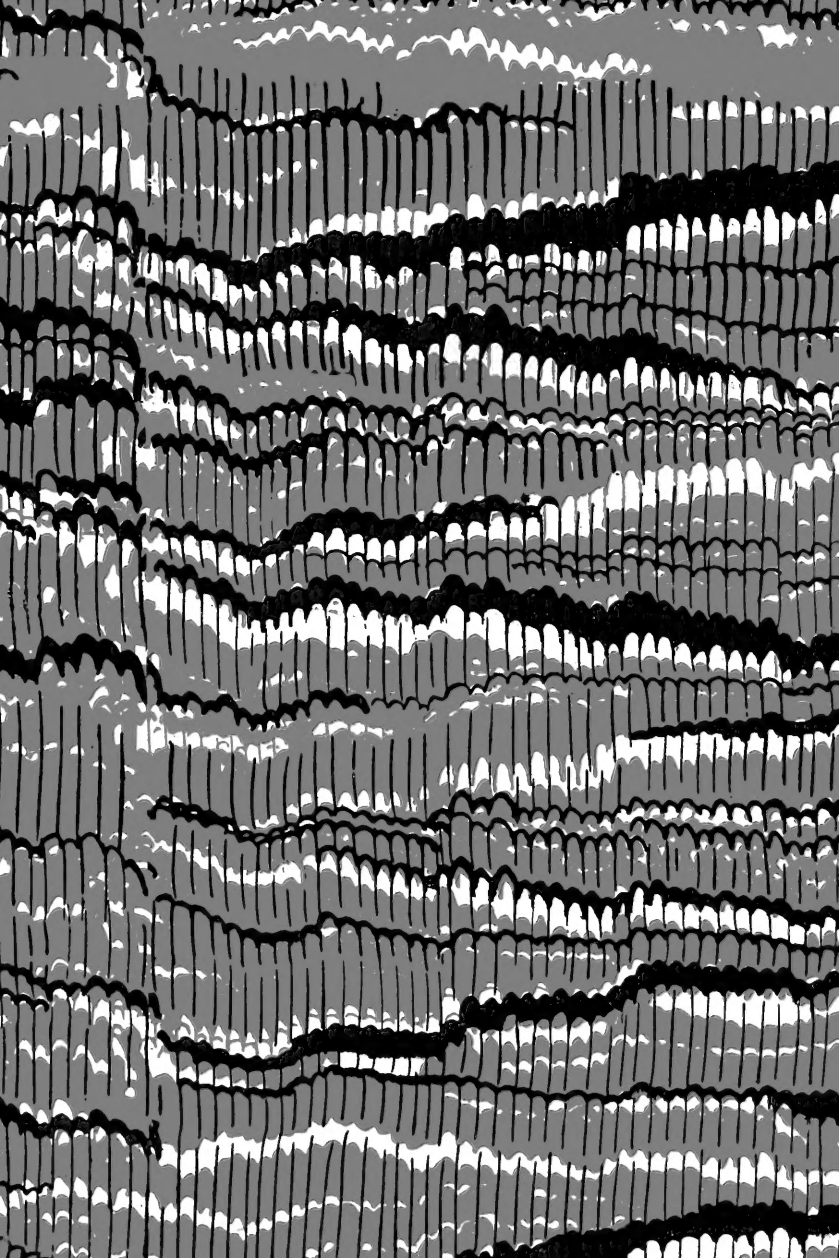
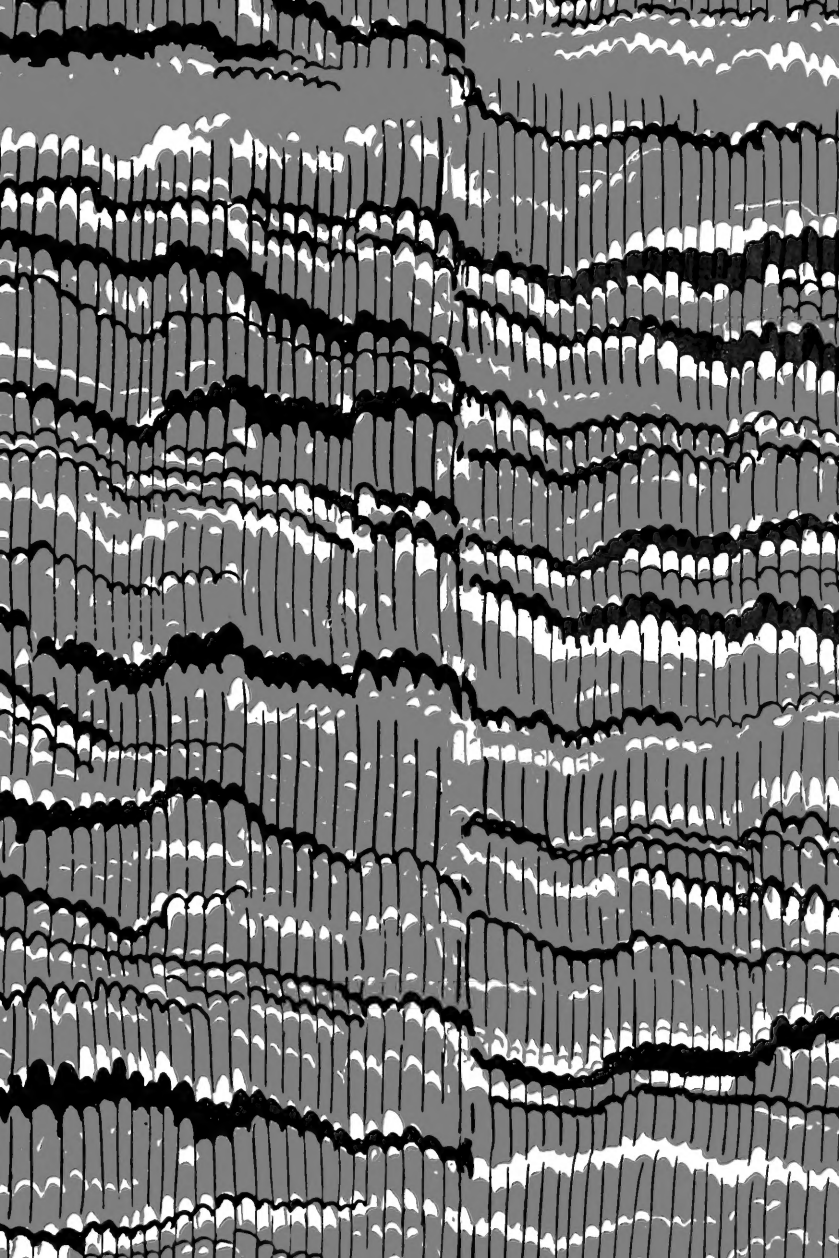




THE LEPIDOPTERIST

Official Bulletin of the Boston Entomological Club.

RUDOLF C. B. BARTSCH - - - EDITOR
46 Guernsey St., Roslindale, Mass.

VOL. I. NOVEMBER 15, 1916 No. 1

Editor's Corner

The Bulletin will appear about the 15th of each month. It is to be devoted exclusively to notes and articles on Lepidoptera. Short notes and articles are solicited for publication. The Bulletin will be made a fortnightly publication as soon as possible and if given the right support will be made a weekly. This is our AIM. We find that there is no weekly paper published in this country and so it is practically impossible to advertise non-hibernating living material which of course has only a limited time for offer of sale.

Notes

The Boston Entomological Club was formed in October, 1915. The Club only encourages membership to Entomologists that are interested in the study and collecting of Lepidoptera. There are at the present time twenty members in good standing. The dues are fifty cents per year.

The Club has one feature which is new to Entomological Societies in this country. After each regular business meeting the Club holds an auction sale of specimens belonging to various members. A 10 per cent commission is charged which is placed in the treasury of the Club. Several hundred dollars worth of material has changed hands in this manner to the satisfaction of all concerned.

All Entomologists interested in Lepidoptera ought to search out every one in their locality interested in this particular group of insects and form local clubs. When several of these Clubs have been formed, why not amalgamate into a National Association of Lepidopterists. National Conventions or meetings could be held each year in different cities, bringing together collectors from all over the country. By this means all honest collectors could be protected and others shown in their true colors. Philatelist have such National Societies which are of a very great benefit to its members. It ought to be possible for such an organization to find men, that are authorities on certain groups or families of Lepidoptera, who would be willing to identify material for members of their Society. This alone would be of great benefit to hundreds of collectors in the United States. The Association when it becomes strong enough should publish a priced catologue of all known species of moths and butterflies of the United States and Canada. This would facilitate exchange amongst collectors.

Lepidopterists Think It Over, Then Let Us Hear From You.

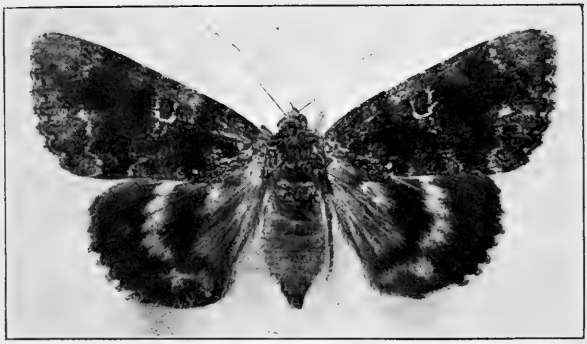
A New Form of Catocala Pura

By Walter F. Eastman. West Roxbury, Mass.

CATOCALA PURA VAR. NIGRA F. NOV. A very striking blackish form of Catocala pura Hulst The Primaries are heavily suffused with blackish scales, so black that the specimen closely resembles Catocala briseis Edwards. The T. A. and the T. P. lines prominent and edged with white. Upper edge of veins more heavily suffused with black than the lower side giving the appearance of corrugated iron. Basal dash prominent, extending to the T. P. line but broken at the T. A. line.

Secondaries like the normal form except for the orange red color showing plainly in the hollows of the scallops of the outer edge of the marginal band. Specimen bred from eggs secured from Utah specimen.

Type 1 ♀, Provo Utah. Collection of author.



Catocala ilia var. normani.

Two New Forms of Catocalae

By Rudolf C. B. Bartsch, Roslindale, Mass.

CATOCALA ILIA VAR. NORMANI FORMA NOV. A very beautiful and strikingly marked variety of Catocala ilia, Cramer. Primaries: Ground color dark brownish gray, suffused with blackish scales. Lines not prominent. Area between the T. A. line and the S. T. line heavily suffused with blackish brown. A prominent white spot inside of the S. T. line below the second large tooth of the T. P. line.

Secondaries: It is on the secondaries that the most marked variation occurs. Median band as in normal form. Marginal band broader, the internal edge very irregular with toothed shadings toward the median band and joining the median band just above the elbow, dividing the orange red color into two parts. Underside as in the typical forms. *Plate No.* 1.

Type 1 ♀ ; Concord, Mass. July 15, 1914. Collection of the author.

CATOCALA COCCINATA VAR. CHIQUITA FORMA NOV. This variety has for it congener the form diana Hy. Edwards, of Catocala concumbens Walker, having a rose-colored adbomen instead of the normal yellowish gray adbomen of the typical form.

Type 1 ♀ ; Concord, Mass. July 18, 1914. Collection of the author.

Lepidopterological Items from Massachusetts

By Wm. Reiff. Jamaica Plain, Mass.

The collecting season of 1916 was quite different from that of preceding years. Butterflies were in abundance all the season, not one of the species usually found in this State proved to be scarce. Several interesting abberations were found, some of a very extreme aberrant character, as for instance Vanessa antiopa var. hygiæa, Colias philodice abber., a form parallel to the form nigrofasciata of the palæarctic Colias hyale. A more detailed description of this

Philodice aberation will be given in a later number of this paper. There was also caught a remarkable specimen of Pap. glaucus f. turnus: secondaries same as turnus but with the primaries like glaucus with an irregular yellow band similar to the cresphontes band, extending from the base of the wing to the apex.

