyish in the female, with the discoidal area of primaries greyish in both sexes; internal area shining brassy opaline: a slightly dentate-sinuate discal grey stripe, abbreviated on the primaries: body below sandy yellowish in the male, sordid white in the female, dusky in front behind the palpi; tarsi blackish, with pale bands at the joints. Expanse of wings 1 inch 8 lines to 2 inches 3 lines.

Four specimens, in both sexes; Mr. Blackburn says of them, "I believe it to be identical with the *Agrotis* referred to in your papers in E. M. M. vol. xv. p. 269, and vol. xvii. p. 7, which was too much broken to be named, also with the insect described by you as *Spælotis lucicolens*. How the number '12' (unless it be a misprint) got placed against the latter I cannot conjecture, for the number '12' is marked off from my note-book as non-existent, having been applied to a single worn specimen of a *Leucania*, which further study satisfied me was only *dislocata*, Walker." In this supposition Mr. Blackburn is partly correct; that is to say, this is the supposed "*Agrotis*;" but it differs from my "*Spælotis lucicolens*," which (with "*S. cremata*") must be referred to *Agrotis*, in the simple instead of pectinated antennæ of the male: the species which must now stand as *Agrotis lucicolens*, although it possesses the general coloration and pattern of *Spælotis*, is represented by a male specimen having strongly pectinated antennæ, as in *A. crassa* of Europe, to which it is probably most nearly allied. *A. cremata* also has the antennæ of the male exactly as in typical *Agrotis*, notwithstanding its *Spælotis*-like pattern.

The specimen of *A. lucicolens* still has the No. "12" attached to it; so that it seems probable that this number when detached from the *Leucania* was accidentally transferred to the *Agrotis*. Of *Spælotis crinigera* Mr. Blackburn says

further:—"This insect is extremely common all over the Hawaiian archipelago, as I have found out since I penned the note from which you give extract calling it *rare*. I should say it is periodical in occurrence. I have taken it at all seasons of the year; but sometimes hardly a specimen is to be seen for months, then it swarms suddenly. At a place called Kawaihae, on the island Hawaii, in February 1879, I observed it literally in thousands round a lighthouse, evidently attracted by the lamps. The unset specimen (type of the male) was taken there; the largest specimen (type of the female) is from Maui, the other two from Honolulu. It does not usually occur much above sea-level, and does not thrust itself into notice much unless looked for about or soon after dusk, so is easily passed over."

With regard to *Agrotis* ("*Spælotis*") *cremata*, Mr. Blackburn says, "I think there is a mistake somewhere in the mention of Oahu as a locality for this species. I am only conscious of having had three specimens altogether, two of which I sent you in separate consignments. They were all bred from pupæ obtained in September 1876 in the Maui sand-hills. If I wrote No. 10 against any insect with "Oahu" as its locality it was a slip of the pen; nor do I even think it decidedly probable that the species occurs on Oahu, as that island has no region of sand-hills; and, moreover, Maui seems to contain many other species peculiar to it, many more, so far as my experience goes, than any other of the islands."

Apameidæ.

5. *Apamea chersotoides*, sp. n.

♂. Allied to *A. unanimitis*, but with the coloration of a *Graphiphora*. Primaries shining lacy brown, mottled with testaceous towards the base and along the costal border; costal margin spotted regularly with black; basal area crossed by oblique interrupted slightly zigzag black lines, which appear to be continuous with the first two pairs of black costal spots; four ill-defined, reversed, oblique, dentate-sinuated black lines, the first, third, and fourth attached to minute whitish points; the first line (which runs from the "orbicular" to the inner margin) very indistinct, the last line limiting the external border, which is dusky; a discal series of black dots; an oblique subapical costal black dash; a marginal series of small lunate black spots, followed by a testaceous marginal line; base of fringe dark brown, remainder of fringe red-brown; orbicular and reniform spots whitish, with black-

