

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/  
Couverture de couleur

Coloured pages/  
Pages de couleur

Covers damaged/  
Couverture endommagée

Pages damaged/  
Pages endommagées

Covers restored and/or laminated/  
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/  
Pages restaurées et/ou pelliculées

Cover title missing/  
Le titre de couverture manque

Pages discoloured, stained or foxed/  
Pages décolorées, tachetées ou piquées

Coloured maps/  
Cartes géographiques en couleur

Pages detached/  
Pages détachées

Coloured ink (i.e. other than blue or black)/  
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/  
Transparence

Coloured plates and/or illustrations/  
Planches et/ou illustrations en couleur

Quality of print varies/  
Qualité inégale de l'impression

Bound with other material/  
Relié avec d'autres documents

Continuous pagination/  
Pagination continue

Tight binding may cause shadows or distortion along interior margin/  
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/  
Comprend un (des) index

Title on header taken from: /  
Le titre de l'en-tête provient:

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/  
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title page of issue/  
Page de titre de la livraison

Caption of issue/  
Titre de départ de la livraison

Masthead/  
Générique (périodiques) de la livraison

Additional comments: /  
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below /  
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# The Canadian Entomologist.

VOL. XII.

LONDON, ONT., NOVEMBER, 1880.

No. 11

## NOTES ON ORTHOPTERA.

BY PROF. CYRUS THOMAS.

### *Edipoda obliterata*, nov. sp.

Male and female. Length to tip of elytra 1.50, to tip of abdomen 1.10 to 1.30. Pale reddish-brown or dull yellowish tinged with rufous, with irregular transverse bands of dark fuscous spots.

Occiput not prominent. Vertex broad, moderately deflexed, margins with sharp carinæ forming a distinct sub-quadrate, median foveola, which is divided into two equal sections by a distinct longitudinal, median carina that extends back part way upon the occiput; sides of the foveola parallel between the eyes, and bending abruptly inward toward the fastigium in front, continuous with the sides of the frontal costa; fastigium with a double indentation. Frontal costa slightly sulcate, sub-tricarinate at the fastigium, widening at the ocellus and extending nearly or quite to the clypeus, but not expanding below; in the male the width is about uniform throughout. Pronotum with the median carina sub-cristate, distinctly and deeply notched about the middle by the posterior sulcus; anterior portion irregularly arched, more elevated than the posterior portion, which has only the front part arched; lateral carina irregular and indistinct; the notch of the median carina is of the oblique type, more distinctly so in the male than in the female. Posterior lobe expanding rapidly from the posterior sulcus; nearly flat on the disk, which is more or less covered with elongate rugosities, more distinct and numerous in the female than in the male; posterior extremity obtuse-angled; anterior margin extended in a very obtuse angle upon the occiput. Elytra extending about one-third their length beyond the abdomen, of medium width, sinuous and obliquely excised at the tip. Wings narrow, the length very nearly twice the width, and slightly undulate on the outer margin; the nervules unusually regular and straight. Posterior femora with sharp and elevated carinæ above and below. Antennæ rather short, scarcely flattened and very slightly acuminate at the tip.

*Color* (recent specimens dried).—Female somewhat darker than the male; face pale purplish, dotted with fuscous; occiput and pronotum fuscous brown, the latter with a carneous stripe along each lateral carina, which connect at the anterior sulcus and fade out near the posterior extremity; the disk of the posterior lobe dark brown. Elytra pale dirty yellow, slightly tinged with rufous, crossed by three irregular bands formed of dark fuscous spots, the middle one broader and usually the best defined; apex with irregular cellular fuscous spots, those next the costal margin most distinct. Wings pellucid, with a narrow marginal, rather pale, fuscous band, commencing behind the sub-costal area, where it is broadest, narrowing and fading toward the anal angle; the nerves and nervules, except in the apical portion of the subcostal area and in the fuscous band, pale yellow or white. Posterior femora crossed externally and internally by three oblique fuscous bands; posterior tibiae pale yellow, spines tipped with black.

One male and one female from Sierra Valley, California, furnished by Mr. J. G. Lemmon.

This species approaches very near Mr. Scudder's *Trachyrhachys*, but appears to belong to *Ædipoda* as at present limited; if Mr. Scudder's genus *Dissosteira* (of which he has given but an incomplete diagnosis) stands, this species will scarcely find a lodging place in any of the numerous genera of this group.

In his paper on the Orthoptera collected by Lieut. Wheeler's Survey, published in 1876, where he first proposes this genus, he makes the following statement: "Stal's limitations of the genus *Ædipoda*, in his "Recensio Orthopt. I., forces us to consider *Gryllus coerulescens* Linn. as "the type, and not, as stated by Thomas, *Ædipoda carolina* (Burm.)."

He alludes to a statement made in my paper on Orthoptera in a previous report of the same Survey, where I simply remarked that Stal has retained our *Æ. carolina* and that this "appears to be his typical [species]" (by typographical or clerical error, "genus"). By reference to Proceedings Davenport Acad. Nat. Sci., vol. 1, 1876, page 257, it will there be seen that I made the following statement in reference to the genus *Ædipoda* as given by Stal: "In my opinion *Æ. coerulescens* Linn. "is the proper type of *Ædipoda*." This paper was published in June and July, 1876, the entire manuscript having been forwarded to Mr. Putnam some time previous thereto. I can not give the exact date of pub-

lication of Mr. Scudder's paper, but his letter of transmittal to Lieut. Wheeler bears date Cambridge, Mass., May 29, 1876.

I simply mention this in justice to myself.

As I have here referred to this paper by Mr. Scudder, I may as well correct another error he has fallen into in reference to *Anabrus Haldemaniai* Gir. He remarks (page 500) that "he [Thomas] further confuses his readers by stating that *A. Haldemaniai* Gir. has the prosternum distinctly spined, whereas it is as clearly amucronate as the prosternum of *A. simplex*." He falls into this error because he has not, or had not then, seen a specimen of *A. Haldemaniai*, which has the prosternum distinctly spined. The description and figure given in Marcy's Red River of Louisiana are so exact that with a true specimen in hand, as I now have before me, there is no possibility of making a mistake. This species is never, as I learn he supposes, found west of the Rocky Mountain range, nor *A. simplex* east of it, unless possibly in Montana.

*Cratypedes Putnami* Thos.