Massachusetts seems to be a great field for aberrant specimens of Pap. turnus. The writer caught this year a peroneurous aberration of this species. This specimen shows the veins developed in a wavy or zigzag manner. The deep ochroceous form of turnus with all the black markings extended was taken. It may be mentioned at this time, that in 1915 the rare turnus f. fletcheri was caught in Massachusetts.

The Sphingidæ, Saturniidæ and allied families were found in usual numbers. The abundance of our clear winged Hemaris in both generations was noticeable. The tomato sphinx, Protoparce quinque-maculata, could be found in its caterpillar stage where ever there were any tomato plants. The large silk moths are getting scarcer every year in the eastern part of Massachusetts, due to the very extensive spraying for the Gipsy moth with Arsenate of Lead. Already many of our native species of moths are thus exterminated in various parts of eastern Massachusetts.

The known hunting grounds for Hemileuca maia did not yield as good results as in other years, while on the other hand new localities were discovered where the male moths appeared in large numbers with a few females occasionally.

Noctuidæ were represented in good numbers in the spring and again in the fall. The summer months were decidedly poor for Noctuidæ. The pretty green Hemlock moth, Feralia jocosa, was in its localities early in spring as numerous as usual but the Pine moth, Feralia major, unually found in fair numbers, proved to be rare. Sugaring for early Noctuidæ gave good results.

The surprise of the season were the Catocalæ. Species which were usually abundant, were either

scarce or did not show up at all, as for instance fratercula with its forms, similis f. aholah, our northern form of amica as yet undescribed, cerogama, and others. Catocala coccinata which in certain localities is more numerous than any other Catocala species was represented by only four specimens, this year. On the other hand some species appeared in surprisingly large numbers, as for instance, ultronia, badia, retecta, habilis and unijuga. Some appeared normally abundant: gracilis f. sordida, antinympha, concumbens. Catocala cara, and amatrix were scarce. Three specimens of Erebus odora were taken in different localities in Eastern Massachusetts.

For Geometridæ it was one of the finest collecting seasons until August, when they became scarce. The writer has never seen them in such large numbers as appeared in May and June.

Arctiidæ, Cossidæ and Hepialidæ were rather scarce, except for the imported Leopard moth, Zeucera pyrina. Three female specimens were taken of the rare Prionoxystus macmurtrei, freshly emerged, on red oak.

GEOMETRID NOTES

New Species from California

By L. W. Swett

CLEORA MELANOCARPA N. SP. Male: Expanse 30-32mm. Head and thorax brown, palpi short and black scaled. Forewings brownish with black basal line, which starts from prominent spot on the costa, about one fourth out and curves back almost to base of wing. There seems to be a faint geminate line accompaning this on inner side. Half way between the intra and extra discal lines, is a heavy black spot on costa, which is connected by an incurved line with the black discal dot. From the discal spot the line runs straight to inner margin, accentuated on median vane by a black spot. The extra discal line starts about one fourth in from the apex and makes a curve rounded outwardly to vein C, I, then curves inwardly

to inner margin. From costa to vein C, I, the line rather appears as dots on the veins and is followed by narrow brown shade line. A submarginal whitish zigzag line, just below apex connected with outer margin. Fringe brown checkered with black at ends of the veins. The hind wings are brownish, basal line running almost straight to vein M. I. where it disappears. The extra discal line runs close to discal spot, not quite touching it followed by a brown shade line. There is a whitish zigzag marginal line. Edge of hind wing somewhat scalloped, fringe checkered with black at ends of veins. The forewings beneath are pale ashen brown, the discal spots are round and black. The costa is pale brown speckled with black. Hind wings beneath same color as forewings also without markings except black discal spots. The type was sent to me some years ago by Mr. Grossbeck, who received it with other specimens from Mr. George H. Field. Some of Mr. Grossbeck's specimens differed from mine in heavier markings but I believe them only forms.

Holotype ♂, Boulevard, California, July 15, 1908. From Mr. Grossbeck, collected by G. H. Field and in my collection.

Paratype ♂, Julian, California. July 25, 1908, from Mr. W. S. Wright of San Diego, California and in his collection. This species resembles atritrigaria Barnes and McDunnough superficially.

(*To be continued*)

THE LEPIDOPTERIST

Subscription, 35 cents per year, payable in advance. Extra copies, 4 cents each.

Advertising Rates. One space, 50 cents; 4 spaces or more, 10% discount. Per issue, cash with copy. All advertising matter must be in the hands of the Editor by the 20th of the month to insure publication.

TRADE COLUMN

ADVERTISING rates ½c. per word. Matter solid. No display. Cash with copy.

EXCHANGE desired with other periodicals. 2 copies preferred. EDITOR.

Catocala eggs wanted. 2 doz. each species. Send name and price. Rudolf C. B. Bartsch, 46 Guernsey St., Roslindale, Mass.

WILL buy or exchange Catocalæ. W. F. Eastman, 75 Maple St., West Roxbury, Mass.

WANTED, to buy Catocalæ. Send list and price. H. J. Law, 131 Savin Hill Ave., Dorchester, Mass.

WANTED for cash or in exchange, rare species of Sphingidæ and Catocalæ of the world in perfect condition; also fertile eggs of Catocalæ, hibernating larvæ and pupæ of butterflies, sphingidæ, arctiidæ, etc. New England Entomological Co., 366 Arborway, Jamaica Plain, Mass.

OFFER fertile eggs: Ca. concumbens, unijuga and v. clara for cash or exchange. Prices 20, 30 and 40c per dozen or 60, 90 and 120c for 50 eggs. Also pupæ of Halis caryæ 7c. each and 75c. per dozen. In exchange will accept fertile eggs of western, poplar feeding Catocalæ or *really perfect* Lepidoptera specimens for my collection, especially: Pieridæ, Lycæindæ, Arctiidæ, Catocalæ and Geometridæ, Max Rothke, 1841 East Elm St., Scranton, Pa.

GEOMETERS wanted from all southern states. Good cash prices well be paid. Species wanted from Texas, Miss., Georgia, Alabama and Florida. Samuel E. Cassino, 20 Naples Road, Salem, Mass.

WANTED Geometridæ from Florida; will name and exchange. L. W. Sweet, 10 Farragat Ave., West Somerville, Mass.

SEND ten dollars and get the bargain of the season: 100 North American butterflies in 40 species in papers, good average condition. None from Mass., New York, New Jersey, Penn. All with correct data and names.
New England Entomological Co., 366 Arborway, Jamaica Plain, Mass.

WANTED to exchange Eastern Catocalæ for those of other localities. Rudolf C. B. Bartsch, 46 Guernsey St., Roslindale, Mass.

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RUDOLF C. B. BARTSCH - - - EDITOR
46 Guernsey St., Roslindale, Mass.

VOL. I DECEMBER 15, 1916 No. 2

Editor's Corner

The Bulletin in its first number may have seemed small in comparison to the other journals devoted to Entomology, but we believe it is better to grow from a small good paper to a large valuable one than it is to start with a big show and gradually slide down until the periodical is a financial failure, and then either stopped altogether or left to some generous person to dig deep in his pocket to keep it alive for a few years longer. Subscriptions are coming very good and the requests for advertising space are coming from all quarters, showing that both the dealers and collectors appreciate the fact that a weekly paper is badly needed. Have we received your subscription? If not, WHY NOT?

We are now prepared to have a question department. Your questions with their answers will be published under the heading of Question Box.

We will also identify material, sent us, free of charge. The owners must pay all postal or express charges and if sent by post must be sent registered or we can not hold ourselves responsible.

Notes

The auction sales of specimens which the Club holds twice monthly are a great success, many specimens bringing more than double the standard list price. An example: Cat. parta listed at 15c.

sold for 32c., Cat. fraxini listed at 25c., sold for 65c. While rarity is important it apparently does not count so much as fine condition.

At a recent meeting it was suggested that an informal discussion on some subject of interest to Lepidopterists take place each meeting immediately after the regular business of the evening, the subject to be announced in advance and some member appointed to lead the discussion. The first subject chosen was "General Methods in Collecting," Many interesting points were brought out in regard to the effects of temperature and atmospheric conditions. The next subject will be "The Arrangement of a Collection."

GEOMETRID NOTES

New Species from California

By L. W. Swett

CHLOROSEA NAIDARIA N. SP. Male: Expanse 25-29mm. Head whitish between antennæ, palpi and front of head rose-colored. Abdomen whitish, dorsally with a rose colored ring on basal segement. Palpi short in both sexes, legs heavily washed with rose. Forewings, a beautiful pea green washed with rose along the costa, and the fringe is checked with rose at the ends of the veins. A very faint basal white line runs straight from costa to inner margin. The small round green discal spot is not apparent in all specimens. The extra discal line begins about one fourth in from the apex and runs straight to inner margin. The hind wings are whitish at the base shaded with green at outer margin. The discal spot is very small and dark green in color. Beyond is a white line curving across the wing from margin to margin. Fringe is green checkered with rose at the ends of the veins. Beneath pale green, the costa is stained with rose from base almost to apex of wing. There are no lines apparent only the small green discal spots showing. The fringe is green checkered with

rose as above. Hind wings same as forewings without markings and having a checkered fringe. Back of the head, below antennæ, there is a deep rose colored collar. This is a very beautiful "green" and the checkered fringe and other points I have noted should readily distinguish it from all others. Some years ago Mr. George H. Field of San Diego, California sent this Geometer to Mr. Grossbeck. He sent it to me to look over with notes but was waiting for Mr. Prout's "Revision of the Greens" before publishing. Nothing further was done on account of Mr. Grossbeck's death so I propose to use his manuscript name naidaria. Later I received specimens from Mr. W. S. Wright of San Diego, California, which I am describing.

Holotype ♂ San Diego, California. Jan. 26, 1912. In my collection.

Allotype ♀ San Diego, California. Jan. 21, 1912. In my collection.

Paratypes ♂ 5, ♀ 5 in the collection of American Museum of Natural History, New York, and in Mr. W. S. Wright's Collection.

Catocala amica Hb. subspecies novangliae Reiff.

Plate II. Fig. 1 ♂ Fig. 2 ♀

Lepidoptera—Heterocera

By William Reiff Jamaica Plain, Mass.

To all our advanced collectors of Lepidoptera the little Catocala amica Hubner is well known. The species is found abundantly in the southern part of New York, in New Jersey and Pennsylvania and perhaps not quite so often in the southern Atlantic States, in Texas, Arkansas and adjacent territories. Side by side with amica specimens from all these various localities there are placed in collections under the same name specimens from the New England States which bear a resemblance to amica but which are something else. When in 1909 I found the first specimens in Massachusetts, I could not help noticing the strong difference in color of primaries as compared with those I used to find in New York and New Jersey. A batch of eggs which I secured from one of the Massachusetts specimens was sent to my friend E. M. Dadd in Germany, a recognized authority in Catocalæ, and at the same time I wrote him my observations concerning the adults. Mr. Dadd compared the eggs with those he received from places outside of New England and he succeeded in breeding the larvæ. He informed me that there is a noticeable difference both in the egg and in the larval-stages and that at least the Massachusetts specimens are not amica Hb.

Upon the discoveries made by Mr. Dadd and upon my own observations, I consider it wise to separate the New England specimens from amica Hb. by making them a subspecies to the type amica Hb.

My own observations regarding the preparatory stages are very meagre, as I have not as yet bred the caterpillar, and I have no detailed report from Mr. Dadd to refer to. For the present, therefore, I have to limit the description of the subspecies to egg and adult.

