and both pair of wings. The body beneath and base of palpi pure white. It is immaculate and of the size of *Ventralis*, but it is nearer to the group of *Fodinalis*. Several specimens have been seen by me.

EURYCREON ELAUTALIS. n. s.

 δ \mathfrak{P} . This species has the clypeus prominent, embossed; the infra-clypeal plate exserted. The pattern is not unlike *Rantalis*, but the hind wings are more transparent and the bands on forewings angulated. Fore wings pale ochrey yellow. Anterior line outwardly oblique, uneven, shaded before with fuscous. Reniform indicated. Outer line uneven, angulated opposite the cell, followed by a fuscous shading over sub-terminal space. The s. t. line indicated and with a deep sub-median sinus. No terminal line. Fringes whitish. Hind wings white, with a denticulate extra mesial line, outside of which the wing is washed with ochrey. Fringes white. Head and thorax ochrey. Beneath paler, the markings faintly refletced. *Expanse* 22 mil.

I have examined a number of examples, some less distinctly marked than others.

NOTES ON SOME NORTH AMERICAN LEPIDOPTERA

BY A. G. BUTLER.

(Concluded from page 132.)

In the present part of my paper I offer a few remarks on the Noctuites forwarded to us by Mr. Edwards. With the Noctuites of North America I have hitherto had

With the Noctuites of North America I have hitherto had very little to do; but I wish to take advantage of the present opportunity to call the attention of Lepidopterists in the New World to the true affinities of this tribe of Moths.

A study of the ontogenetic development of the Noctuites shows that they are in all probability descended from the Geometrites; that their ancesters were "loopers." It is therefore very important in a classification of the genera of Noctuites to place those genera in which the looper-like character is retained longest (*i. e.*, the typical semi-loopers) next to the Geometrites, and those in which it is soonest lost at the opposite end of the series. I cannot myself attempt to do this with the few species here enumerated, more especially as I could only guess by analogy what the larvæ of some of them would be like, but there can be no question that a study of the earliest larval stages (suggested by Weissmann) will throw a flood of light upon the true affinities of this somewhat perplexing group.

It should also be borne in mind by breeders of Leipdoptera that the adult larvæ of the so-called *Bombycoidæ* exhibit the characters of *Liparidæ*, *Arctiidæ* and *Notodontidæ* as well as those of typical Noctuites (and that on that account I have distributed several of the genera among these families), yet an examination of the earliest stages would alone satisfactorily decide whether the species and genera associated under this family are in reality allied to the Bombyces or not; they have probably been placed in this tribe on account of their well-developed proboscis (though many of the *Arctiidæ* are almost equally well furnished in this respect, and though the stress laid on this character, if applied to the *Sphingidæ*, ought to separate the *Acherontiinæ* from that family); as to their somewhat vague resemblance in the imago state to *Xylinidæ* and one or two other families of *Noctuæ* that is in my opinion quite unimportant.

Lastly, it is worthy of consideration whether the smooth larvæ of the true Noctuites ought to be widely separated from the similarly smooth larvæ of the *Sphingidæ*, and separated moreover by the interposition of a vast assemblage of hairy coccoonforming, woolly looking moths like the *Arctiidæ*, *Liparidæ*, *Lasiocampidæ*, *Saturniidæ*, *Limacodidæ*; although the last two families in their smoother, though eccentrically formed larvæ, are apparently nearer to the Noctuites than the others.

Considering the almost hopeless chaos in which the classification of the Hetercerous Lepidoptera has lain up to the present time, it seems to me to be most important that all these points should be well ventilated and definite conclusions arrived at.

Respecting the genus to which the first two species are referred, I personally have some doubts, they are so extremely like the *Apamea connexa* and *A. unanumis* of Europe in pattern and general coloration, that had I received them unnamed I should unhesitatingly have referred them to that genus; nevertheless the study which Mr. Grote has devoted to the types of the obscurer genera in this tribe makes me cautious of offering any decided opinion until I have had time and opportunity to examine the matter thoroughly, as he has done.

APAMIDÆ.

MAMESTRA CINNABARINA. Grote. Washington Territory. MAMESTRA CUNEATA. Grote. California.

NOCTUIDÆ.

AGROTIS REPENTIS. G. and R.

This species appears to belong to the same section of the genus as A. Impacta of Venezuela.