speckled centres : secondaries grey, the veins and a diffused outer border fuliginous brown ; costal border whitish, shining, with brassy reflections ; fringe cream-coloured, traversed by a brown line ; thorax laky brown, the collar crossed by scarcely perceptibly darker lines ; abdomen grey, becoming brown towards the anus, and fringed on each side with lake-brown hair ; anal tuft orange. Wings below sericeous whitish, with the borders pale rosy testaceous, speckled with black ; black discocellular spots ; a dusky angulated discal line ; external border greyish ; a marginal series of lunate black dots ; fringe with a pale yellowish basal line : primaries with the discoidal area greyish ; fringe reddish : secondaries with the fringe crossed by a grey line and tipped with white : body below dull rose-colour ; venter with lateral black dots. Expanse of wings 1 inch 3 lines.

♀. Darker than the male, the markings more distinct, the black lines across the basal area distinct and continuous with the costal spots, the discal series of black dots attached to whitish dots, and therefore having the appearance of an extra discal line ; abdomen dark greyish brown. Otherwise as in the male. Expanse of wings 1 inch 4 lines.

A pair in good condition. "Various localities on Maui, April and May 1880."

6. *Apamea cinctipennis*, sp. n. (No. 140).

Aspect of *Chersotis*, but with the border of the primaries almost as pale as in *Apamea limbata*. Primaries above shining laky brown, mottled all over, excepting upon the outer border, with black ; outer border pale dead golden or sandy brown, slightly speckled with black ; a marginal series of black lunate spots ; costa, disk, and basal area mottled with pale testaceous ; a zigzag black-bordered pale testaceous stripe at basal third, and a curved series of internally black-bordered testaceous spots across the disk ; discoidal cell blackish, the ordinary spots slaty grey, edged with black ; the outer margin of the reniform spot angulated and whitish ; fringe pale testaceous and laky brown in alternate lines : secondaries shining grey, with dusky diffused outer border ; fringe pale testaceous, intersected by a dusky line ; thorax slaty grey, varied with brown ; abdomen shining grey, with ochreous anal tuft. Under surface whitish grey, shining : wings with black-speckled sandy-tinted borders ; discocellular and marginal black spots ; venter ochreous, with lateral series of black spots. Expanse of wings 1 inch 8 lines.

One specimen. I can find no reference to the No. ("140") in Mr. Blackburn's notes, and therefore am ignorant as to the exact locality for this species.

Heliothidæ.

7. *Heliothis armigera* (Nos. 141 and 154).

Noctua armigera, Hübner, Noct. pl. 79. fig. 370 (1805-24).

A pair. The male (No. 141) is a faintly-marked variety exactly resembling *H. incarnata* on the upper surface, excepting that the fringe is not rosy; the female, on the other hand, is a rather dark specimen, nearly approaching the form found in New Zealand and named *Heliothis conferta* by Walker, with which it may be conspecific; as, however, the difference between *H. armigera* and *H. conferta* is apparently only one of colour, it is very doubtful whether the latter is more than a variety of the former. Of the male Mr. Blackburn says:—"I took three specimens flying at flowers, at an elevation of about 2000 feet, on Haleakala, Maui, in May 1880; the specimens are all identical in size and markings &c., save that one (which I retain) has the marginal dark band of the hind wings narrower than the other two." Of the female he says:—"I took the specimen sent at a lamp in Honolulu, attracted by the light; a second, which I retain, occurred to me in company with ** No. 141."

Hypenidæ.

8. *Hypena obsoleta* (No. 14).

Hypena obsoleta, Butler, Ent. Month. Mag. xiv. p. 47 (1877).