Egg. An elongated oval, longer than high. Longest horizontal diameter 0.7 mm., shortest horizontal diameter 0.5 mm., vertical diameter 0.2 mm. Base flat-

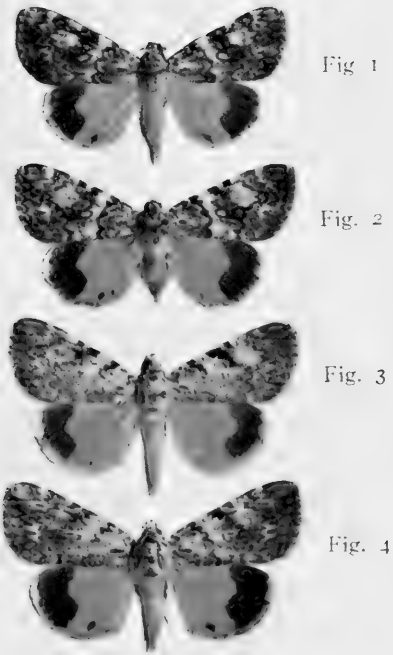

Fig. 1

Fig. 2

Fig. 3

Fig. 4

PLATE II.

tened and concave. The surface of the egg is covered with 35 to 40 ribs which begin at the periphery of the Microphylarzone and extend well over the edge of the base. Microphylarzone (crown) about 0.1 mm. in diameter, concave, with many closely placed but not prominently developed tubercles. Color of egg light reddish-yellow to reddish-brown, strongy lustrous. Egg-shell soft, can easily be dented—description was made after the hibernating stage of the egg early in March and with the use of a 30x lense.

The eggs are deposited by the female moth either singly or in small clusters. I observed eight eggs as being the largest number in one cluster . They are loosely fastened and may easily be taken off. The female prefers to place the eggs in narrow grooves or small holes. It deposits its eggs well in captivity and with preference in the holes of a sponge.

IMAGO ♂. Head and thorax as in amica, abdomen yellowish-gray, while yellow in amica. Primaries ground color decidedly bluish-gray in appearance, white brownish-gray to ashen in amica, with an occasional faint bluish tinge. Posterior line regularly serrated, the first two thirds running parallel with edge of wings, then bending inward toward the costa. In amica this line always curves more or less at the end of the first third and in its whole length is always irregularly dentated. There is no such prominent tooth at the end of the second third of this line as in amica. Basal and median area bluish-gray, the first darker then the last. Tranverse shade in median area present but not much pronounced. However, where it meets the posterior line it broadens and continues to the inner margin and this as well inside of the median area as beyond the posterior line. This extended shade is nowhere very much pronounced but yet plainly noticeable in every specimen before me. Anterior part of median area in most of the specimens very light bluish-gray. Reniform and subreniform as in amica. Submarginal line very prominently developed and of light bluish color. The serration of this line is about twice the size of that in amica. In the middle of the line there is a distinct bluish-white

dagger shaped spot, while in amica this line runs uniformly without such a decoration. The last part of the submarginal line where it ends in the costa is likewise of a bluish-white color. The space between the posterior and the submarginal lines more brown than gray. Black line on edge of primaries twice as broad as in amica, also of a deeper color. In all other points primaries as in amica. Secondaries as in amica, however, the isolated black spot near the anal angle always is more or less connected with the base through a black band or shade extending along the inner edge of secondaries. In every specimen there is a pronounced black dash extending from the base towards the middle of the secondaries, pointing to the space between the end of the marginal band and the anal spot. Under surface of all wings as in amica.

♀. In patten and color like the ♂, but the space in the median area isolated by costa, transverse shade and posterior line always of a light bluish-gray color intermingled with brown scales near the posterior line. This light spot is occasionally seen in the ♂, too, but it never appears there as distinctly as in the ♀.

Average size, measured from tip to tip of wings: amica ♂ 38 mm., ♀ 40 mm., subsp. novangliæ, ♂ 35 mm., ♀ 37 mm.

Described from 15 ♂ and 4 ♀ taken between 1912 and 1916 in various parts of Massachusetts, New Hampshire and Maine. Type 1 ♂ 1 ♀, (Plate II. fig. 1 and 2) both from Concord, Mass., and collected July 23 and August 8, 1914, in the author's collection. Cotypes in collection of Mr. Samuel E. Cassino and in the author's collection.

I believe that this subspecies reaches in Connecticut its southern limitations, as I have seen specimens taken at various parts of Connecticut some of which belong to the subspecies and others to amica.

There is an occasional tendency in this subspecies to bring forth a parallel form to lineella Grote of amica, but none of the specimens as yet seen are sufficiently diverted from the type in this direction to substantiate separation.

The form nerissa Hy. Edwards of amica has no

parallel in this subspecies. As a matter of fact nobody will expect to find anything similar to nerissa in specimens from the North, for nerissa is a decidedly southern form which I believe does not occur outside of Texas. The merely suffused specimens of amica which are found in the whole amica territory do not have the characters of nerissa as given by its author. If it is intended to place these suffused specimens separately, I propose to name them: *f. melanotica form. nov.*

There is in my collection an interesting amica specimen from Arkansas, having a deep bluish-black groundcolor and besides having some minor differences from amica it has a broad black tranverse bar in the median area where there is the transverse shade in amica specimens. However, the variation in the primaries of amica is quite extensive and it therefore would be premature to base upon a single specimen only, the description of a new form.

There is a color-variation in the secondaries of both amica and its subspecies. In typical specimens of species and subspecies, the color is light yellow, but there are specimens with strong orange-yellow ground-color of secondaries. The color of the abdomen is always in accordance with that of the secondaries, although it may be intermingled with gray. Since specimens with strong orange-yellow secondaries are found in amica as well as its forms and its subspecies, I propose to name such specimens collectively: *f. aurantiaca form. nov.* The ♀ type of novangliæ, fig. 2 belongs to this form.

The amica-group thus tabulates itself as follows:

Catocala amica Hubner
- f. amica aurantiaca Reiff
- f. lineella Grote
- f. lineella aurantiaca Reiff
- f. nerissa Hy. Edwards
- f. nerissa aurantiaca Reiff
- f. melanotica Reiff
- f. melanotica aurantiaca Reiff

Subspecies novangliæ Reiff
- f. novangliæ aurantiaca Reiff

THE editor would like to receive short notes or articles of interest to Lepidopterists from all parts of the United States. The articles do not necessarily need to be new descriptions of species. Interesting points on capturing, preserving and breeding Lepidoptera are just as valuable to us. If not prepared to send one right now why not let the Editor know when you will do so, and approximately the length of the articles. Your help is needed to make "The Lepidopterist" a success. *Will you help?*

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WISH to buy good specimens of the following species of Catocala: Sappho, agrippina, moderna, barnsei, beaniana, meskei (from eastern localities. Samuel E. Cassino, Salem, Mass.

SEND ten dollars and get the bargain of the season: 100 North American butterflies in 40 species in papers, good average condition. None from Mass., New York, New Jersey, Penn. All with correct data and names. N. E. Entomological Co., 366 Arborway, Jamaica Plain, Mass.

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FOR SALE: Perfect butterflies and moths in papers. 15 species Lyc. sonorensis, Colias barbara, Arg semiramis, etc., all from Palomar Mt., San Diego, Calif. Prices from 1c. to 10c. each. 100 pupæ of Lyc. sonorensis at 5c. each. Address: Esther P. Hewlett, Nellie, Calif.

WE have in preparation printed labels for all North American Catocalæ. The complete set will be ready in a few days and will be sent to anyone for 30c. N. E. Entomological Co., 366 Arborway, Jamaica Plain, Mass.

THE
LEPIDOPTERIST

Official Bulletin of the Boston Entomological Club.

RUDOLF C. B. BARTSCH - - - EDITOR
46 Guernsey St., Roslindale, Mass.

VOL. I JANUARY 15, 1917 NO. 3

Editor's Corner

There appeared, recently, in the Canadian Entomologist an article by the Editor of the Bulletin of the Brooklyn Entomological Society, giving the reasons for the unpopularity of many of our Entomological papers with amateurs and also their non-success financially. I believe the points discussed are true as far as they go but they are not the essential reasons for the different failures. In the first place all our Entomological papers do not specialize, but try to cover the entire field of entomological work. The result is that an Entomologist must subscribe to every journal published if he desires to keep in close touch with new discoveries and new methods, and there is where the main difficulty arises. To do this means a rather heavy outlay of money. The Entomologist if financially able subscribes to as many papers as he can. Some arrive without a single article of interest to him, but he must have them for by chance the next number may be just what he is looking for. This scattering of interesting articles disgusts the average collector and after a year or two, he drops the different papers and depends on what he can pick up in his local libraries. And secondly as long as the Editors of the various journals depend on the subscription price to make their paper a success, just so much longer must they be a financial failure. Subscriptions

have never made a paper successful. Advertising combined with subscriptions is what makes a successful combination. Our subscription price is low for we want collectors in all walks of life to be able to secure it. Our advertising rate is high in comparison to other journals for the size of spaces offered, but it is low when you consider the fact that the advertiser can specialize, knowing that he is talking directly to persons interested in the particular goods which he offers. The amount of advertising space taken in the second issue of THE LEPIDOPTERIST shows that the advertisers appreciate this fact.

This is the third number which we have sent to our entire mailing list of Lepidopterists. If we do not receive your subscription before the next number is published do not expect to receive it. We believe that we have given a fair example of what we can do. It is only through the combined support of all collectors that we can hope to put the publishing of THE LEPIDOPTERIST on a weekly basis. The publishing of the Bulletin on a weekly schedule is of greatest importance both to collectors and dealers. It means the possible sale of eggs, larvæ and pupæ which do not hibernate. It means that the collector can secure for breeding purposes this material which is nearly impossible under the present conditions. There is practically little or no handling of this material today for the Breeder finds his time wasted as he cannot dispose of his material after he has secured it. This means an enormous waste of interesting and valuable material.

Notes

We have had inquiries from collectors in North Carolina, New Hampshire, Texas and Iowa for membership in the Boston Entomological Club. Lepidopterists in any part of the United States may apply for membership by sending their full name and address with two business references and accompanied by the dues (50 cents) for one year to the Secretary.

The Lepidopterists of Philadelphia are now banding

together. Why not start in other cities? We would be glad to furnish any Lepidopterist the names of other collectors in his immediate vicinity.

The forming of a National Association of Lepidopterists is but a question of a very short time. Prominent collectors in all parts of the country are supporting the idea. It would be well for all Lepidopterists that wish to join such an organization to communicate at once with the Editor.

Additions to the paper on Catocala amica Hb.

(IN NO. 2 OF THIS JOURNAL)

By William Reiff, Jamaica Plain, Mass.

IN the tabulation of the amica-group on page 15, the f. suffusa Beut. was omitted. This form from Texas also occurs with light yellow or with strong orange-yellow ground-color of secondaries (f. aurantiaca Reiff). We therefore have to complete the tabulation by adding after f. lineella aurantiaca Reiff and before f. nerissa Hy Edwards:

f. suffusa Beut.

f. suffusa aurantiaca Reiff

Reference to fig. 3 and 4 of plate II. was omitted. These are typical amica specimens (♂ and ♀) from Pennsylvania.

Finally, it should be stated that the color in plate II. is much too red, giving a misleading appearance in the secondaries.

Colias philodice God. f. nigrofasciata Reiff

Plate III.

Lepidoptera—Rhopalocera

By William Reiff, Jamaica Plain, Mass.

THE accompanying plate gives such an accurate picture of the upperside of this interesting new form that a detailed description may well be omitted. It is a female specimen in which the yellow spots of the marginal-band are completely extinguished through the expansion of the black color and this color is extended towards the black spot at the end of the discal-cell, thus creating a confluention of the spot with the black marginal area. All the other parts of the primaries are covered with numerous black scales except a small part above the inner margin, which has retained its normal yellow color. The upperside of the secondaries is normal.

The underside differs from normal philodice as follows: Upon the primaries the discal-cell and the space between the veins are black which makes the yellow color of the veins appear very distinct, a quite similar arrangement as we see it in the female of Pieris nap f. bryoniæ. However, the black color does not reach to the margin but stops at the row of black submarginal spots which we see in normal philodice specimens. The secondaries are covered to two thirds with reddish scales extending from the base of the wings toward the row of reddish-brown submarginal spots. The color of the scales increases the nearer they are located to the submarginal spots.

This beautiful new form was caught by Mr. Lewis during August, 1916 in Massachusetts, and it is now in the collection of the author.