AGROTIS HAVILAE. Grote.

I should have placed this species next to *Spælotis Ravida* of Europe which it much resembles.

ORTHOSIIDÆ.

ORTHOSIA CRISPA. Harvey.

This is almost intermediate between O. lævis of Europe and O. lizetta of Japan; it is rather larger than either.

HADENIDÆ.

HADENA INDIRECTA. Grote.

Seems to belong to the *H. convergens* group, and to be allied to the "*Xylophasia*" mucens of Walker's List.

HELIOTHIDÆ.

MELICLEPTRIA OREGONICA. H. Edwards.

Summit of the Sierra Nevada.

We have nothing closely resembling this species in the Museum.

MELICLEPTRIA DIMINUTIVA. Grote.

Knight's Valley, California.

This little species has a singular resemblance to the Pyralidian Noctuomorpha norma is of Europe.

XANTHOTHRIX RANUNCULI. H. Edwards.

Havilah, California.

This species belongs to a genus which is quite new to me; two very distinct forms (which I should have supposed to be specifically separable) were sent by Mr. Edwards.

PHALÆNOIDÆ.

It appears to me that the genus Annaphila would be more appropriate here than in the *Anartidæ*. A comparison of the two species hereafter noted with *Anarta*, shows that the secondaries are conspicuously broader than in that genus whilst the coloration is similar to that of *Archiearis*.*

ANNAPHILA DEPICTA. Grote.

Sonoma County.

ANNAPHILA DECIA. Grote. Havilah.

PLUSIIDÆ.

PLUSIA CALIFORNICA. Speyer. Kern Co., and Havilah, California.

I found two examples of this species in the Museum collection from Vancouvers' Island, under *P. gamma*.

PLUSIA BRASSICÆ. Riley.

California.

This agrees in every respect with our examples of the European P. U. aureum of Guenée. I cannot regard it as a distinct species.

PLUSIA DYAUS. Grote.

Indian River, Florida.

An example of this species from Orilla was amongst our specimens of *P. precationis*. It is extremely close to the widely distributed *P. verticillata*, which should, I think, stand between it and *P. precationis*.

* The genus seems to me related to Eustrotia (Erastria) A. R. G.

BOLINIDÆ.

SYNEDA DIVERGENS. Behr.

Truckee, California.

The Euclidia Capiticola, of Walker, and E. petricola, come near to S. divergens.

LITOCALA SEXSIGNATA. Harvey.

Colorado.

CATOCALA AHOLIBAH.

Vancouvers Island.

This species is also in the British Museum, from the same locality. With it we received what appears to be a very distinct species of the same group.

CATOCALA IRENE. Behr.

Mendocino, California.

Allied to C. Electilis, of Mexico, but the coloration of the primaries more like that of C. innubens.

CATOCALA CALIFORNICA. W. H. Edwards.

The nearest species to this, in the Museum, is a larger and undetermined *Catocala* from Texas.

CATOCALA MARIANA. H. Edwards.

Seems to come nearer to *C. briseis* than anything else in our collection. The latter was wrongly identified by Walker as the *C. parta*, of Guenée (Lep. Het., p. 1193).

CATOCALA VERRILLIANA. Grote.

Humboldt Co., California.

Quite new to me.

EUCLIDIIDÆ.

EUCLIDIA CUSPIDEA. Guén.

Knight's Valley and Havilah, California.

Smaller and with more sharply defined markings on secondaries, than in our examples.

A NEW AND REMARKABLE BOMBYCID MOTH FROM ARIZONA.

BY HENRY EDWARDS.

EULEUCOPHÆUS NEUMOEGENI. n. s.

8. Head white, with a few blackish hairs intermixed, the palpi bright reddish brown. Thorax snow white, with a central black band. Antennæ orange brown. Abdomen with deep claret brown at base, shading towards the anal extremity into orange brown. Beneath it is reddish brown at the base, white on the middle and blackish on the posterior segments. The legs are all reddish brown at their base, the tibiæ snow-white edged with black, and the tarsi jet black. Primaries and secondaries snow-white, the former with the anterior line rather narrow, nearly straight, jet black. Upon it, above the median nervule, rests a pale orange transverse dash,



Butler, Arthur G. 1881. "Notes on some North American Lepidoptera." *Papilio* 1(9), 168–171.

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