Two specimens, one of which is an interesting variety, having the central belt of the primaries bordered (narrowly internally and broadly externally) with pale stramineous. Mr. Blackburn still considers the species to be conspecific with *H. insignis*; but at present I have not sufficient evidence before me to unite them, the variety now sent not being intermediate. The following is what Mr. Blackburn says:—"I feel compelled, however presumptuous it may seem in one who does not profess to be a specialist in Lepidoptera, to hesitate much in regarding *obsoleta* and *insignis* as distinct. The species (or group of species) occurs all over the Hawaiian archipelago: I have specimens from Hawaii, Maui, and Oahu; I have seen it in my own garden and at an elevation of 4000 feet. Among twenty specimens which I have set, there are only two that cannot be said to differ *inter se*; and they are of the form '*insignis*.' Two extreme forms I possess are:—the one sooty black, with faint indications of the lines which border the dark area in '*insignis*;' the other sooty black, with the same lines sulphur-yellow. Another specimen

is pale grey, with the same lines nearly black; another dark fuscous, with a still darker cloud representing the dark area of *insignis*, but extending further before it reaches the costa. The hind wings vary through all shades from pale ashy to nearly black. Classified by locality, I can detect no difference, except that the specimens from the south of Hawaii generally have darker hind wings."

The preceding note certainly seems to show that *H. obsoleta* is extremely variable; and yet the observation that the two specimens which agree are referable to "*H. insignis*" seems to show that the gradation from one form to the other is not perfect, and therefore that we may have here, as in the British butterflies of the genus *Pieris*, nearly allied species widely distributed and occurring constantly together, which nevertheless are distinct; nothing but breeding can satisfactorily decide the point, unless a perfect gradation can be shown; and even this is not always conclusive. In all probability the larva would be found abundantly on nettles.

9. *Hypenodes altivolans*, var. *simplex* (No. 65).

Scoparia altivolans, Butler, E. M. M. xvii. p. 9 (1880).

Primaries above bronzy brown, shining; a dusky-edged zigzag clay-coloured stripe across the basal third, followed within the cell by a short oblique black dash; a second arched clay-coloured stripe with dusky inner edge across the external third, followed by an irregular abbreviated stripe of the same colours; a submarginal lunulate white line breaking up into small annular or ocellus-like spots towards the inner margin; a marginal series of black impressed dots followed by an interrupted pale line at the base of the fringe; secondaries shining pale grey; thorax bronzy brown, abdomen greyish brown. Under surface uniformly grey. Expanse of wings $9\frac{1}{2}$ lines.

Var. Primaries above darker than in the type, the clay-coloured stripes only indicated by their dusky margins, excepting towards the inner margin, also more irregular; thorax darker; otherwise similar. Expanse of wings 8 lines.

Three specimens. "It occurs all over the Hawaiian archipelago; but I have not observed it to be common" (*T. B.*).

Hercynidæ.

10. *Boreophila minuscula*, sp. n. (No. 134).

Leaden grey above; primaries with the basal third dusky, crossed by an acutely angulated black line, and limited externally by an angular black stripe followed by a white stripe; two

angulated black-edged ochreous stripes representing the central belt; a diffused white costal spot immediately beyond the outer stripe; an irregularly falciform snow-white discal line; a marginal series of black dots; fringe whitish, spotted with blackish and intersected by a black line; secondaries very slightly greenish in tint as compared with the primaries, with a slender whitish submarginal line followed by a slender black marginal line; fringe whitish, intersected by a grey line; palpi, head, and thorax dusky. Under surface dark shining leaden grey; wings with whitish submarginal and blackish marginal lines; fringe as above; primaries with white internal border: pectus and under surface of legs white; tarsi above blackish, banded with white. Expanse of wings $6\frac{1}{2}$ lines.

One specimen, taken "at light at an elevation of about 4000 feet on Haleakala, Maui."

11. *Aporodes? micacea*, sp. n. (No. 118).