Mr. A. J. Chipman, who visited Southern Colorado this season on behalf of the U. S. Ent. Commission, was fortunate enough to obtain a fine specimen of this species, in color. From this I can now give the colors omitted in my original description: Base of the wings lemon yellow; hind tibiae bright red. In the female the yellow spots of the elytra are not so distinct as in the male; the same is also true in reference to the dark bands on the posterior femora.

At the close of his "Century of Orthoptera" (Reprint from Proceedings Bost. Soc. Nat. Sci., vols. 12-20, 1879, pg. 84) Mr. Scudder, in speaking of *Hippiscus lineatus* Scudd., remarks as follows:

"*Hippiscus lineatus*. This species I had formerly described (in MSS.) under the new generic name *Cratypedes*, but before publishing concluded it best to include it in *Hippiscus*. I do not recollect that I have ever mentioned this name to any one and have never seen more than the single specimen of the species upon which I had proposed to found it, and which has never left my collection. It was therefore a complete mystery to me to find a closely allied species described by Mr. Thomas (Proc. Davenpt. Acad. Nat. Sci., I., 257-58) as *Cratypedes Putnami*, with the remark: 'I have placed this species in this genus with some hesitancy, yet it certainly agrees very closely with it.' I disclaim any proprietorship in the generic name, and do not know to what Mr.

" Thomas refers. This remark is offered simply to aid any future student " who may search for the origin of the name."

This statement by Mr. Scudder indicates a forgetfulness on his part of what he has written, as the reader will see by referring to " List of Orthoptera collected by Dr. A. S. Packard in Colorado and the neighboring Territories, during the summer of 1875," pg. 267, where he will find the following statement: "*Stenopelmatus oculatus* and *Cratypedes lineatus* " are described from specimens dried after immersion in alcohol." This remark is offered simply to aid any future student who may search for the origin of the name.

---

### DESCRIPTION OF A NEW SPECIES OF PAMPHILA FROM FLORIDA.

BY W. H. EDWARDS, COALBURGH, W. VA.

#### PAMPHILA BYSSUS.

Male.—Expands 1.6 inch.

Upper side dark glossy brown; the basal half of costa of primaries ferruginous, as well as a little of cell below adjoining; at the end of cell an irregular yellow-fulvous bar within; across disk a bent yellow-fulvous band, starting on costal margin about three-fifths the distance from base to apex, bending round cell and continued to middle of submedian nervure, narrow at top, but below cell widening rapidly; the basal half of inner margin washed fulvous. Secondaries have a fulvous patch on middle of disk, usually sub-ovate, but sometimes connected with a fulvous patch in cell which runs toward base; the hairs of basal area next inner margin fulvous; fringes of primaries dark gray-brown, of secondaries lighter.

Under side wholly ferruginous (individuals varying a little in shade), except that the posterior half of primaries from hind margin to base is blackish; the spots of upper side repeated indistinctly; on secondaries in most examples the surface is immaculate, in others there is a faint paler color indicating the patch of upper side; the nervures and branches on secondaries are a shade more yellow than the ground color.

Body above covered with fulvous hairs on black; beneath, the thorax

and ventral part of abdomen yellowish, the sides of abdomen ferruginous; legs ferruginous; palpi yellowish; antennæ black and fulvous, annulate; club black, the tip red-ferruginous.

Female.—Expands 1.6 to 1.7 inch.

Upper side of same brown as the male, and marked with fulvous in a similar manner, but the band is narrow and of nearly uniform width throughout, except at the bend opposite cell, where it is much restricted. Under side as in the male, but in six cases out of seven the band of upper side of secondaries is indicated below with much distinctness.

In one male under examination the fulvous band is diffused, and the basal area is also fulvous, so that all the wing is of that color except a stripe around end of cell, and the hind margin.

From 20 examples, 13 ♂, 7 ♀, received from Indian River, Florida, this season.

In size this species ranks with *Arpa*.

The male much resembles in general appearance the female of *P. Delaware* Edw. Both these species are without the sexual mark on primaries of the male. The female *Byssus* is unlike any of our species.

---

## SOME NEW SPECIES OF TINEINA FROM NORTH AMERICA

BY V. T. CHAMBERS, COVINGTON, KY.

In the proceedings of the Zoological Society of London, Feb. 17th, 1880, is an interesting contribution to the Tineidæ chiefly of this country, by Lord Walsingham, entitled "On Some New and Little Known Species of Tineidæ." The author states, from a comparison of specimens and figures of *Adela schlægeri* Zell. (which I had previously recognized as *Adela (Dicte) coruscifasciella* Cham.), that it is identical with *A. Ridingsella* Clem., preserved in the collection of the Entomological Society of Philadelphia; a fact which I should not have suspected from Dr. Clemens' description of *A. Ridingsella*.

Lord W. is also probably correct in the statement that *Adela trifasciella* Cham. is the ♂ of *A. trigrapha* Zell. He also figures and describes the

following new species : - *A. septentrionella*, *A. singulella*, *A. lactimaculella*, *A. simplicicella* - from the Pacific Coast, besides two new Indian species, *gemmella* and *A. grisseella*. The pamphlet also contains a description and figure of *Incurvaria solenobiella*, and two species of Micropteryx (*M. pardella* and *M. aurosparcella*) also from the Pacific Coast. Of this latter genus *M. pomivorella* was, as stated in my "Index," the only known species "from the United States and Canada," though another species—*M. luteiceps*—had been described by Walker from Nova Scotia. The author leaves it doubtful whether *Hyponomeuta ordinatellus* Walker is the same with *H. multipunctellus* Clem. *Anesychia sparcicella* in my "Index" is a misprint for *sparciciliella*. Unfortunately, from circumstances beyond my control, there are too many such misprints in the "Index." The species is known to me only by Dr. Clemens' description of it. Lord Walsingham states that it is a *Cryptolechia*, not a *Hyponomeuta*. He is no doubt right in the opinion that *A. hagenella* Cham. should be referred to *Psecadia* Hub., if there is any sufficient generic distinction between *Anesychia* and *Psecadia*, of which I am not convinced.

*Psecadia monticola*, *P. arctostaphylella*, *P. subcærulea*, *P. albistrigella* are described and figured as new species from our Pacific Coast, *P. cupreoni-vella* from Brazil, and *P. ermineella* and *P. hockingella* from India. The author seems to have some doubt whether *P. arctostaphylella* and *P. subcærulea* are really distinct, but so far as we are able to form an opinion from the figures they seem to be distinct enough. *Arctostaphylella* bears some resemblance to *Anesychia* (*Psecadia*) *trifurcella* Cham.