There is identically the same form as the one just described in the palæarctic Colias hylae L. namely f. nigrofasciata Brams. Since I believe that the forms of all species of the same genus which diverge in equal direction from the type should bear the same collective name, I have named this new form of C. philodice also f. nigrofasciata.

Colias philodice God. f. nigro-fasciata Reiff.

PLATE III

In August 1915, I found a fresh female specimen of the palæarctic Colias hyale L. f. nigrofasciata Brams at Allenstein in Germany. This specimen I described and figured in "Entomologische Zeitschrift, Guben, Jahrg. XX. No. 32 (Colias hyale L. aberr.)." In September 1909 I found a Colias philodice with black veins in Forest Hills, Mass.

In these two cases I have convinced myself that high temperature was the probable cause for the emergence of these nigristic forms, for the German specimen was caught six days after a forest-fire at the edge of the burned area, while the American specimen was caught at the foot of a huge stone wall where there were some batches of clover. The reflection of the sun rays from the stones created such a high temperature that the air was vibrating and it is quite possible that the caterpillar which gave rise to this aberrant specimen pupated close to the stone wall or in one of its crevices.

Nigristic and melanistic specimens of normally yellow Colias species are rare and the cases recorded refer mostly to female specimens. There are, undoubtedly, many interesting discoveries to be made by those who would be willing to experiment with high grades of temperature on Colias chrysalids.

It has just come to my notice that the famous collection of Jacob Doll has been sold. It is to be regretted that so fine a collection should not have been secured by one of our public museums and kept intact. It is a well known fact that the condition of specimens in nearly all of our museum collections is extremely poor. Here was an opportunity for one of our museums to secure a collection of Lepidoptera in first possible condition; rich in types, cotypes, aberrations and large series of specimens. But as most of our museums depend on gifts, they have let pass an opportunity such as they, in all probability, will never have again.

Free, sentimental "Junk" is what is contained in most of our public museum collections of Lepidoptera, and therefore the poor, I might say, rotten condition of their specimens.

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WANTED Geometridæ from Florida; will name and exchange. L. W. Sweet, 10 Farragat Ave., West Somerville, Mass.

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THE LEPIDOPTERIST

Official Bulletin of the Boston Entomological Club.

RUDOLF C. B. BARTSCH - - - EDITOR
46 Guernsey St., Roslindale, Mass.

VOL. 1 FEBRUARY, 15, 1917 No. 4

Editor's Corner

The Southwest Museum of Los Angeles through its Entomological Department, is compiling a check list of diurnal Lepidoptera (Rhopalocera) occurring in the southwest territory. This includes California, Arizona, New Mexico and Colorado. Collectors having species from these states would render material aid by forwarding their lists, with month of recorded capture, exact locality, etc. The museum is particularly desirous of securing definite locality data for the more local species. It is planned to incorporate with this list a directory of Entomologists residing in these four states. Information may be sent to Dr. John Comstock, 1275 Belleview Ave., Los Angeles, Calif.; or to the Entomological Department, Southwest Museum, Avenue 46 and Marmion Way, Los Angeles, California.

The Auction Manager's report shows that 862 specimens listed at $335.00 were sold during the year 1916. The average price paid per specimen was about 8 cents. It must be said that a great many of the specimens were damaged, bringing a low price and thus lowering the whole average, and some groups offered were not of interest to the members and brought practically nothing.

Some Notes on the Collecting of Rare Species

By Werner Marchard, Princeton, N. J.

WHILE a pupil of a Boarding High School in Davos, Switzerland, in 1899 and 1900, I spent many happy hours in collecting Lepidoptera, certainly as an amateur, but intensely interested in some more aberrant or rare species, in which the high mountain valley of that region was comparatively richer than my native country. There were several interesting species which I then secured in quantity because by chance their peculiar habits were discovered. One of them was Hepialus ganna Hb., a species not often met with. In the Alps, in the month of August, Lepidoptera are already somewhat scarce. The nights are cool and above the tree-zone, early in the morning, the ground is often found covered with hoarfrost, which disappears soon after sunrise.

It was on such a morning (we used to go out for walks and climbs about 7:30 A. M.) when I visited with a friend, Dr. Karl Meyer of Vienna, also an ardent Lepidopterist, a place above the tree-zone* obviously with no other purpose than to eat plenty of the berries of Vaccinium uliginosum, which are especially good after having been slightly frozen. My friend advanced a little further upwards on the mountain slope, and, after a while, returned with three specimens of Hepialus ganna, all males which he had caught flying over the Rhododendron bushes. No further specimens were caught on that morning but the following day found us again on the spot at the same hour, about half past eight, when the sunshine just began to warm up the dew covered shrubbery. This time I suceeded in finding a female of this species which proved to be unfertilized, and using it as a bait, I collected no less than eighteen males in the course of half an hour. After this time no further specimens appeared. We both and later other collectors, have regularly procured specimens of Hepialus ganna in that locality, where previously it had been taken about

* *About* 1900 *metres,* (5700 *feet*) *above sea level.*

three times in thirty years, and have noticed that there flight always ceases about 9:00 A. M., so that later in the day no specimens were found, though the species is evidently not rare. They are never found at electric lights in the valley because they seem to occur only above the tree-zone where there are no such lights.

In this connection it may be noted that all species of Hepialus have a decided preference for certain hours of the day. In the Davos Valley, Hepialus humuli L., ab. magna, was quite common in the early half of July on all meadows and appeared in company with Hepialus fusconebulosus De Geer, and its uniformly brown colored form gallica Ld., at about 8:45 P. M., just after dark, while half an hour later none were to be found. Only occasionally are they met with during the day, and I do not know where they hide. On one such an evening I observed copulation to take place, and found that the mated couple remained quiet for over three hours before they separated, and the female began to lay her eggs. I do not think, however, that they fly again after midnight but assume that the eggs are laid on the following evening. The eggs are laid by Hepialus, during flight and are thrown about like sand by the female. The American species,Sthenopsis argeneo maculata Harris, which I observed at Farmington, Conn., in June 1914, has similar habits. The insects appeared shortly after sunset and were flying about the roots of alder trees (alnus species) in a swampy place traversed by a clear brook, and at the edge of a wooded slope. There are a number of other American species of Hepialus, notably the beautiful H. (Sthenopsis) auratus, Grote, of which I have seen a perfect specimen taken on Mt. Washington, New Hampshire. It is not unlikely, that if we knew more about the life history of this species especially whether it flys in the morning or in the evening, and in what particular localities, it would be found less rare than supposed.

Another rare species which was comparatively abundant in the Davos Valley and seldom seen in collections, is *Poecilocampa populi var. alpina* Frey. This

insect would appear in the first half of October and continue to be found until well into November. At this time of the year the meadows had already turned brown and, though the "final" snowfall used to come not before the middle of November, minor snow falls were frequent during October. Alpina was found exclusively at the electric light, and the great majority of specimens were males. The moths, when attracted to the light of high-posted arc-lamps, would seldom come down to street level but preferred to attach themselves to the insolated wires near the lamp where they still could be found sitting during the following day. It required some effort to bring them down, and a long bamboo stick was used to advantage. A few females were obtained in the same way and readily laid eggs, in fact, oviposited on the fingers when held in the outstretched hand. My friend who left for Germany, succeeded in rearing about forty-five specimens, males and females in equal numbers. The remaining quantity of eggs kept in Davos at a slightly too high temperature hatched at the same time, in March, when, to my great distress, no food was available. Branches sent from Germany by mail arrived too late to save them. The caterpillars of *P. v. alpina* feed on Larch (*Larix europa*), and it would be of interest to know whether the species occurs in Siberia, the original home country of this tree.

Very commonly were found, near Davos, on *Vaccinium uliginosum, Salix arbuscula* and other low shrubs, the caterpillars of *Eriogaster v. arbusculæ Freyer,* a form considered a variety of *Er. lanestris;* but I have never found the imago in several years collecting. This species, like *Hepialus ganna,* frequents the region above the tree limit and seems to fly very early in the season when this region is practically unaccessible because of remaining masses of deep snow in the forests. On the first mountain excursions of the year one usually meets already with the young caterpillars. On the other hand, I have never made an attempt to rear the latter, discouraged by the notion that the pupæ need at least four but sometimes nine years of rest

before they decide to hatch. In this respect this form differs from *Er. lanestris* of which I reared a number of specimens after only one hibernation; it may be that the habits of *Er. arbusculæ,* if the report is not exaggerated, are due to climatic influences. As the matter stands, the collector has to choose between a search for the adult in rather laborious early-spring excursions, or the rearing of the larvæ, and in the latter case has to weapon himself with a great deal of patience.

Nomenclature of Catocala Varieties

By Harrison G. Dyar

It is a rule of nomenclature that all names of less value than the genus shall be given exactly the same standing and that such a name shall be used only once in the same genus. Whether the name is specific, subspecific, varietal, aberrational or any other category, makes no difference, the name can appear in only one sense under the same generic heading. The above remark is apropos of Mr. Reiff's article on page 15 of this publication where we find the following:

Catocala amica aurantiaca Reiff
Catocala amica lineella aurantiaca Reiff
Catocala amica nerissa aurantiaca Reiff
Catocala amica melanotica aurantiaca Reiff
Catocala amica novangliæ aurantiaca Reiff

This is not admissible. The name *aurantiaca* can occur but once in the genus *Catocala.* Moreover, species or forms cannot be named collectively as Mr. Reiff has attempted to do. Each form must be based on actual specimens which should be specified as to locality, etc. The necessity of this is obvious, as we are naming actual objects, not mental concepts. It has been found by experience that it is inexpedient to anticipate the works of creation and this is what collective naming or the use of concepts instead of actual specimens involves. The name *aurantiaca* as

used by Mr. Reiff is vague and ill-defined and must be restricted. I propose, therefore, to restrict it to *Catocala amica novangliæ aurantiaca* Reiff, since that form is figured, although the difference in color of the hind wings does not show in the plate. Mr. Reiff should supplant the other four *aurantiacas* by new names and cite specimens to each, provided he considers them worthy of naming, about which there may be a difference of opinion.

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FERTILE ova and living larvæ of common lepidoptera during 1917 season, 1 cent each. Write for information. K. W. Baker, Box 387, Nacogdoches, Texas.

Eggs of Utah Catocalae

GUARANTEED FERTILE

Prices per egg:—Faustina, verecunda 2c. each; Edwardsi or diantha 2½c. each; aspasia, irene, lydia, zillah, faustina var. (with black basal dash,) 3c. each; cœrulea, virgilia 5c. each.

TOM SPALDING

Provo - - - *Utah*

THE LEPIDOPTERIST

Official Bulletin of the Boston Entomological Club.

RUDOLF C. B. BARTSCH - - - EDITOR
46 Guernsey St., Roslindale, Mass.

VOL. 1 MARCH, 15, 1917 No. 5

Editor's Corner

The Boston Entomological Club is going to publish a series of handbooks covering all the Lepidoptera of New England, giving full data of flying periods, food plants when known, and in cases of rare catches, localities, etc., and in cases of extreme rarities, the collection in which the specimens are preserved. The various families will be taken up separately, except in cases where the groups are small, two or more will be combined. The first group to be considered and published is the Catocalæ. Authentic data in regard to members of this group from New England will be appreciated and may be sent to the editor. While this work is going on data on other groups will be collected and compiled.

The Club has had its constitution printed in hand book size and copies can be secured by anyone interested in forming local clubs to be used as a guide, from our Secretary, Nathaniel Stowers, 15 Anson St., Jamaica Plain, Mass.

Commencing in May The Lepidopterist will be published fortnightly, that is on the 1st and 15th of the month. This will necessitate our increasing the subscription price which from May 1st will be 75 cents per annum. We do not think this increase unreason-

able when you consider the fact that you will receive twice the amount of service. The collector will have twice as many opportunities to secure goods and the dealer twice the opportunity to dispose of his goods. *But* we must have advertisers' copy at hand *on time* if we are to make a success of the fortnightly service. Trade and display "Ad" rates will remain the same. Special rates for contracted spaces.