Primaries above shining slaty grey, shot with purple and clouded with black; a creamy whitish irregular subbasal band, densely irrorated, excepting along its borders, with black scales; orbicular and reniform spots well-defined, black, varied with clay-colour; a very irregular dentate-sinuate black discal line partly bordered externally with white and golden ochreous, a large cuneiform costal ochreous patch beyond the discal line, spotted, upon the costal border, with black; outer and inner borders irrorated with ochreous; two marginal alternated series of black spots, and between the spots of the outer series snow-white dots; fringe intersected by two black lines and spotted externally with ochreous: secondaries greyish brown, with bronzy reflections; costal border silvery whitish towards the base; fringe whitish, spotted with blackish and intersected by two lines of the same colour: body black, with the thorax and anterior abdominal segments spotted with rosy cupreous, posterior segments altogether of this colour; the anterior segments also have snow-white posterior margins. Wings below cupreous, shining, with an alternately black and white marginal line and silky white fringe; primaries shot with pale greyish blue, so that in certain lights the whole tint of these wings is entirely altered; costal border red, spotted with black from the end of the cell; orbicular and reniform spots large and black; discal line of the upper surface indicated but indistinct; secondaries reddish all over and irrorated with black; the interno-median area and a streak through the cell snow-white, speckled with black, excepting on the veins, which remain reddish; a discal series of white-bordered black spots; three black spots in the cell,

and one at the inferior extremity of the cell; pectus shining silvery white; legs dull red, banded with black and white; venter white towards the base, but red towards the anal extremity. Expanse of wings 11 lines.

Two specimens of this beautiful little species. According to Mr. Blackburn it is "common, at an elevation of about 4000 feet, on Haleakala, Maui; generally flying over ferns."

I am extremely doubtful as to the affinities of this species. Although in structure it seems to agree with *Aporodes*, it has much the aspect of a Noctuid allied to *Acantholipes*; the distinct orbicular and reniform spots and the highly coloured under surface are by no means characteristic of typical *Hercynidæ*.

Margarodidæ.

12. *Margaronia glauculalis* (No. 114).

Margarodes glauculalis, Guénée, Delt. et Pyral. p. 306. n. 325 (1854).

"The specimen sent was brought to me dead; and I could do nothing with it but gum it on a card. After an interval of nearly two years I procured a second specimen in fine condition at light. The specimens are so absolutely identical that you will not hesitate to treat the somewhat unsightly one I send as a type. Both were taken in Honolulu."—*T. B.*

The species is very widely distributed, being found also in Java and Sumatra. It ought to be common, if one may judge by the abundance of some of the allied species.

Botididæ.

13. *Anemosa aurora*, sp. n. (No. 143).

Allied to "*Scopula*" *daiclesalis* of Walker*, but much smaller: primaries above bright rose-colour, with a slight lilac reflection; the ordinary lines very indistinct but ochraceous; fringe golden ochreous tipped with whitish: secondaries shining golden ochreous, paler towards the abdominal border, whitish on the costal border, slightly greyish at apex; a marginal series of minute black dots between the veins; fringe tipped with white: body dark ochraceous, the thorax and posterior segments of the abdomen washed with lake-red; margins of abdomen silvery. Wings below cream-colour, with golden reflections: primaries with whitish internal border; costal margin rose-colour; an oblique annular oval marking representing the reniform spot and a diffused arched line be-

* The genus *Anemosa* differs from *Scopula* in its considerably longer palpi and acute primaries.

yond the cell grey; secondaries with a marginal series of black dots: body below sericeous white; palpi red at the sides. Expanse of wings $8\frac{1}{2}$ lines.

One specimen in good condition. I can find no reference to the number, and therefore cannot record its exact locality.

14. *Mecyna ennychioides*, sp. n. (No. 135).

Dark fuliginous brown: wings with shining slaty-grey reflections; a marginal series of black dots; fringe tipped with white; primaries with the usual markings characteristic of *Botys*, black, as follows:—a black dot before the middle of the cell, the orbicular and reniform spots represented in outline; a bisinuate abbreviated line from the orbicular spot to the inner margin, and the usual alternately angulated (or castellated) discal line from costa to inner margin; apical half of costal margin black, spotted with testaceous: secondaries with white costa: body blackish, the abdomen with a bluish gloss. Under surface, excepting that it is altogether less red, is almost identical in pattern with *Aporodes? micacea*. Expanse of wings $10\frac{1}{2}$ lines.

One specimen, taken at light, at an elevation of about 4000 feet, on Haleakala, Maui.