Two new species of *Lampreonia* are described and figured: *L. oregonella*, the name of which indicates its locality, and *L. tripunctella*, purchased in a miscellaneous collection from North America. These are especially interesting as the first notice of the discovery of a species of this genus in this country.

The above are the only species described in the paper, and all are illustrated by beautiful figures. But little is known of the Tineina of the Pacific Coast; and so far as I have been able to learn, Lord Walsingham is the only one who has collected them, who is also familiar with the group. It is to be hoped that he will follow up this contribution by others like it, especially as to the smaller species, which are the most interesting, and as to which almost nothing is known. There is here also a splendid opportunity for some Entomologist resident on that coast.

## NOTES ON A FEW AMERICAN BOMBYCES.

From ALFRED WAILLY (Membre-Lauréat de la Société d'Acclimatation de France),  
110 Clapham Road, London, S. W., England.

In my Report on Silk-producing Bombyces and other Lepidoptera, reprinted from the "Journal of the Society of Arts," Feb. 13th and March 5th, 1880, I speak of the disastrous effects of the weather on most species during the year 1879.

This year (1880), although the splendid weather we had in August and at the beginning of Sept. allowed of the successful rearing of several species in the open air, the wet and cold weather lasting till about the end of July affected and retarded Lepidoptera, as in 1879; the moths of *Samia promethea*, for instance, had not all emerged before the end of August. With a few exceptions, none of the Indian species emerged at all, and ova of many well-paired female moths were partly infertile.

*Actias luna* I bred this year for the first time, and most successfully on Walnut. I obtained 12 or 13 pairings in June.

*Samia Gloveri*.—I received a considerable number of cocoons of this species from a young and active Entomologist, but, I regret to say, this was the most complete failure that can be recorded. The moths emerged from the middle of April till the middle of July. With a few exceptions, I had only crippled moths; the greater part of the cocoons did not produce any moths. Not a single pairing could be obtained. I shall be glad to try this species again.

*Samia ceanothi*.—With about 40 cocoons I obtained the first moth in March, the second on April 3rd, and the rest continued to emerge till the 18th of July. Only two pairings were obtained. Not having *Ceanothis* to feed the larvæ, I reared them on Plum and Willow, but they did not thrive, and they all died, some going into third stage. Evidently Plum or Willow are not proper food plants for *ceanothi* larvæ. The first pairing took place on the 27th of June, the second on the 10th of July. The ova of the first brood hatched 18 days, and those of the second 15 days after being deposited. The larvæ, of a lighter color, but somewhat similar to those of *cecropia* in first and second stages, showed a difference from that species in the third stage, being thus: Back of body sky blue; sides greenish yellow; tubercles golden yellow *all along the back*; tubercles on the sides blue; head green.



Hybrid *Ceanothu-Gloveri*.—Although *Gloveri* moths refused to pair among themselves, I had several crossings between *Gloveri*, *ceanothi* and *cecropia*. The ova obtained from a long pairing of *ceanothi* ♀ with *Gloveri* ♂ were the only ones which were fertile. Unfortunately the larvæ bred on Willow and Plum died, some reaching the third stage like *ceanothi*.

The pairing of *ceanothi* and *Gloveri* was from the evening of the 20th to the evening of the 21st of May. The larvæ hatched from the 15th to the 21st of June, the majority having hatched on the 16th and 17th.

First stage—Larger larvæ, black; smaller ones follow, the colors becoming of a more uniform hue as the larvae increased in size. They looked like *cecropia* larvæ.

Second stage—Larvæ yellow, with black tubercles; head black.

Third stage—Back bluish, sides yellow; tubercles on back orange-red, tubercles on the sides blue; head yellow.

Eight larvae, the produce of a pairing of female *Saturnia Pyri* with unknown *Samia* (the pairing was not seen), lived seven days on Plum; they were bright yellow with a dark ring round each segment.

The other crossings obtained were: June 12th and 13th, *ceanothi* ♀ and *cecropia* ♂; June 15th, *Gloveri* ♀ and *cecropia* ♂; June 18th and 19th, *cecropia* ♀ and *ceanothi* ♂. In all the above cases the ova were infertile.

## NOTES ON LEPIDOPTERA.

BY H. S. JEWETT, M. D., DAYTON, OHIO.

### EUCHAETES COLLARIS, Fitch.

On June 7th, 1879, I obtained some eggs from a ♀ captured the day before. The eggs were smooth, pale green, spherical in shape and  $\frac{1}{16}$  inch in diameter. The eggs hatched on the 12th. Larva  $\frac{1}{8}$  inch long, pale green, largest at middle of the body and tapering slightly towards both ends. Head slightly bilobed, of a faint brownish color, with a dark brown spot on each side. The first segment has three minute brown tubercles on each side of the dorsal line, and a large oval, though but slightly elevated, dark brown tubercle on the dorsal line. The remaining segments have no tubercle on the dorsal line, but the second, third and

twelfth each have four; the fourth and fifth each have six, and the sixth, seventh, eighth, ninth, tenth and eleventh each have five small dark brown tubercles on each side of the dorsal line. These tubercles are arranged in two rows around each segment; the tubercles in the anterior row alternating with those of the posterior row on the same segment. Each tubercle gives rise to a tuft of fine white hair.

The larvæ moulted for the first time on the 20th. They were then  $\frac{1}{8}$  inch in length and nearly cylindrical in shape. Head white, faintly bilobed. Larva pale bluish-green. Tufts of hair, arising from the tubercles, white and somewhat longer than prior to moulting, and some of the hairs branched. In other respects the larva is unchanged.

The larvæ moulted again on the 24th. They now measure  $\frac{1}{2}$  inch in length, and are entirely pale green in color. The tufts of white hair are now quite long (as long as the diameter of the larva), and very many of the hairs are branching; some being sparsely and the largest thickly branched. The tufts of hair on the three anterior and posterior segments are somewhat longer than on the rest of the body. The hair of some of the larvæ is pearl gray in color instead of white.

The larvæ passed their third moult on the 27th. They are now  $\frac{5}{8}$  inch long. Body entirely pale green. Head greenish white. The tufts of hair are more dense and longer and a little inclined to unite in pencils. Otherwise as in last moult.