Why not try an "Ad" in our Trade column? One party on a 69 cents try has sold $80.00 worth of material. You can do the same if you have the goods and offer them right.

The Witch City Mystery

By Rudolf C. B. Bartsch, Roslindale, Mass.

One Saturday evening last August the Police department of Salem, Mass., received an urgent call for help from a distracted woman living on the outskirts of the city. The woman was so excited that she failed to state clearly just what she wanted but the chief succeeded in getting enough words; "automobile, picks and shovels, body, woods," etc., to set the whole machinery of the Salem police department running at highest speed. An automobile of "Bluecoats" (Salem's bravest) was rushed to the scene some three miles distant. With drawn clubs and guns they advanced in solid column on the dark and silent grove of trees. With tense nerves and muscles they entered the grove. No sound but the croaking of the frogs in an adjacent creek and the chirping of the crickets greeted their ears. Suddenly the noble minions of the law found their shoes several sizes too large for them, for an unearthly shriek rang out in the still night. Rushing forward to prevent the murder which they now felt sure was being committed, they finally came to the end of the grove of trees. Not a person had they seen and still the shrieks issued from the grove. After rushing back and forth through the grove several times without capturing their quarry, visions

of witches (for which Salem is famous) drove the brave men back to headquarters. Result: a very happy pair of screech owls. The papers, the next day were filled with the new mystery. Everyone was urged to be on the lookout and report at once to headquarters any new clues to the mystery.

On the following Saturday afternoon, the automobile again arrived at the grove. Three men left it, carrying large bags and proceeded to wander amongst the trees. The worthy chief was notified at once of their arrival. Plans were carefully laid to capture the desperadoes, children were sent to watch them and report their doings. Everything went along nicely until the appetites of the men got the better of them and they decided to have something to eat. So they left the grove and went into the city to a restaurant, past the unsuspecting officers and to the disappointment of the watchers. After satisfying the inner man they returned to the grove. The glad tidings were sent to headquarters and officers rushed to the scene. Two of the men set out in opposite directions in the grove while the third stayed in the automobile reading latest local items.

Just as it was growing dark and the men were returning to the automobile, a large touring car, filled with Salem's bravest, came rushing down the hill over stumps and stones to the edge of the grove. The poor desperado in the automobile, having his back to the approaching foe, was easily captured. Then one of the other unsuspecting men returned and was captured. With hands held aloft they were forced to give an account of themselves. Explanations from both sides followed: The men, Entomologists—collecting "bugs" by sugaring. The Law: (as it appeared in newspaper) "Roxbury woman found dead in automobile accompanied by five men." The third entomologist arrived in time to see a very much disgusted police force disappearing over top of hill. Results of evening's work: a very happy woman and a fine catch of Catocalæ.

The three desperadoes were W. F. Eastman and Charles H. Eastman of West Roxbury and the author.

ENTOMOLOGICAL NOTES

By Aug. Knetzger, St. Louis, Mo.

A STRANGE CASE OF PUPATION:—About the middle of September 1916, a neighbor's boy came to my house and brought me a larva of Telea polyphemus. It seemed barely alive and probably had fallen off a tree. As its size indicated its nearness to the pupal stage, I placed it on a sheet of tissue paper in a glass jar and put a few maple leaves around it. Next morning I observed it had not eaten and seemed entirely devoid of life. The following morning I noticed considerable shrinkage in its size and no sign of life. The third morning it was still more shrunken and I was almost certain it had died. The following day I did not see it, but imagine my surprise on the fifth day when I found lying upon the tissue paper where I had placed the larva, a fine, healthy and vigorous pupa, without any cocoon, but the secretion, usually employed in the making of the cocoon showing plainly on the tissue paper upon which it had been discharged, no attempt, however, having been made to draw together the tissue paper or any of the leaves.

A PECULIAR CASE OF OVIPOSITING:—Last July while at work in my garden, I noticed a Papilio asterias (female) flying busily about. I had in the garden at the time some dill, parsley, parsnips, and carrots and it seemed to me that she desired to oviposit, so I moved away so as to give her a clear field, but after a few minutes of circling about she suddenly dashed for the rear of the garden and hovered for a moment over a leaf of the wafer ash growing there and then flew away. Upon inspecting the leaf I found she had really deposited an egg. Unfortunately on the third day the egg had disappeared from the leaf. It would have been interesting to see if the larva would hav fed on wafer ash. Of course the question is, why did the female oviposit on a plant not supposed to be fit for the larva, when the garden contained a variety of plants, either of which would have furnished the accustomed food?

What Is AI Quality

By Walter F. Eastman, West Roxbury, Mass.

THE word quality in Lepidoptera is as much abused as the word service is in the Commercial sense. It has been the writer's experience and has undoubtedly been the experience of every collector that quality may mean most anything, especially so if you are purchasing or exchanging by mail.

The term most often used is A1 quality, and your correspondent will write you several pages about the quality of his material, assuring you that he never sends anything but A1 quality, and of course, expects A1 prices. With this assurance from him you purchase, and to say that you are disappointed would not express your true feeling, as the specimens are poorly mounted, and from the appearance of most of them you would judge that they had been flying since Noah built the "Ark."

Your next move is to notify the collector that you are sending back the specimens, as the quality is so poor that you cannot use them. He promptly informs you that you do not know what A1 quality means. So you start to investigate, and find that A1 is taken from the Commercial rating, and refers to the price he expected you to pay; and you also find that the only definition of quality of the specimens in the Dictionary that is applicable is "rank."

It seems to make no difference to the average collector in regard to quality, if the specimens are poorly mounted, torn, parts of wings gone, no antennæ, only part of the body, or greasy. They are still A1 quality to him, and it seems to the writer that the same fairness and square dealing can and should be carried on in the purchase or exchange of Lepidoptera as in other lines of business. A collector who misrepresents specimens is no better than the grocer that puts sand in his sugar.

A collector cannot expect to have good specimens if he throws his day's catch in an open box. Nor can he expect that his material will arrive in good condition if he does not take the trouble to pack it carefully.

To A Butterfly

Airy, fairy, flitting sprite,
Bit of the rainbow's colors bright,
Fragile, dainty creature of light,
Flower of the air!
Rainbow-hued flowers thy coming greet,
Await thy kiss to yield their sweet,
A fitting toll for ambrosial treat,
Aerial blossom fair.

Alice W. Hewlett, Nellie, Calif.

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GEOMETRIDÆ, twenty mixed, unidentified, from Idaho, good average condition; $1.10 postpaid. W. G. Watt, Littleton, N. H.

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POSTAGE stamps and land and sea shells to exchange for butterflies, moths, entomological supplies and books. Laurence West, 815-4th Ave. W., Calgary Canada.

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NAMES OF LEPIDOPTERISTS WANTED

Editor.

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RUDOLF C. B. BARTSCH - - - EDITOR
46 Guernsey St., Roslindale, Mass.

VOL. 1 MAY 1, 1917 No. 6

Editor's Corner

In the last number of the Lepidopterist it was announced that the rates for advertising were to remain the same. The Club at its last meeting decided to change the rate for trade column "ads" making it one cent per word instead of one-half cent per word, commencing with the May issue. The rate for display "ads" to remain the same as before.

The collecting season of 1917 is now before us. Any interesting notes on collecting and captures may be sent to the editor for publication any time during the season. Remember we do not stop issuing during the summer months.

The trade column with its twice-a-month service in May will give you an opportunity of disposing of your living material; it need not be rare material, many times the commonest of species is in great demand. Will you avail yourself of this opportunity? Collectors making quantity captures can dispose of the specimens through the trade column. Or, if there is something you are looking for, why not put in a few words announcing your desires to other collectors. They may have just what you want, or may be in a position to secure it for you. The Lepidopterist's main object is to help collectors to secure material for their collection and to dispose of their surplus captures.

Notes

MEMBERS of the Boston Entomoltgical Club living in distant places are entitled to send lots for the club auction sales. Each lot should have a reserve price placed on it. Shipments may be sent to the Superintendent of Auctions, Mr. William Reiff, 366 Arborway, Jamaica Plain, Massachusetts, by express or insured parcel post, prepaid. Any specimens which are not sold will be returned to the owner, the charges being deducted from the remittance. The number of lots is limited to ten for each auction. There are two auctions each month, on the second and fourth Tuesdays. Any number of lots may be sent in one shipment to save expenses. A commission of 10 per cent is charged.

The collecting season in Eastern Massachusetts is about three weeks late. The most interesting species of *Noctuidae* to be taken (in the east) early in the spring are the two species of the family Feralia.

Feralia jocosa (the hemlock moth) usually is taken by the 25th of March, but up to the present time has not been found. This rather pretty green moth is quite commonly found resting on the hemlock tree in the latter part of March and extending into the middle of April. The specimens are strongly green provided the weather is fairly dry, but if the rains are constant and heavy the green is bleached out, so much so that some specimens are pure white, even though newly hatched. In pinning this species the collector has to take care that none of the fluids in the body come in contact with the green wings, for if it does the green is turned to brown. The same precautions have to be observed when mounting the specimens. The collectors must take care not to puncture the veins when setting the wings. The jocosa can readily be seen resting on the brown bark, even though it resembles the lichens on the trees.

Another green moth which appears about one week later than the jocosa is the Feralia major (the pine moth). This is a much rarer moth and not often

found. It is to be found resting on pine trees, but it is very much harder to see than the jocosa,, blending more with the colors of the pine bark. The wetness of the season does not seem to affect the green color of the major and neither do the body fluids seem to affect it nearly so much as in jocosa.

Officers of the Boston Entomological Club for 1917.
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H. J. Law, *Treasurer.*
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N. Stowers, *Secy.*, 15 Anson St., Jamaica Plain, Mass.

New Geometrids

BY L. W. SWETT, BOSTON, MASS.,

Carsia boreata Thaxteri var. nov.

Head pink, also palpi and part of thorax; body brownish, tinged with pink. Primaries pink, with costa to inner margin. Intra discal line incurved from costa to inner margin closely followed by a second shade line, the two almost touching. Discal dot linear and quite prominent. The extra discal line is double as the intra discal line, but the one nearest discal spot runs slightly wavy from costa to vein 3, then makes an outward curve towards outer margin. The second intra discal line almost touches the first except just below costa, where it is curved outwardly forming a joint Then it makes a sharp inward curve, then outward, forming a second point, making two toothed projections as it were. Below the second projection it makes a third very slight projection and then curves inwardly to inner margin. An indistinct irregular sub-terminal line connected below apex with black apical streak. Secondaries, unicolorous pinkish brown, without markings, except in one female where there is faint curved band. Beneath primaries, deep pink, along border fuscous shaded

below. Secondaries deep pink also without any markings, except black discal dots which are on all wings. Fringe whitish, slightly checkered. This is very closely allied to *boreata* Pack. described in the Proc. of the Peabody Academy of Sciences, taken on Mt. Washington, N. H. *Boreata* Packard has priority over *alpinata Packard, described on the* same page, the differences being merely sexual.

Dyar placed *boreata* and *alpinata* Packard as synonyms of the European paludata, but Barnes and McDunnough in their recent check list give it racial rank and correctly so, I believe from the description that *labradoriensis* Som. is the same as boreata Packard, but the latter type in the Boston Society of Natural History is not fresh and it is hard to ban conclusions on one specimen. I have quite a series of *labradoriensis* from Roma, Labrador, before me and there seems to be very little variation. *Thaxteri* has a pink head, where the Labrador form has a gray one, and the color of primaries also separates them. I think from the genitalia, it should be listed as distinct from *paludata*. The European *paludata* lacks the long sacculus of the Labrador and New Foundland forms and the shape of the outer margin of costa is very distinct. In the American form the outer margin of costa has a deep excision, forming a kind of jaw, as it were. I can hardly see how any of the Labrador or New Foundland forms can be regarded as *paludata*, the valvae being of a different shape. The penis is very long but rather bulbous, at base the simial duct seems to have minute armature close to ædocagus. I think that *boreata* Packard will prove to be same as *labradoriensis*. Som., the former having priority and *thaxteri* being a race of it. I take pleasure in naming this pretty form after Professor Roland Thaxter, whose collection forms an important part of the Museum collection.