The extraordinary resemblance which this species bears to *Aporodes? micacea* on the under surface makes me doubt, notwithstanding its many structural differences, whether it is not the male of that species; yet on the upper surface the pattern and colouring are very different; the form of the primaries, the length and form of the palpi, and the length of the tibiae and tarsi are altogether dissimilar.

15. *Mecyna nigrescens*, sp. n. (No. 136).

Primaries above dark brown, clouded in the centre with pale buff, which colour fills the intervals between the discoidal spots; all the markings similar to those of the preceding species, excepting that the orbicular and reniform spots are dark brown with black margins, that there are two additional black spots close to the base, that the two transverse lines are bordered with pale buff and white, that there is a whitish nebula near the apex and a white oblique stripe from the discal line to the outer margin, that the marginal black dots are bordered with white and the fringe is spotted with pale buff: secondaries shining fuliginous brown, with the basal half of the costal border white; two black spots in the cell, fringe spotted with white: thorax pale buff, speckled with black; abdomen black, with white hind margins to the segments. Primaries below grey, with silvery white internal border; costal border

cream-coloured, spotted with black beyond the middle; discoidal spots large and black; an indication of the discal line of the upper surface; outer border and fringe nearly as above, but greyer and more sericeous: secondaries greyish white, with two black spots in the cell and one at the inferior extremity; a discal series of black dots; a submarginal dentate-sinuate grey line; a marginal series of black dots; a white apical spot; fringe spotted with grey: body below white; venter with lateral series of black dots. Expanse of wings 8 lines.

One specimen, "flying among low plants at an elevation of about 4000 feet on Haleakala."

16. *Mecyna exigua* (No. 133).

Mecyna exigua, Butler, Ent. Month. Mag. xv. p. 271 (1879).

One specimen, without head; it is probably the female of my species; and differs in the diffusion of the white edges of the black lines across the primaries; so that these wings might be described as greyish white, dusky at the base and crossed in the middle by a broad irregular blackish belt; a subapical costal spot and the outer border blackish; a marginal series of black dots, limited internally by a zigzag submarginal white line; fringe grey, traversed by a brown line and tipped with brown. Expanse of wings 10 lines.

No exact locality is given. "April-May."

17. *Mecyna virescens*, sp. n. (No. 139).

Allied to *M. polygonalis* of Europe and *M. deprivalis* of New Zealand; same size and pattern above: primaries above olive-green; costal margin dark orange; an indistinct angulated oblique darker line just before the basal third; orbicular and reniform spots small and dusky; a large black spot just below the inferior angle of the cell, and two or three black dots in a straight line between it and the inner margin; an arched series of five black dots beyond the cell; a marginal series of black points; fringe of inner margin sienna-red; fringe of outer margin grey in the centre, sienna-red at base and tips: secondaries dull cupreous brown, with a black border as in the allied species, fringe golden cupreous, traversed by a central grey line: thorax olive-green, abdomen pale sandy brown. Primaries below with the costal border and apex reddish orange; subapical area broadly dull rose-colour; discoidal area grey; disk towards external angle flesh-coloured; internal border white; a whitish-buff basal spot and an indistinct rosy subcostal streak in the cell, interrupted by blackish orbicular and reniform spots: secondaries pale sandy yellow,

washed with rose-red, especially on costal and external areas ; a greyish outer border : fringe of all the wings cream-coloured, traversed by a grey stripe : body below cream-coloured, femora and tibiæ reddish. Expanse of wings 1 inch 2 lines.

One specimen. This is the first *Mecyna* of the typical group received from the Hawaiian islands. Mr. Blackburn says of it, "I send a specimen (one of two) bred from larvæ found feeding on a tree unknown to me by name, but apparently a species of *Acacia*, which I have not seen growing elsewhere than in damp ravines at an elevation of 4000 to 5000 feet on Haleakala, Maui. A third specimen I took flying by day in the same locality ; it is larger, exp. al. 38 millims., ground-colour of front wings as bright yellow as the cilia of hind wing in the specimen sent, otherwise identical ; probably the other sex. The other bred specimen is identical with the one sent.