The larvæ quit feeding on the 3rd of July and began to make cocoons on the 4th. The full grown larvæ are  $\frac{3}{4}$  to  $\frac{7}{8}$  inch in length. The lengths given are of the larvæ when at rest; in motion they are about one third longer than the measures mentioned.

The cocoons are very slight and are made up of the hair of the larva held together with a little silk. The pupa is dark brown (nearly black) and is closely punctate. The anterior extremity is sub-quadrate and the segmental extremity blunt. The pupa is one-half to five-eighths inch long by three-sixteenths inch in diameter.

The imagines emerged July 14th to 16th, which makes the time necessary to complete their transformations (from egg to imago) thirty-seven to thirty-nine days. The insect has here from three to four broods each year, the fall brood hibernating in pupæ. The larva here feeds on *Asclepias incarnata* L., and refuses to eat *Asclepias cornuti* even when they are just emerged from the egg and have never yet eaten any food. The

larva feeds by night and hides during the day, and is very easily reared in confinement.

EUCHAETES EGLE, Harris.

I placed a pair of reared specimens with a plant of *Asclepias cornuti* under a net, and on June 3rd found the ♀ depositing eggs. The eggs are laid in batches on the under surface of the leaf, sometimes in a single layer, and sometimes two or even three layers are superimposed one on the other. They are deposited in and covered with fine short hair, thus closely simulating the downy under surface of the leaves on which they are laid. The eggs are smooth, spherical, pale green and  $\frac{3}{8}$  inch in diameter. The eggs began to hatch on the 14th.

Larva green,  $\frac{1}{8}$  inch long and nearly cylindrical in shape, with the segments strongly marked by the depth of the dividing incisions. Head shining, glossy black, subquadrate and very faintly bilobed. There are eleven rows of tubercles arranged in two ranges on each segment; the tubercles of the anterior range alternating with those of the posterior range on the same segment, one of the tubercles being on the dorsal line. The tubercles are small, but slightly elevated above the surface, and of the same color as the body. Each tubercle gives rise to one or two black and several fine white hairs. Legs and prolegs are tipped with reddish-brown.

This carries the history of this insect to the point where Prof. Lintner, of Albany, N. Y., begins in his "Entomological Contribution, No. II.," page 136 of the "Twenty-fourth Report on the State Museum," to which readers are referred for the remainder of its history.

The insect completes its cycle in from 48 to 50 days, has here three broods during the season, and hibernates in the pupa state. A few of the pupæ from second brood (and probably also of first) hibernate. It is extremely subject to the attack of a small ichneumon fly, so much so that out of *two hundred and fifty odd* larvæ (gathered and raised by me in the summer of 1878) only *twenty-eight* were non-ichneumonized, and of these twenty-eight only *nine* yielded imagines after hibernating; the rest had dried up. The first brood reared from eggs last summer did as well as any other species. The fall brood (from eggs) made pupæ readily, but it remains to be seen how they bear hibernating.

I have found and reared the following larvæ, but my notes are too imperfect to give descriptions of them :

*Chrysophanus thoe* Bd.-Lec., on *Rumex Britannica* L.

- Nerice bidentata* Walk., on Elm.  
*Eudryas unio* Boisd., on *Epilobium coloratum* Muhl.  
*Amphion nessus* Hübn., on " " "  
*Deilephila lineata* Harr., on " " "  
*Hemaris marginalis* Grote, on *Lonicera sempervirens* Ait. ; and on  
*Triosteum perfoliatum* L.

DESCRIPTION OF THE PREPARATORY STAGES OF  
 EÜPTOIETA CLAUDIA, CRAMER.

BY W. H. EDWARDS, COALBURGH, W. VA.

EGG—Conoidal, depressed at top, flat at base, shaped generally like the eggs of *Argynnis* (*Idalia*, *Cybele*, &c.), but taller in proportion to its breadth than in the species named, with the sides less rounded ; marked by about 20 prominent, vertical, straight ribs, half of which extend from base to summit, forming around the depression a serrated rim, the rest ending irregularly at two fifths to four fifths the distance from base, the shorter ones occasionally joining the others ; marked horizontally by numerous prominent striæ. Duration of this stage from 5 to 12 days, according to the season.

YOUNG LARVA—Length .1 inch ; cylindrical, thickest from 6th to 9th segment, tapering slightly to head, rapidly to 13 ; greenish-yellow, translucent ; each segment from 3 to 12 rounded and crossed transversely by two irregular rows of dark tuberculated spots or points on a pale ground, each spot sending out a black hair ; on 2 is a black stripe across dorsum ; head a little broader than 2, rounded, black, with many fine hairs. Duration of this stage from 2 to 4 days.

After 1st Moulting—Length .15 inch ; color reddish-yellow, with two dorsal and one lateral row of indistinct whitish spots, which cover the junction of the segments and are in line with the spines ; these last form six rows, and are short, fleshy, tapering, black, and of nearly equal length ; each spine beset with many short and fine black hairs (for arrangement of the spines, which is uniform in all the succeeding stages, see description of the mature larva) ; on 2 is a reddish collar edged by white ; head bilobed, the vertices rounded, shining black. To next moult 2 to 3 days.

After 2nd Moulting—Length .3 inch; color a shade darker, the spines lengthened, those on 2 measuring .05 inch, being considerably longer than the rest, directed a little forward and somewhat recurved; the white rows more distinct and more complete, and stand on narrow pale brown bands; head as before. To next moult 2 to 6 days.

After 3rd Moulting—Length .55 inch; much as at last preceding stage, the red darker, surface highly polished, the spines blue-black, shining; those on 2nd row .12 inch long, and more prorected, the others but .04 inch; head brown-black, red behind the vertices. To next moult 2 to 5 days.

After 4th Moulting—Length just after this moult .7 inch; 24 hours after same .9 in., and in 3 days reached maturity.