Expanse 23 to 25 m. m.
Holotype ♂, Aug. 5,-15, 1885, Salmonier N. F. collector R. Thaxter.

Allotype ♀, Aug. 5,-15, 1885, Salmonier N. F. collector R. Thaxter.
Paratypes 2 ♂ and 1 ♀ from same locality and also two specimens in American Museum of Natural History, N. Y.

Oporinia autumnata henshawi var. nov.

This race has been going under the name of *dilutata* Schiff in the east. It is of a pale ashen white with irregular zig-zag lines on primaries. Head and thorax, ashen white, body slightly ochreos; palpi, short, rather ochreos. Basal line starts from costa at right angles to medium vein, then runs straight to inner margin; following this are three or four irregular brown lines, forming points on medium and marginal veins. The intra discal is a broad line shaded widely with brownish, starting from costa, it makes a strong angle inward, then outward, to medium vein forming a point. Below medium vein it angles back to marginal vein, then to inner margin. The mesial space is white with discal spot of black. The extra discal line is broad and shaded as the intra discal, but bends outward below costa and above discal spot, then runs straight down in scallops to inner margin. Beyond the extra discal line is a narrow, irregular, whitish space, with a zig-zag line running through it. The outer margin is fuscous with white line running through it. Double black points at end of veins, at base of fringe, which is checkered black and white. Hind wings, pale ashen, with traces of five or six scolloped brown lines, the sub-terminal being heaviest, pointed inwardly on the veins. The discal spot is very faint on one specimen. This race approaches *autumnota* of Europe very closely in markings. The more trongly angled extra discal line of *henshawi* will separate them in my series, but this may not hold. I have placed this as a race of *autumnata* as the genitalia show no relationship to *dilutata,* it may later prove to be a distinct species. The octavels of henshawi are wide apart and the papillæ are very small, not raised up as *diluta* or *autumnata*. The costa of the valvæ has a distinct arch in the middle,

also the valvae are differently shaped, lacking the sacculus. The uncus is longer and more tapering than either *dilutata* or *autumnata,* but approaches nearest the latter. The bursa capilatrix of the female has the signum very small and minutely spined, centrally they form rather a triangular body, rounded at the top.

Holotype ♂ Oct. 16, 1910, Bedford, Mass.
Allotype ♀ London, Ontario, Canada, from Miss E. Morton.
Paratypes 1 ♂ London, Ontario, Canada, from S. A. Moffat.

I take pleasure in naming this race after my kind friend, Mr. Samuel Henshaw, who has rendered me valuable assistance in the way of microscopes and material.

Question Box

What is the best way to kill caterpillars (in the field) for inflating?—H. W. H.

The best method for killing caterpillars (in the field) which are to be inflated is to place all except green ones in a 65 per cent solution of alcohol. Green caterpillars should be placed in a solution of chloroform and glycerine.

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WANTED—To exchange Lepidoptera with collectors in all parts of the world, specially tropics, Florida, Arizona, Mexico. Theodore Greer, Aledo, Illinois.

WANTED, species of Apantesis (Arctiidæ) from any part of America; Cash or exchange. Werner Marchand, 29 Vandeventer Ave., Princeton, N. J.

WILL buy or exchange Catocalæ. W. F. Eastman, 75 Maple St., W. Roxbury, Mass.

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SEND ten dollars and get the bargain of the season: 100 North American butterflies in 40 species in papers, good average condition. None from Mass., New York, New Jersey, Penn. All with correct data and names. N. E. Entomological Co., 366 Arborway, Jamaica Plain, Mass.

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NAMES OF LEPIDOPTERISTS WANTED

Editor.

THE LEPIDOPTERIST

Official Bulletin of the Boston Entomological Club.

RUDOLF C. B. BARTSCH, EDITOR
46 Guernsey St., Roslindale, Mass.

VOL. I — MAY 15, 1917 — NO. 7

Editor's Corner

Owing to the lateness of our April number it was dated May 1st and the twice a month services begins this month.

The check-list of the Lepidoptera of Boreal America just published by Dr. Barnes and Dr. McDunnough, fills a long felt want. It is quite complete and up-to-date with all the new species and forms described since the list by Dr. Dyar. Many groups have been radically changed, but are in keeping with the work of specialists in the various groups. It ought to be a great help to Lepidopterists when arranging their collections systematically, and to facilitate exchange amongst collectors, reference to this list and numbers being all that is necessary. Every Lepidopterist should own one of these lists. It can be secured from Dr. William Barnes, Decatur, Illinois, the price being $2.00. It is to be regretted that the list does not include the reference to the descriptions of the various species and forms as was done in Dr. Dyar's list. This of course would have made the volume more than twice as large and the cost would have to be in proportion, so perhaps it is better that it has been published in its present form.

New Geometrids

By L. W. Swett, Boston, Mass.

Stamnodes Cassinoi nov. sp.

Palpi and front of head bright reddish brown, thorax and abdomen fuscous, the latter at tip tinged with rax and abdomen fuscous, the latter at tip tinged with reddish. Primaries centrally and at inner margin dark smoky fuscous, costa reddish brown sprinkled with fine black striations. There are three white spots on costa, the basal about one-fourth out on costa, the second has a short black line running from it to median vein, where it disappears. The third spot is situated about two-thirds out from base of wing and has a black line running out sharply towards outer border to median vein then bending sharply back going straight to inner margin. This second and third line form a sort of shadowy square below costa something as annellata Hulst. Near the apex the reddish brown shade of costa broadens out forming quite a wide reddish brown border, at apex a faint black apical spot. Fringe long, reddish brown, speckled with dark fuscous. Secondaries without any lines, unicolorous dark fuscous except fringe which is reddish brown. Beneath primaries as above, lines faintly showing through, the tip of the wings are dark reddish brown, also same color along costa. Secondaries entirely dark reddish brown with a single dark line which runs straight to just below center of wing then turns sharply back to margin nearest body. No other markings or discal spots apparent. This is a most striking Geometer and one of the most distinct of the genus. I take pleasure in naming this after my friend, Mr. S. E. Cassino, whose work in conjunction with Packard, on the Monograph, will be well remembered. The antennae of this species appear to be slightly more serrate than usual.

Expanse 30 m. m.

Holotype 1 ♂ (III-6) Eldridge, California, collector Jacob Doll, in Mr. Samuel E. Cassino's collection at Salem, Mass.

Stammodes eldridgensis sp. nov.

Palpi, thorax and body blackish. Primaries blackish, fuscous with three white spots on costa. Basal spot without any line, second with faint broad white line running to median vein, where it disappears. Third runs diagonally outwards to median vein, then turns sharply back running to inner margin. Beyond blackish fuscous, fringe short and of same color. The white projection of outer line is most apparent, resembling slightly albiapicata Grossbeck. Secondaries dark ashen, with a shadowy dark basal band running straight across. No other markings apparent. Beneath primaries yellowish and fuscous speckled, on costa fuscous, in middle of wing the lines of above show through. Secondaries basal portion dull fuscous bordered externally by a white band, which goes straight across wing except for a slight angulation at cell. The hind wings beyond this white band, are yellow and fuscous striated, possibly there is a white discal spot but the type is a trifle rubbed in that place and it is hard to be sure. This white band running almost straight across secondaries is unusual and the mottled yellow and fuscous underside.

Expanse 28 mm.

Holotype 1 ♂ Eldridge, California, in collection of Mr. Samuel E. Cassino, Salem, Mass.

The Spirit of the Naturalist and of Natural History Work

Fordyce Grinnell, Jr., Pasadena, Cal.

Natural history work is simply one of observation in various degrees. In the case of one class of Naturalists it may be observation alone with no collecting of specimens, as in the case of Fabre, the great French observer, whose books only recently translated are inspirations and models for a large group of readers. He worked for the love of it with no pecuniary reward. A larger group of Naturalists are those who combine observation in the field and study

of mounted specimens in their collections. We have Wallace, Bates, Edwards, Scudder, Behr and others on the Lepidoptera. These all pursued Natural History for the true love of it, and they came to know and love their collections through much study of every specimen. It is not what we have that counts, but it is what we do with what we have that counts. Thus their collections have come to be called by some "sentimental junk."

But I would rather look at a box or drawer of this "sentimental junk" with each specimen representing much study and published notes, than an equal number of exquisitely prepared specimens with no inspiring sentiment attached to them. He who puts more energy into an activity or study than he gets out of it, is he who gets most out of it that is worth while—mental and spiritual satisfaction.

It is better to have a few specimens and to know something about their structure and life than to have a large unstudied collection. The work of Henry Bird of Rye, N. Y., on the *Papaipemas* is an inspiration and is a good example to follow. A. S. Packard was a type of a true naturalist and anyone studying his two books, "Guide to the Study of Insects and "Text Book of Entomology," should not go far astray in his studies. Let's have and encourage more of the spirit of the older naturalists in our work—work for the love of the work.

Some New North American Butterflies

By George A. Ehrmann, Pittsburgh, Pa.

PARNASSIUS POLUS SP. NOV.

In size and general appearances, this species comes nearest to *P. sedakovii* Men., and it will form an additional member of this group of our small-sized Parnassidæ of North America. I have arranged my cabinet as follows:

P. nanus Neum., Bor. Columbia.
P. sedokorii Men., Chimney Gulch, Colo.
P. polus Ehrm., Ashcroft, Pidkin Co., Colo.

Male: Head, thorax and abdomen, black, but clothed with yellowish hairs, autennar the same as in *P. smintheus*. D.—H. group but darker legs, heavily clothed with yellowish hairs. Forewings: on the upper side, pure white, shaded slightly at the base with black, two large black spots in the discal cell, one in the middle and the other on the outer end of cell. There are two bright crimson spots beyond the outer end of the discal cell. These spots are lacking in both *nanus* and *sedakovii*. Submarginal, wavy black band begins on the costa and terminates at the M2 vein. Apex and two-thirds of the outer margin semi-transparent. Hind wings: pure white, except base and abdominal margin which is black clothed with white silky hair. There are two crimson spots, circled with black, one on the costa and the other near the discal cell. There are also four black spots in the sub-marginal space.

Under side same as above but paler with three crimson spots near the base; one on the primaries and two on the secondaries and an additional small crimson spot on the abdominal margin.

Female. Forewings: ground color is black vitreous with a slight whitish cast on the inner margin and the discal cell. The two black spots in the discal cell are much smaller than in the male. There is one pale crimson spot on the costa beyond the discal cell and seven round, whitish spots along the submarginal space. The inner margin black spot is very faint.

Hindwings: discal and outer space pure white, abdominal margin black, costal and discal crimson spots are very large; outer margin vitreous. Submarginal space has six oval shaped spots. Underside much paler than above.

Types 1 ♂ and 1 ♀ in my collection. Expanse 1⅞ inches. Habitat: Ashcroft, Pidkin County, Colorado.

ARGYNNIS NIKIAS SP. NOV.

Male: Above, the ground color is of a rich cinnamon caste, darker towards the base. The outer

black margin has a row of eight cinnamon spots on the forewings, and on the hind wings but five. In the bimbal area is a row of six round black spots and in the hind wings, in the same space, there are also six round black spots. The wavy, black line in the medium space is unbroken, both in the fore and hind wings. The black markings in the basal area are almost obliterated.

Underside: forewings have seven faint silvery spots on the apex. Ground color and markings much paler than above. Hind wings: ground color is a deep chocolate, with a margin of seven silver triangular spots and a narrow yellow submarginal band, then a row of seven egg shaped, bright silver spots. On the base are eight more silver spots.

This species bears a close resemblance to Arg. *rhodope* Edw. from Oregon, on the upper side and on the under side it comes nearest to Arg. *electa* Edw. from Colorado. Expanse 2½ inches. Habitat; Temez Springs, New Mexico.

Types in my collection.