"The following is a description of the larva :—Shining black, sparingly furnished with long grey-white hairs ; head and underside dirty grey ; spiracular line bright orange-colour ; three pairs of legs (on three segments next behind head), and five pairs of claspers, all dirty semitransparent grey. Forms a pupa in a silken cocoon."

The entirely different character of the under surface readily distinguishes this species from its allies.

Scopariidæ.

18. *Scoparia hawaiiensis*, sp. n. (No. 83).

Closely allied to *S. exhibitalis* of Australia and *S. lætalis* of Europe : primaries above grey, densely speckled with black, crossed near the base by an angulated cream-coloured belt, broadly bordered and sparsely speckled with black ; a hastate black spot in the cell ; end of the cell filled by a milk-white spot ; a black rhomboidal spot just beyond the cell, a black spot partly surrounded by white scales below the discoidal hastate spot ; external third densely irrorated with milk-white scales, which form two ill-defined stripes, the inner one zigzag and discal, the outer one submarginal ; two sub-apical costal spots, a nearly marginal confluent series of unequal spots, and a large spot on the inner margin near the external angle black ; a marginal chain-like series of small elliptical white spots, bounded externally by a slender black line ; fringe sericeous sordid white, tipped with grey and traversed near the base by a black line : secondaries sericeous sordid white like tarnished silver, fringe with greyish outer half and a grey subbasal line : thorax black, spotted with

cream-colour; abdomen silvery white, anal tuft testaceous; tarsi black above, banded with white. Under surface uniformly silvery white. Expanse of wings 8 lines.

Two specimens. Mauna Kea, Hawaii; elevation about 7000 feet.

19. *Scoparia jucunda*, sp. n. (No. 82).

Allied to the preceding, but with somewhat the aspect of *Tinea nigralbella*; primaries above sericeous white, with a very slight bluish tinge, adorned with black markings as follows—a dentate sinuate band close to the base, an irregular patch across the cell interrupted transversely by two spots of the ground-colour and terminating below the median vein in a curved line, which runs along nearly a fourth of the inner margin, an oblique streak beyond the cell and a zigzag marking (which may, in some specimens, be continuous with the latter) at external angle, an apical patch interrupted by two oblique stripes of the ground-colour and a marginal series of dots; secondaries shining sordid white; head and thorax white, slightly bluish; abdomen shining pale brown, with testaceous anal tuft. Under surface sordid silvery white. Expanse of wings $8\frac{1}{2}$ lines.

One specimen. Mauna Kea, Hawaii; elevation about 7000 feet.

Var. *formosa* (No. 130).

Much more heavily marked than the preceding, the black markings on the primaries being broad and intense in colouring, the patch across the cell altered in shape so as almost to resemble the Greek Ψ , the outer extremity uniting with the oblique streak beyond the cell; shoulders and back of collar black. Expanse of wings 9 lines.

One specimen. Found "occasionally on trunks of trees, at an elevation of about 4000 feet on Haleakala, Maui."

This can at most be no more than a local modification of the preceding (*S. jucunda*); it, however, reminds one rather of *Psecadia pusilla* than of *Tinea nigralbella*.

20. *Scoparia frigida*, sp. n. (Nos. 67 and 81).

Nearly allied to *S. rakaiensis* of New Zealand, but much smaller, with slightly different pattern on the primaries and no broad border to the secondaries: primaries above shining brownish grey irrorated with white; an acutely angulated black-edged white line across the basal third; three white-edged abbreviated longitudinal black lines at the base; several scattered black spots in the cell, the largest of these being

placed longitudinally within the inferior angle of the cell; a bidentate trisinate white discal stripe partly bordered externally with black, the central arch or sinus uniting with the middle of a bisinuated submarginal white stripe; a nearly marginal series of black spots, followed by a black-edged marginal white line; fringe with the base and a slender line just beyond the middle grey: secondaries shining bronzy whitish, with a grey line close to the margin; fringe white, with the base and a slender line grey: thorax white varied with brown; abdomen bronzy whitish. Under surface silvery whitish. Expanse of wings $9\frac{1}{2}$ to 10 lines.