MATURE LARVA—Length 1.2 inch; cylindrical, slender, of nearly even size, the last 4 or 5 segments tapering but slightly; each segment rounded; color orange-ochre, the surface smooth, polished; striped longitudinally with black, which is almost concealed by the white spots which cover it; two of these stripes are sub-dorsal, and on each side just above the spiracles is another; usually there are five white spots between each pair of spines; over the feet is a macular white stripe; on medio-dorsal line on segments 4 to 12 is a small white elongated spot, edged with black, one on summit of each segment; the spines are in six rows, two sub-dorsal, standing on the black stripes and running from 2 to 13; one on each of the lateral stripes, and running from 5 to 13; but in line with these is a spine placed between 2 and 3, and another between 3 and 4 (no spine on 4); the other rows are infra-stigmatal, and run from 5 to 12; the dorsals on 2 are orange at base, as are also those between the anterior segments, but all others rise from lustrous blue-black conical tubercles, and all spines are blue-black, slender, a little thickened at top, and beset thickly with fine short black bristles standing at right angles to the stem; the spines are of nearly uniform length, measuring .06 inch, except the dorsals on 2, which measure .2 inch; these are slender, tapering to about four fifths their length and then enlarge into an ovate elongated club; they are directed forward across top of head, are straight or a trifle bent down, and when the larva is at rest lie in the plane of the body, and are divergent; when the larva moves, it moves its head incessantly from side to side, and these long spines much resemble antennæ, but are not flexible, and can only move with the segment; between this pair of spines is a chitinous black patch, and on the anterior edge of the segment on

dorsum a white spot ; under side dark or blackish-brown ; on this side segments 5 and 6 are crossed by a belt of minute blue-black tubercles with fine hairs, and a few like these are seen on 11 and 12 ; feet and prolegs black ; head smaller than 2, sub-cordate, flattened frontally, the vertices rounded ; surface lustrous, brown-black, behind the vertices orange-red, with a patch of this color on middle of front, and another along the ocelli ; somewhat pilose.

**CHRYSALIS**—Length .8 inch ; cylindrical, thickest in middle ; the head case truncated, rounded transversely, and also at either side, where the eye-cases are quite prominent ; mesonotum elevated, sub-conic, followed by a rounded excavation ; the wing cases flaring at base, compressed in middle, and round rather abruptly to the abdomen ; upon the abdomen four rows of conical tubercles, corresponding to the dorsal and upper lateral spines of the larva, and the two dorsal extend to upper side of mesonotum ; color pearl-white, iridescent, marked with dark brown patches and points ; the wing cases are often nearly covered with brown, on which the neuration is indicated by orange lines ; but there is much variation, the brown area on the wings often being limited to a few stripes along the nervures ; the antennæ cases annulated orange and brown, and edged by brown ; the eyes marked by a brown lunation containing an orange line ; at the top of head case a circlet of brown points about a central one of same color ; other small patches and points about the head and at base of mesonotum ; on the abdomen brown points in pairs between the tubercles parallel to the long axis of the body ; the tubercles gold, burnished, either with or without brown lunations at base. Duration of this stage in summer 7 days.

Eggs laid 14th July, 1880, hatched 19th ; the 1st moult was passed 21st ; 2nd moult 24th ; 3rd moult 26th ; 4th moult 28th ; in chrysalis 2nd Aug. ; imago out 9th Aug. From laying of egg to imago 26 days.

*Claudia* is found throughout the Southern and Western States ; is occasional in New York, and even in New England. It inhabits tropical America and some of the West India Islands, and also parts of South America. The larvæ feed on any species of Passiflora ; also on *Viola* and *Sedum*, and probably other plants. In 1871 I received from Mr. T. L. Mead, then in Colorado, a plant of *Sedum* by mail, about 10 days on the road. On opening the package I found a caterpillar of *Claudia*, which had hatched on the road and had passed its second moult. I kept it for some days and it fed altogether on the flowers of the *Sedum*. Here

at Coalburgh the butterfly is not very common, but I see several examples every year about the flowers. It flies and behaves like *Argynnis*. The female will lay eggs readily when confined with Violet or Passion-vine, but prefers the latter, and if the two plants are offered the larva the vine is preferred. The larvæ of the summer brood mature rapidly, but those of the fall brood probably hibernate when half grown. On 12th September, 1873, I obtained a number of eggs, part of which were laid on Passion-vine, part on Violet. The caterpillars which fed on the vine grew more rapidly than the others, and began to pupate 20th October, and this continued for two weeks, up to 9th November. Between 25th November and 5th December many butterflies emerged. Inasmuch as I have several times seen *Claudia* flying on warm days in November. I conclude that the butterfly must hibernate. But while the larvæ fed on Passion-vine were pupating, those on Violet were none of them mature and some were very small, only past 2nd moult. I kept these in a warm room, giving them all the sunlight possible. When the sun shone directly on them they were active and fed vigorously, but when the sky was clouded they remained quiet, sometimes for days together. All but one died before maturity, but this one continued to feed at intervals till 22nd March, and died just as pupation approached. I infer, therefore, that in favorable circumstances the larvæ would hibernate.

The larvæ of *Claudia* are exceedingly active, and travel with rapidity. On one occasion Mr. Mead found a mature caterpillar on an alder, four feet from the ground, resting during the day. No violet or known food plant was near, and the caterpillar starved two days rather than eat alder, and finally was fed violet. It was probable that it had travelled a considerable distance to rest, and returned at night to its feeding place.

The egg resembles closely that of *Argynnis*, and might stand in same genus. The chrysalis resembles closely that of *Melitaea*. But the larva is very unlike *Melitaea*, and almost as unlike *Argynnis*. The imago itself looks like a magnified *Argynnis Bellona*, and because it does, Hubner placed the two in the same coitus. In Boisduval and LeConte the species stands in *Argynnis*. I am not able to discover, by a comparison of prepared wings of *Claudia* and of several species of *Argynnis*, any difference in the neuration between *Euptoieta* and *Argynnis*. Owing to the resemblances spoken of in the different stages, I placed *Euptoieta* between *Argynnis* and *Melitaea* in my Catalogue (1877), instead of before *Argynnis* as Kirby gives it, and I am of opinion that I did right.

The larva of *Claudia* is really a beautiful object, surpassing in this respect any butterfly larva known to me. The chrysalis is of lovely shape and color, the pearly surface giving all the colors of the rainbow, while the tubercles are golden and the spots brown with here and there orange. I am sorry, therefore, that Boisduval and LeConte, after Abbot, give wretched figures of such admirable objects. The larva, especially, looks like a daub from a penny toy book.

## ON THE EARLY STAGES OF FOUR GEOMETRID MOTHS.

BY L. W. GOODELL, AMHERST, MASS.