Note: When I received this species of Argynnis from Mr. John Woodgate he wrote me:
"This species has been identified by two different authorities, one named it Arg. bremmeri Edw. and the other, Arg. behrensi Edw." He further states, "It can be but one species and so there must be some mistake somewhere, for it cannot have the names of two old recognized species, so I will leave it to you to solve the problem." Of the North American *Argynnidas,* I have all the known species mostly in both sexes, and in many cases fine series of them, except three or four of the *Brenthis* group that are found around the polar regions. All my species were determined by such eminent authorities as W. H. Edwards, H. Strecker, George Franck, Henry Edwards, H. K. Morrison, W. G. Wright and others. I will conclude by stating that the specimens of *Argynnis nikias* that I have are identical and I know of nothing coming near it except those mentioned in comparison.

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FOR SALE:—Perfect butterflies in papers. 100 Lyc. icaroides at 10c., 10 Lyc. dædalus at 5c., 40 Lyc. acmon at 3c., 75 Lyc. marina at 5c., 50 Pieris rapæ at 2c., 35 Mesoleuca truncata at 5c. All are bred specimens except icaroides and dædalus. Esther P. Hewlett, Nellie, Calif.

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THE
LEPIDOPTERIST

Official Bulletin of the Boston Entomological Club.

RUDOLF C. B. BARTSCH, EDITOR
46 Guernsey St., Roslindale, Mass.

VOL. 1 JUNE 1, 1917 No. 8

Two Weeks at Rockledge, Florida

By William Reiff and S. E. Cassino.

The Massachusetts winter of 1916-17 with its everlasting ice and snow fell, finally, on our nerves, and we decided to pay a visit to the sunny South. From a collector's point of view Florida looked to us most promising, so we studied our collections to ascertain in which part of Florida we could expect best results regarding Lepidoptera. It was no easy matter to come to a conclusion, for there were various localities from which rare species were received, but finally we concentrated ourselves upon the Indian River region from where so many rare and interesting species had come. With St. Augustine as the type locality of *Catocala nerissa* and the capture of *Catocala jair* from points farther south, we decided to stop half way between St. Augustine and Palm Beach, and we thus selected Rockledge for headquarters.

Our collecting outfits were quickly packed, and at noon on March 14 the train took us out of Boston. All the way to New York was snow and ice, only the Connecticut valley appeared to us a shade warmer, for there were, at least, some spots in the fields where the snow already had melted. In New York we were met at the station by Mr. Jacob Doll, with whom we spent a few very pleasant hours. He, at that time, was getting ready for a collecting trip to the Rocky Mountains, and we presume that he is now busily

engaged in catching *Argynnis, Nitocris, Sphinx elsa, dolli* and such other much wanted great rarities which are represented in collections mostly by their names only.

The next day we boarded the Florida train. Weather was fine and ice and snow were disappearing fast. However, as it was not yet warm enough to sit on the platform of the observation car, we had to be contented to view the scenery from its inner room. Not until we reached Washington, D. C., did we see any signs of spring in the vegetation, and even in Washington the trees had only a green tint. When we woke up the next morning we had passed Richmond, Va. The early spring weather had arrived there a number of days before us, for the meadows were green, the willows in leaves and many other trees had started to open their buds. Along the way-stations in Virginia we had the first opportunity to study the life-history and behavior of the *melanistic* (or *nigristic?*) race of *Homo sapiens*. The outstanding feature we discovered was the facility with which they succeeded by applying many different forms and ways of extracting pennies, nickels and sometimes larger coins from the pockets of travellers on trains. The weather was now very comfortable, and we enjoyed it much riding on the observation car, except when all the seats were taken by other tourists, who equally seemed to enjoy sitting there in spite of the fact that we were the only two entomologists on the train. The vegetation became more summerlike with every hour, various specimens of *Musca domestica* made their appearance in the dining car, much to the disgust of the tourists who did not want to share their very dear meals with visitors, and almost an hour before we passed Charleston, S. C., we saw the first butterfly, a *Dione vanillæ* ♂ crossing the tracks. Soon we noticed *Pieris rapæ*, which became quite abundant the nearer we came to Savannah, Ga. Many *Odonata* were accompanying the train, and before the train pulled into Savannah we had seen *Pap. turnus, troilus*, specimens of a *Colias* and of a *Thecla* species. Shortly

south of Savannah we believe we saw a *Terias nicippe,* however, we could not make sure of it. We had now actual summer weather, but our observations soon came to a stop, for it soon became evening after we had passed Jacksonville, Fla., and darkness sets in very quickly in the South. Our entomological activity was limited to investigations around the electric lights at the stations where the train stopped, but with the exception of several *Pyralids, Tortricidæ* and other *Microlepidoptera* nothing was seen of interest. As a matter of fact, there was no powerful light anywhere, always small incandescent lights only. We thought to attract, perhaps, some specimens by the lights on the platform of the observation car; but this was in vain, too. If there were *Heterocera* around the speed of the train probably was too much for them.

(*To be continued.*)

New Species of Catocala

By Samuel E. Cassino, Salem, Mass.

CATOCALA HELENA N. SP. In form and general appearance resembles *unijuga*. Expands 3¼ inches. Thorax gray, abdomen mouse color. Primaries rather dark gray with dark, and in places black markings. Basal lines not prominent. Space between the thorax and the transverse anterior line a uniform dark gray. T. a. line bordered on the inside by a line of lighter scales. Median shade with two dark patches extending to the discoidal cell, a dash of white between the reniform and the t. a. line, the reniform bordered on the outside by black scales, a light spot bordered by black scales below the reniform. A dark dash in the median venule extends half across the median space to the tranverse posterior line. Transverse posterior line black, irregularly wavy, quite distinct and margined exteriorly with a more or less indistinct white line. Sub-terminal line very dark gray, extending from costa to the inner margin, bordered on the inside with a line of lighter

scales, the lower third of this light line having a wavy line of black scales. A lighter shade extends from the costa, just inside the t. p. line obliquely to the subterminal line. Terminal lunules black, veins between the lunules with black scales, fringes marked with a double line of black.

Secondaries light orange, slightly reddish, somewhat like ilia, but not as reddish. Border broad at the apex as in ilia but more regular and diminishing toward the inner margin. Median band broad, somewhat irregular and diminishing about one-half, not quite reaching the inner margin. Fringes white or whitish, turning to gray near the inner margin.

Under side of the primaries white and black. The upper third of the secondaries white, below the upper radial vermilion, to the inner portions.

In the systematic arrangement this species belongs near unijuga. Holotype 1 ♀ in the author's collection.

Locality, Vineyard, Utah, Aug., 1916.

CATOCALA REIFFI N. SP. Expands 2½ to 2¾ inches. Ground color of primaries gray, sprinkled with brown; markings quite distinct. Thorax gray, with brown scales, collar lappett and pantagium edged with black, abdomen yellowish brown. A small tuft on the second segment of the abdomen, followed by a smaller one on third segment. Basal line indistinct, basal dash heavy but short.

The t. a. line black, irregularly wavy, heavy at the costa, becoming less prominent at the internal margin, where it encloses a small more or less indistinct white spot. Dark scales between the basal dash on the middle of the t. a. line produce a clouded effect. Reniform with center of black and brown scales edged with white. Two black spots on the costa above the reniform, the anterior one being connected with the reniform; sub-reniform light in type but less conspicuous in co-types.

T. p. line prominent in the upper half, less distinct toward the inner margin, and does not quite reach the costa. Scales posterior to the reniform are clouded and the veins black. Lighter scales extend to the t. p. line from the angle to the costa.

Catocala reifti

Catocala helena

Catocala minerva

Plate IV. Vol. I, No. 8

Subterminal line light, indistinct, indistinctly edged with black or gray, lightest at the costa. Apical patch rather lighter than the general ground, submarginal points black subjoined to white. Veins in submargin black. Fringes grayish.

Secondaries orange, fringes orange-white, marginal band deeply serrated with two triangular indentations near the annal angle. Median band irregular, tapering to a point and vanishing as it reaches the inner margin.

Primaries, underside, light orange to whitish; secondaries deeper orange on the inner margin, fringes white and gray.

Locality: Mission San Jose, Calif., Holotype ♂ in author's collection. Allotype 1 ♂ and 1 ♀. Co-type in collection of William Reiff.

This species resembles in general appearance zoë. It should stand after zoë. in the order of arrangement.

CATOCALA MINERVA N. SP. Primaries, ground color, light gray sprinkled with chocolate colored scales in ligher portions. Expands 2¾ inches. Thorax gray, abdomen light brown, lappets black and gray. Basal dash wanting, basal line more distinct at costa. T. a. line black, irregularly zig-zag, edged within by a light line. Space between the t. a. line and basal line darker above the lower radial vein than below. T. p. line rather light, of varying intensity, edged without by lighter scales, two sharp angles near the inner margin, line bends in sharply from the upper radial to the costa. Sub-terminal line darker near the hind angle and still heavier as it approaches the costa. Space between the t. p. and the sub-terminal lines sprinkled with light chocolate scales. Reniform dark, produced outwardly on veins, a prominent light patch between the reniform and the t. a. line sprinkled sparingly with light brown scales. Median nervule dark as it passes through this light space. On the costa above the reniform are two black spots, the outer one being the heaviest. Between the reniform and the t. p. line the ground color is

formed of a patch of light scales which, passing downward toward the hind angle, becomes light brown on the outer side of the blackish line. Terminal lunules black, fringes light.

Secondaries, vermilion. Marginal band wide, diminishing until it reaches the lowest branch of the middle branch of the median nervule, where it grows wider, then diminishing until it reaches the inner angle. The median band about half as wide as the marginal, somewhat wider at the center, diminishing as it approaches the inner margin, and disappearing, on the upper side, before it reaches the edges. Fringes white at the apex, where it is suffused with red near the black marginal band, and grayish and white until it approaches the anal angle, where it becomes blackish gray, growing lighter on the inner margin. Under side of the secondaries white on the upper third, vermilion below. The marginal band follows the same line as the upper side, but median band is more ragged in outline and extends clear up to the inner margin, in this respect differing from the upper side. There is a pronounced notch in the inner margin of the median band where it crosses the inner branch of the internal nervure.

This species belongs near groteiana.

Holotype one ♂ in the author's collection. Locality Deer Creek, Provo Canon, Utah, Aug. 20, 1913.

(Illustrations of these three species will be published with next number.)

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FOR SALE:—A limited number of pinned, unspread, perfect bred specimens of Apantesis sulphurica at $1.50 each, postpaid. Can you use some? First come, first served. Esther P. Hewlett, Nellie, California.

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EXCHANGE Desired — Diurnals. Send lists. Dr. John Comstock, 1275 Bellevue Ave., Los Angeles, Cal.

SEND ten dollars and get the bargain of the season: 100 North American butterflies in 40 species in papers, good average condition. None from Mass., New York, New Jersey, Penn. All with correct data and names. N. E. Entomological Co., 366 Arborway, Jamaica Plain, Mass.

LABELS for No. Am. Catocalæ are now ready. Sent to anyone for 50 cents. N. E. Entomological Co. 366 Arborway, Jamaica Plain, Mass.

NAMES OF LEPIDOPTERISTS WANTED

Editor.

THE LEPIDOPTERIST

Official Bulletin of the Boston Entomological Club.

RUDOLF C. B. BARTSCH — EDITOR
46 Guernsey St., Roslindale, Mass.

VOL. 1 — JUNE 15, 1917 — No. 9

Editor's Corner

On announcing the twice-a-month publication of THE LEPIDOPTERIST we received many letters commenting favorably on our efforts but we must have the support of all Lepidopterists if we hope to make our venture successful.

Every collector either has material which he wishes to dispose of, or there is certain material which he is anxious to secure. An "ad" in the trade column in either case will help the collector and at the same time help to support the paper. Are you doing your little bit for THE LEPIDOPTERIST? If not, why not?