Two specimens, of which one was "taken flying at an elevation of about 4000 feet on Haleakala, Maui," and the other at "Mauna Kea, Hawaii; elevation about 7000 feet."

21. *Scoparia coarctata* (No. 102).

Eudorea coarctata, Zeller, Linn. Ent. p. 308. 14 (1846).

One specimen. No exact locality given.

22. *Scoparia venosa*, sp. n. (No. 84).

Primaries above black with white veins; a white marginal line followed by a black line at the base of the fringe; tips of fringe grey: secondaries pale shining brown, with a white marginal line followed by a blackish line at the base of the fringe, which is white tipped with grey: head and thorax black, spotted with white; abdomen pale shining brown. Wings below pale shining brown, with marginal line and fringe as above: body below silvery white. Expanse of wings $9\frac{1}{2}$ lines.

Two specimens. "Mauna Loa, Hawaii; elevation about 4000 feet; occurred very near the active volcanic crater."

Phycidæ.

23. *Ephestia humeralis*, sp. n. (No. 111).

Allied to *E. elutella*; general coloration similar, but the pattern quite different: primaries above shining silvery grey, with the basal half of the costal border snow-white; fringe white: secondaries greyish white, shining; veins and marginal lines grey; fringe snow-white, traversed near the base by a slender grey line: body above silvery grey. Primaries below grey, shining; secondaries and body below silvery white. Expanse of wings $8\frac{1}{2}$ lines.

One specimen. "Mountainous places on Oahu and Hawaii. I have taken only two specimens."—*T. B.*

24. *Ephestia albosparsa*, sp. n. (No. 80).

Allied to *E. semirufa*, very similar in general pattern: primaries above shining leaden grey, irrorated with white; an oblique white stripe at basal third, immediately followed by a broad externally angulated leaden-grey band; a faint indication of a reniform spot, owing to the less densely congregated white scales at the end of the cell; a regular white stripe with leaden-grey internal border parallel to and near the outer margin: secondaries shining brownish white (like slightly tarnished silver), with snow-white fringe traversed near the base by a slender grey line: thorax grey; abdomen silvery whitish. Primaries below shining greyish brown; secondaries as above, excepting that they are whiter: body below silvery white. Expanse of wings $8\frac{1}{2}$ to $9\frac{1}{2}$ lines.

Two specimens. "Various localities on Hawaii."

[To be continued.]

XXXIII.—*Description of Parantirrhœa Marshalli, the Type of a new Genus and Species of Rhopalocerous Lepidoptera from South India.* By J. WOOD-MASON, Deputy Superintendent, Indian Museum, Calcutta.

Family Nymphalidæ.

Subfamily SATYRINÆ.

PARANTIRRHŒA *, gen. nov.

♂. Anterior wings triangular; anterior margin moderately and regularly arched; apical angle acute; outer margin almost straight, being only just perceptibly convex; inner angle rounded; inner margin sinuous, being lobed at the base much as in the males of *Clerome* and *Æmona*, genera of Morphinae; subcostal vein 4-branched, the first branch given off before and the second beyond the end of the discoidal cell, the first, second, and third coalescing successively and respectively with the costal vein, the first and the second and all three in turn becoming free and running off at a tangent, like the costal vein, to the anterior margin, the fourth being perfectly free from its origin and running to the apical angle; posterior discocellular veinlet long, very slightly concave outwards, almost straight, intermediate one not quite half the length of

* From *παρά*, by the side of, and *Antirrhœa*, generic name.



Butler, Arthur G. 1881. "XXXII.—On a collection of nocturnal Lepidoptera from the Hawaiian Islands." *The Annals and magazine of natural history; zoology, botany, and geology* 7, 317–333. <https://doi.org/10.1080/00222938109459520>.

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DOI: <https://doi.org/10.1080/00222938109459520>

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