### OCHYRIA DESIGNATA, Pack.

Mature larva, five specimens.—Head roundish, flattened, as wide as the first segment, yellowish green; jaws brown. Body thickest at the 9th segment, attenuated anteriorly; yellowish green, the dorsal and subdorsal spaces reticulated and lined with brown; a narrow stigmatal brown line and a dorsal row of triangular brown spots, one each on the 4th, 9th and 10th segments, and two on each of the intermediate ones; a minute substigmatal black spot on the anterior part of each segment from the 6th to 9th. Length when at rest 16 mil.; when crawling 18 mil. Found in October on *Alyssum maritimum*. Pupated within a slight web on or just beneath the surface of the ground.

Pupa.—Length 3 to 9 mil., very dark shining brown, almost black, the spaces between the abdominal segments much lighter; caudal spine round and forked.

### EUCROSTIS CHLOROLEUCARIA, Pack.

Mature larva, 44 specimens.—Head small, about half as wide as the first segment, subquadrate, deeply bifid, deep green with a light brown band. Body thickest behind, much attenuated anteriorly. The general color varies from yellowish to bluish and dark green, partaking somewhat of the color of the flowers on which they feed. There is a straight, dorsal reddish brown stripe which is very conspicuous on some specimens and much broken or entirely wanting on others. Two very small, dorsal



light brown tubercles on the first segment. Average length when at rest 21 mil.; when crawling 22 mil. Feeds on the flowers of Thoroughwort (*Eupatorium perfoliatum*), Yarrow (*Achillea millefolium*), and various species of *Helianthus* and *Aster*. Pupated in an imperfect earthen cell.

Pupa.—Length 7 to 9 mil.; whitish horn color, some specimens tinged with red, minutely speckled with black; a straight, black dorsal stripe and two rows of irregular black spots on the venter, and a more or less distinct stigmatal row of smaller ones of the same color. The wing cases vary from light to very dark brown or black, the body and wings of one specimen almost entirely covered with black.

#### EUTRAPELA TRANSVERSATA, Pack.

Mature larva, one specimen.—Head a little wider than the first segment, flattened, purplish brown. Body rather slender, thickest behind, slightly attenuated anteriorly, carinated on the sides. The color is dark purplish brown mixed with reddish; a dorsal reddish gray crescent-shaped spot on the middle of the 7th segment, behind which is a pair of low kidney-shaped tubercles, and a pair of dorsal, pointed, black ones on the 11th. The 2nd ring is swollen on the sides. Length when at rest 44 mil.; when crawling 46 mil. Feeds on Red Maple (*Acer rubrum*). It changed to a pupa within a rolled leaf July 24th, and the moth was discovered Aug. 10th.

Pupa.—Pale flesh color, minutely speckled with brown, greenish between the segments; a stigmatal row of large roundish brown spots, one on each abdominal segment, and a dorsal row of obscure triangular spots on the abdomen which are obsolete on the last three rings; a dorsal brown dot on the thorax, with two smaller ones behind it. Wing cases darker than the abdomen. Caudal spine compressed laterally, dark brown. Length 13 mil.; width in the widest part 5 mil.

#### ACIDALIA ENUCLEATA Guen.

Egg.—Oval, dull red, with 14 angular ribs, the concave depressions between with numerous transverse striæ. Length, 0.7 mil., width 0.4 mil. Duration of egg stage 9 days.

Young larva.—Length 2.8 to 3 mil. Head twice as wide as the body, round, flat in front. Body very slender, brown on the back, growing lighter colored behind and beneath; and on each segment are about five long, hair-like, club-shaped processes,

## ENTOMOLOGY FOR BEGINNERS.

## On Two Mites.

BY THE EDITOR.

But little is generally known regarding the life history and habits of mites. They have not yet engaged the attention of many naturalists, still their tribes are many, and the hosts of individuals composing them "too numerous to mention." We purpose to present our readers with a few facts relating to two of the better known species of mites.

The Red Spider, *Tetranychus telarius*, is a serious pest to gardeners, and one which all those who have to do with plants under glass are more or less familiar with. Fig. 22 represents the male of this species very much

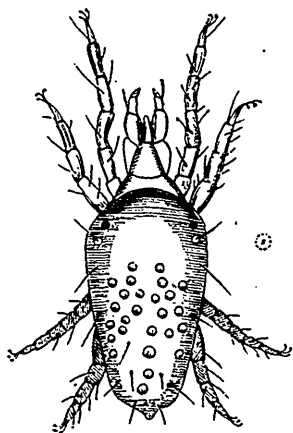


Fig. 22.

enlarged, the mite itself being scarcely visible to the unaided eye. The characteristics of this genus of mites seem to show a special affinity with the spiders in their habit of spinning webs, for which purpose the claws of their feet are specially adapted. The mouth has a barbed sucking apparatus by which the sap is sucked from the minute vessels in the leaves of the plants they attack. These mites vary very considerably in color, influenced much in this respect by the food they devour; some are greenish and marked with brown specks on the sides, others are rust-colored, or reddish, or even brick red, the latter being the color

with which horticulturists are most familiar. It is probable that most of the individuals acquire more or less of a reddish hue when fully mature. The natural size of this mite is indicated by the dot enclosed in the small ring on the side of figure.

This mite spins a web on the under side of the leaves, of the finest and most delicate texture, the threads being so slender that one fails to see them even with the help of a magnifying glass until after they are

woven into a web or net-work. The threads are secreted from a conical protuberance situated underneath and near the extremity of the abdomen, and they are drawn out and guided by the motions of the insect and by the action of the minute claws of the feet. In constructing the web the feet are moved quickly and the threads are attached to the hairs and other prominences of the leaf, and under this shelter will be found a colony consisting of many mature individuals of both sexes and young mites of all ages, which feed and multiply rapidly. By the aid of their jaws, which are not unlike the beak of a bird, they tear away the surface of the leaf, and then plunge their beaked suckers into the wound and suck the juice.

The eggs of this mite are nearly round, colorless, and large in proportion to the size of the insect. The larva is a minute transparent object, not unlike its parent, but it has only six legs and creeps slowly. The leaves of the plants attacked soon indicate the presence of this invader by their sickly hue; the sap being sucked by myriads of tiny mouths, the leaves are deprived of their natural nourishment, and soon assume a yellowish hue, with patches of a greyish or lighter shade; the under surface becomes whitish, and if the mite is allowed to pursue its course unchecked, the gardener soon finds his cherished flowers and shrubs much injured or destroyed.

These insects are said to pass the winter under stones, concealing themselves there when the leaves they have fed on have fallen.

The remedies used for such enemies as the Red Spider are various preparations of sulphur and soap, used separately or together, mixed with water and applied to the plants with a syringe. Sulphur in any form seems useful; laying it in powder upon the pipes in the green house has been recommended. Plain soap and water is said to be effectual; indeed water alone freely used is regarded by some as sufficient. It is well known that the insect thrives best in a dry atmosphere. In applying any of these liquids, to insure success it is necessary that it be used so as to wet the under-side of the leaves; if applied to the upper surface only the mites may remain attached to the lower side with perfect security during the entire operation. The gardener is aided in his war against this pest by other mites and insects which prey upon them. The larvæ of the Lace-wing Flies and other friendly insects are said to devour large numbers of them.

The Common Cheese Mite *Tyroglyphus siro*.—This tiny creature, scarcely visible to the unaided eye, is soft, smooth and fleshy, with a whitish body and feet furnished with suckers and claws. Figure 23, which represents one of these mites highly magnified, will convey a better idea of its general aspect than any verbal description we can give. It lives in almost every kind of cheese when a little decayed, and particularly in the harder portions. When in a warm atmosphere they are active, constantly gnawing at the cheese and reducing it to powder. This powder is composed of little greyish balls of excrementitious matter, eggs, both empty and unhatched, larvæ, pupæ, and perfect mites, with cast skins and fragments of cheese. Exposed to a low temperature, the

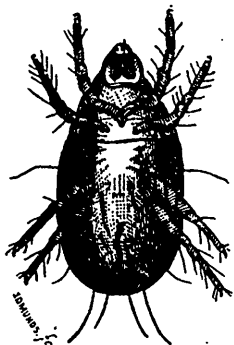


Fig. 23.

individuals soon gather into groups or heaps in hollow places in the cheese, and there remain in a state of torpidity until awakened again by warmth. This mite is also found in flour.

It multiplies very rapidly either in cheese or flour. A few specimens transferred from a mitey cheese to an old cheese not mitey, will soon colonize it thoroughly. They are probably harmless, since there are no records of any disease occasioned by them, although they are daily eaten in numbers too great to be estimated, and so carelessly, that hundreds of living individuals must escape the grinding of the molars and be swallowed alive.

### WALSINGHAM'S PTEROPHORIDÆ OF CALIFORNIA AND OREGON.

BY CHARLES FISH, OLD TOWN, MAINE.

I desire to call the attention of Entomologists to a very valuable contribution to Entomological literature recently made by Lord Walsingham. The work is entitled *Pterophoridae of California and Oregon*, and is published in an ottavo volume very neatly gotten up, and containing sixty-six pages of letter press, fully illustrated by forty-eight colored figures on

three plates. Forty-one species are figured, of which three do not belong to the Pacific fauna as far as known, but are given for convenience of comparison. Twenty-seven new species are described.

The material for this work was collected by the author during a sporting expedition extending from the middle of May, 1871, to the end of June, 1872. The author alludes to the close resemblance to European forms presented by this group, and which appears to be a general characteristic of the Lepidopteron fauna of Western North America. Some species were found to present extensive variations in size and color, and in one or two cases the variation was so great that had not the intermediate connecting links been found, the extreme forms must have been considered as distinct species. This variation was particularly observable in the genera *Amblyptilus*, *Oedematophorus* and *Lioptilus*.

The European species, *Platyptilus Bertrami* Rossl., *Amblyptilus cosmодactylus* Hübn., *Pterophorus monodactylus* Linn. and *Alucita hexadactyla* Linn., were found. The first three of these species are also found in New England, that is, if *P. Bischoffii* Zeller is identical with *Bertrami*, as given by this author, and of which I have little doubt. This is our most abundant species in New England. I have sent examples to Prof. Zeller, who expresses the opinion that *ochrodactylus*, *Bertrami* and *Bischoffii* are one. A knowledge of the larva of our species and its habits might settle the question. I am strongly of the opinion that the larvæ feed in the stalks of our common Yarrow (*Achillea millefolium*), since the moths are often taken about this plant, and since the European species feed in the stalks of *Achillea ptarmica* and *Tanacetum vulgare*. The moth appears in New England in June, and very probably the habits of the larvæ are similar to those of the borer of which an account is given by D. S. Kellcott, Can. Ent., vol. xii., No. 6. I would be glad of any information in regard to the larval habits of this or any other species of this group, of which I am at present making a special study.

To return from this digression — *Platyptilus cardui* Zeller = *P. carduidactylus* Riley, *Oxyptilus Delawaricus* Zeller, and *Oxyptilus nigrociliatus* Zeller, occurred in California, all three of which are found on the Atlantic coast. I have found the last named species in several collections labeled as *tenuidactylus* Fitch, and Walsingham saw it under that name in Central Park Museum, New York. If Dr. Fitch's collection should ever become accessible to Entomologists, several perplexing questions of identity might be answered. The cosmopolitan and extremely variable

species, *Pterophorus monodactylus* Linn., was found in several localities in California and Oregon. Two varieties are figured. This species is identical with *P. pergracilidactylus* Pack. and *P. cinereidactylus* Fitch. I have it from New England and Illinois, as well as from California. My specimens from California show even more extreme limits of variation than the European forms, of which I have received a set through the kindness of Prof. Zeller. Dr. Packard's *sulphureodactylus* is re-described and christened *sulphureus*, in accordance with the laws of nomenclature. Prof. Zeller is cited, who has taken the same liberty with Prof. Riley's hybrid name *carduidactylus*, reducing it to the unobjectionable *cardui*. As to the propriety of thus changing original names, I at present express no opinion. Much might be said both for and against. It is certainly desirable in naming a new species to conform strictly to the rules of zoological nomenclature, both that the names may be harmonious, and that we may not at some future time find our names degraded to the rank of synonyms.

Lord Walsingham has very generously given types of most of his described species to Prof. C. H. Fernald, of the Agricultural College, Orono, Maine, where they will be accessible to Entomologists engaged in the study of this group of insects on this side of the Atlantic. I would add that this little book of Lord Walsingham's is the first work containing anything like a full representation of the Pterophoridae of any section of North America, and I commend it to the consideration of all who are interested in the study of the beautiful forms of this difficult and hitherto much neglected family of the Lep'loptera.

---

#### NOTES ON CATOCALA HUNTING.

BY G. H. FRENCH, CARBONALE, ILL.

A few of the members of my zoology class and myself have taken here 821 specimens of *Catocala* in nine consecutive days, collecting from August 16th to August 26th inclusive, omitting Saturday and Sunday, during which no collecting was done. These were all taken in the afternoons, usually from one to four o'clock, by whipping the trees, and all within

easy walking distance from the University. No sugaring was done during the time. These 821 specimens represent the following species :

C. Lachrymosa, Guen.	C. Iliia, Guen.
Viduata, Guen.	Innubens, Guen.
Despérata, Guen.	Scintillans, G. & R.
Retecta, Grote.	Neogama, Guen.
Flebilis, Grote.	Subnata, Grote.
Robinsoni, Grote.	Piatrix, Grote.
Residua, Grote.	Palaeogama, Guen.
Obscura, Streck.	Habilis, Grote.
Angusi, Grote.	Nebulosa, Edw.
Amatrix, Hub.	Amica, Hub.
Cara, Guen.	

I might say here that I have taken in this locality, in addition to the above, the following species :

C. Epione, Westw.	C. Delilah, Streck.
Sappho, Streck.	Consors, Guen.
Judith, Streck.	Serena, Edw.
Insolabilis, Guen.	Magdalena, Streck.
Ulalume, Streck.	Grynea, Guen.
Unijuga, Wlk.	Nuptialis, Walk.
Coccinata, Grote.	Fratercula, G. & R.
Ultronia, Guen.	Iineella, Grote.
Marmorata, Edw.	Amasia, Westw.

Besides these, I have taken two other species that I have not identified yet. Have also taken var. *phalanga* of *C. palaeogama*, and form *atarah* of *C. fratercula*.

## NORTH AMERICAN MOTHS.

BY A. R. GROTE.

### *Packardia Goodellii*, n. s.

Entirely blackish with a faint brown shading about internal angle, where are two white unequal spots as in *geminata*. Fringe blackish, concolorous, interlined with pale and with a distinct white fleck or spot below apices; this distinguishes the moth from any of the genus. The usual lines on the primaries are lost in the ground color; the outer line may be made

out, followed by a whitish shade on costa. The costal edge at apices is whitish. Secondaries concolorous, blackish, paler beneath; the fringe is paler outwardly. The male expands 20 mil., the female 22 mil. The wings are wide, convex along costal margin of primaries, the apices a little pointed. Body frail, concolorous, blackish, the palpi, feet and abdomen beneath paler. Collected in Mass. by L. W. Goodell, Esq., for whom the species is named.

*Hadena adnixa*, n. s.

♂ ♀. Eyes naked; tibiæ unarmed. By the excavate secondaries allied to *curvata*, *genitrix* and *fumosa*. Paler than *curvata*, of a dusty gray, shaded with brown. Sub-basal field shaded with brown with a black streak from the base below median vein to anterior line. Half-line present; base of the ground color. T. a. line geminate, not very distinct, blackish, marked on costa, scalloped, perpendicular. Claviform outlined. Orbicular subquadrate, with a brown central clouding. Reniform narrowed above, constricted, black-ringed, upright, with a brown internal shade, crossed by the angulate brown median shade. Posterior line as in allied forms; between the reniform and the line a pale shade, repeated between the discal spots and before the orbicular, here smaller and less noticeable. Subterminal space shaded with brown; veins darker; black dashes on the interspaces between veins 4 and 6. Terminal space of the ground color. Subterminal line pale, flexed; a terminal series of black marks; the dusky fringes uneven, with a pale line at base, interrupted with pale. Hind wings fuscous with pale extra mesial line. Beneath gray, irrorate with distinct dark dentate lines and discal spots. Collar black-lined. *Expanse* 38 mil. Nevada; Mr. Tepper.

*Hadena characta*, n. s.

Allied to *curvata* and *adnixa*, but smaller and with the aspect of an *Agrotis*. Body tufted; eyes naked; tibiæ unarmed. Fore wings blackish gray with the sub-basal and subterminal spaces shaded with pale, and with a slight ochre stain which spreads on the dusky median space. Claviform large, concolorous, black-outlined. Orbicular well sized, rather narrow, oblique, gray, with central streak. Reniform moderate, shaded with gray, upright, constricted. Lines geminate, accompanied by gray shades, not very distinct. Posterior line followed by slight dark venular marks. Subterminal pale, irregular. Hind wings fuscous, the veins darker; beneath



gray, irrorate, with discal spot and line. *Expanse* 30 mil. Nevada, Mr. Tepper.

*Hadena chryselectra*, n. s.

♂. Head, thorax, base of primaries and subterminal space of a pale golden brown, or fawn color. Median lines propinquitous, black, denticulate or lunulate, double, enclosing a whitish ochrey line. Median space shaded with whitish ochrey, especially beyond the reniform and along the anterior line. Orbicular small, spherical, black ringed, bluish; reniform of the usual shape, moderate, black outlined with blue center; claviform outlined, small. Median shade black, heavily marked on costa, faint below where it runs near the posterior line. Median space narrow below median vein; the posterior line exerted opposite the cell and running inwardly inferiorly where it is followed by black and white venular points. Subterminal space smooth, concolorous, wide; terminal space narrow, shaded with pale, with a terminal black dotted line; subterminal line black, interrupted with pale, more even and equidistant from the margin than usual. Fringes fawn color, paler externally. Hind wings pale ochrey with rather broad blackish borders and faint discal mark; beneath pale with a dotted line within the border. Collar with black scales in front, and there are black scales on the tufts on dorsum and at the sides of the tegulæ. Eyes naked; tibiæ unarmed. Length of primary 13 mil. *Hab.* Colorado, Mr. Neumoegen.

*Oncocnemis cibalis*, n. s.

♂. Allied to *Chandleri*, but with the primaries more pointed, the collar whitish with a superior blackish line, the subterminal line preceded by a blackish shade which recalls *Polia illepida*. Eyes naked; tibiæ unarmed; fore tibiæ with a rather short claw. Gray, shaded with dusky; thorax pale gray. Fore wings gray with the veins marked; median vein and its two superior branches whitish. Orbicular elongate, white-ringed, fusing with the moderate, upright, blackish-centered, white-ringed reniform. Lines obliterate, indicated on costa by double fuscous streaks. A dusky streak from the base runs into the narrow white-outlined claviform. The jagged white subterminal line preceded by a blackish shading. Fringes with a pale line at base; interlined with fuscous. Hind wings whitish; with a discal lunule, vague external fuscous shading, and white, faintly interlined fringes. *Expanse* 33 mil. Colorado, Mr. Graef.