It is claimed by one of our contemporaries that it is impossible for a paper to specialize on one branch of Entomology and be really a success, for there are not enough men in any one branch to make a paper succcessful. We disagree with this claim for we know that there are over 1000 Lepidopterists in the United States and Canada and we have a very large percentage of them on our books. It has been said that the dominant idea of our paper is commercialism. That is correct. We believe in it, and it is only through the medium of a paper of the type of THE LEPIDOPTERIST that a collector can buy or sell with any degree of satisfaction. Are you making the most of your opportunity?

New Lepidoptera from the Jacob Doll Collection

By Samuel E. Cassino and Wm. Reiff

In 1875 Dr. A. S. Packard described in the Memoirs of the Boston Society of Natural History two remarkable cases of peripheral gynandromorphism of Callosamia promethea. At this time the senior author was studying with Dr. Packard and made the drawings of these monstrosities on lithographic stone. The example described in this paper is, we believe, the only other reported case of gynandromorphism in this species, and is from the well-known collection of Mr. Jacob Doll.

The left antenna is of the normal male, dark-colored, the pectinaions of the under side somewhat shorter than those of the upper side. The right antenna is that of a normal female, the pectinatons being of same length, those arising from the joints being black, the others reddish yellow. The front of the head is female. There is a dash of red at the base of the right antenna. The eyes are alike. The right wings are female and show no traces of the male coloring. The proportions are the same as those of the normal female. The right forewing is like the female in shape and differs in this regard from the left upper fore wing, which is the usual male form. The right hind wing is of the normal female shape while the left hind wing is male in form. The upper left wing is male in shape and coloration. The left hind wing is smaller than the right, and the normal male coloring predominates. There are, however, several streaks of the lighter coloration of the female, and the shape is that of the normal male. The under side of the right wings is female in markings and color. The under side of the left forewing has the dark coloration of the male, though somewhat lighter in shade. The under side of the left hind wing is usually lighter in color than the fore wing, with male markings. The discal spot on the back of the left wing is wanting as in the normal male. The right

side of the thorax is female, the left side male. The abdomen is female in color and male in form.

This specimen was bred by Mr. Keifer, Brooklyn, N. Y. in 1885.

Cut of this specimen will be given in next issue.

Cold Destroys Lepidoptera — Larvae and Eggs in South Florida

By Dr. George Mott, Marco, Florida

I came here February first hoping to have a good spring and summer's work collecting lepidoptera, locating in the most extensive orange and grape fruit grove in this section. On the nights of the third and fourth we had frost severe enough to kill all garden truck and all blooming as well as most of the growing wild flower plants.

The grove is on a tide-water creek, fringed with mangrove and other sabine soil-growing shrubs and vines, looking like an ideal spot to trap heterocera (moths). I built a trap using an excellent gasoline lantern for light. I kept it lighted every night, until a gallon of gas was used, without capturing moths valuable enough to pay postage on themselves, to the third zone.

I went out every day, except Sunday, with the net, chasing butterflies, and to date have taken some twenty species, and of some of these only a few specimens. Am just beginning to find a few larvæ. The new growth of *convolvulus legumes* and many nocturnal blooming plants is just beginning to show a few blossoms. I will set traps again as soon as dark nights come.

I attribute my poor success to the fact that the cold snap destroyed both larvæ and eggs of insects, also the food plants so that the eggs of those mature insects that survived the cold perished of inanition early in the second stage of their existence.

May 9th, 1917.

A Suggestion for Observation and Record

By Fordyce Grinnell, Jr., Pasadena, Cal.

So many of our collectors of the Lepidoptera are interested in taking moths at night, at light and sugar, that a suggestion for observation and record might make their work at night of some additional scientific value, and the published records add to the pages of the LEPIDOPTERIST and other periodicals. I refer to what might be termed the study of the nocturnal distribution of the moths. There has been little or nothing published, as far as I know, bearing directly on this subject; but it is well known that the Hepialide have a particular time of flight, about 8 or 8.15; or just before darkness. McDunnough has recorded a species flying in the late afternoon. The plume moths fly mostly from sundown to dark, and some later; as well as other moths at this time of day, Sphingidæ and many Micros. The Noctuidæ fly only after dark and some all night, and it is the great host of species in this family of which accurate records made at the time and on the spot would be of great interest. A special note-book should be used and taken along for this purpose. Then we also know that many of our butterflies and day-flying moths have particular times during the daylight hours during which they are on the wing—their diurnal distribution. The nocturnal and diurnal distribution of the Lepidoptera is worthy of careful and intensive study and record.

Entomological Notes

By W. Marchand, Princeton, N. J.

The strange case of pupation reported by Aug. Knetzger in a previous number, is by no means unique. While at the Bussey Institution in the summer of 1915, I received from Dr. Chapman a silk-moth larvæ (B. mori) which pupated without any cocoon. However, it appeared that the products of the spinning glands were, in this case, not excreted at all. The pupa was rather large and elongated, and died

Calosamia promethea

Plate V. Vol. I, No. 9

without producing a moth. In the Saturnids the occurrence seems not to be rare, as I remember having had a larvæ of S. pavonia L., which also pupated without having made a cocoon. This also happens sometimes when the adult larvæ has been disturbed in the spinning act; when interrupted in spinning the larvæ usually starts spinning again, but sometimes it seems unable to do so. Whether such abnormal pupæ ever hatch is not known to me.

Concerning cases of abnormal oviposition; it seems that the odor of the food-plants attracts the female and stimulates its laying instincts, but errors are frequent, and the eggs are often attached to objects or plants near the food-plant, as I observed in having *Plusia chrysitis* ovipositing in a cage on nettle, but also occasionally on the walls of the cage. To induce Noctuidæ to oviposit, it is recommended to put the leaves of the food-plant into the box, but the eggs will not necessarily be deposited on the plant. In 1915, Dr. Glaser brought me a caterpillar of *Colias philodice*, to which an egg of this species had been attached, another case of error in oviposition. If eggs are deposited in wrong places, the larvæ will, of course, perish unless they succeed in eventually reaching their food plant. If eggs of the Gipsy moth, for instance, have been laid on a house-wall, there is small chance for the young caterpillars to reach some tree near by, but many of them will soon be exhausted and perish. There is no reason to assume that the young larvæ of *Papilio asterias* would have been able to feed on wafer ash, just because an egg has been laid on this plant exceptionally. I think it most likely that the *asterias* female was just about to deposit an egg on the carrots, etc., when it was disturbed or chased away; the egg was then placed on the nearest plant which the butterfly found on its way.

It would be interesting to cover some of these plants with a screen or netting and observe whether the *Papilio* will deposit eggs on the outside when unable to reach the plants themselves.

Two Weeks at Rockledge, Florida

By William Reiff and Samuel E. Cassino

(*Continued from June*)

It was past ten o'clock when the train was nearing Rockledge, Florida, and we two "bug-hunters" were the only passengers to stop off. An automobile brought us over a partly rough and partly sandy road to the hotel, but we really did not notice the condition of the road very much, for our senses were taken by the extremely sweet odor from the orange blossoms with which the air was filled. In spite of the late hour (for the average human being), we did not feel like going to bed, for we had passed a store with three strong electric lights, and our conscience would have troubled us all night, if we neglected to visit these lights. Of course we did not expect to find the moths at this late hour in big swarms; we mainly wanted to satisfy our curiosity. The first insects we noticed were *Coleoptera* mainly small *Carabidæ* and small *Lachnosterna.* All these were found on the cement walk and were crawling and running about to escape the attacks of a little yellowish-red ant which were present in many hundreds of specimens. Lifting our eyes up to the walls, windows, etc., we really were astonished to see everything covered with *Microlepidoptera* of which the *Pyralidæ* represented by far the largest percentage. We never had seen before such an abundance of these moths wherever we have done collecting. We could find only a few *Macrolepidoptera;* most of them must have flown away before our arrival, for the store keeper assured us that the "bugs had been swarming by the million" that evening.

Subscribers—NOTICE! All subscriptions paid previous to May 1st at the35c rate are good without any additional payment until the subscription runs out.

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FULL GROWN LARVÆ Melitasa chalcedon feeding on plantain and Sasilarchia astyanan feeding on wild cherry, $1.50 per dozen including postage. Remittance with order. New England Entomological Co., 366 Arborway, Jamaica Plain, Mass.

WANTED—Geometrids from high altitudes in all parts of the West, and from Arizona, Texas, Idaho and New Mexico. Samuel E. Cassino, 20 Naples Rd., Salem, Mass.

FOR SALE:—Perfect butterflies in papers. 100 Lyc. icaroides at 10c., 10 Lyc. dædalus at 5c., 40 Lyc. acmon at 3c., 75 Lyc. marina at 5c., 50 Pieris rapæ at 2c., 35 Mesoleuca truncata at 5c. All are bred specimens except icaroides and dædalus. Esther P. Hewlett, Nellie, Calif.

GEOMETRIDS from a large number of localities offered in exchange for unidentified species. Samuel E. Cassino, 20 Naples Rd., Salem, Mass.

THE LEPIDOPTERIST

Official Bulletin of the Boston Entomological Club.

RUDOLF C. B. BARTSCH, EDITOR
46 Guernsey St., Roslindale, Mass.

VOL. 1. JULY 15, 1917 No. 10

Editor's Corner

Some subscribers have failed to receive their numbers—mostly owing to the overcrowded mails in the Boston postal district. Hereafter, however, The Lepidopterist will be published in the interest of the Club by the S. E. Cassino Co. and mailed at Salem, Mass.

All communications and business of every kind, subscriptions, editorial matter, etc., should be addressed to Salem, Mass. and will receive prompt attention.

If your files are not complete please write for missing issues and if possible, they will be supplied. This must be done before September 10th as after that date copies may not be had except at 10 cents each.

Two Weeks at Rockledge, Florida

By William Reiff and Samuel E. Cassino

(*Continued from No.* 9)

Some green Geometridæ were among the first Macrolepidoptera we noticed resting on the walls, also a few Acidalia and Boarmia. A few Noctuidæ were taken, too, but no rare species was among them. Arctiidæ were scarce, only the genus Eubaphe was

abundantly represented. However, we had the great fortune to find a female of a new Apantesis, which will be described in detail in another number of this journal. We had a very interesting experience with this specimen. After we had placed this rare catch in a chloroform jar and had discovered that we had something entirely new, we were uncertain whether we should kill it immediately or whether we should first take a chance to make it deposit its eggs. The absolute perfection of this specimen caused us to decide to kill it at once. But the goddess of fate was there to help us in our dilemma. Was it that the chloroform in the jar had weakened or that we pinned the specimen too early, this we do not know. But the next morning, when looking over our catch, we were pleasantly surprised to find a heap of eggs in the box under the abdomen of our Apantesis. The specimen was then placed in the killing jar again, and we took care that it was really dead when we placed it back in the box. It may be mentioned here that this female had deposited about one hundred eggs. Unfortunately, these hatched while we were on the train on our way back to Boston, and owing to the fact that we could not obtain any suitable food for the young larvæ till we arrived home, they all died except ten caterpillars. These were at once fed with tiny bits of leaves dug out under the snow with which Massachusetts was covered when we arrived. All ten caterpillars were raised to the imago, a copola of one pair was obtained, and while writing this we have already over one hundred larvæ of the second generation at the end of their fourth stage. But let us go back to Florida again. That night brought us also an interesting specimen of a Sphinx, namely Cressonia juglandis subsp. hyperbola Slosson. It was a very perfect male specimen which had gone for a rest into the store, and the storekeeper who at once had become an enthusiastic collector through our activity, called our attention to this "bug." In recent years this form has been treated as an aberration of juglandis.

but it surely should be given the standing of a subspecies. It is much larger than juglandis and the male is of a greenish-brown color, while the females we received from Florida localities are of a whitish-yellow color. That night our collecting was rounded up with the capture of several specimens of Psychidæ, apparently all belonging to the same species (not yet identified), and we went to bed with very optimistic hopes and worrying whether we should have enough boxes to pin all the specimens we surely expected to find around the lights during our two weeks' stay. But when our time was over we found to our disappointment that the first night was the best collecting night we had had. All along the coast of the Indian River insects were swarming to the lights only with west winds, which do not prevail till June. We had mostly cool east wind with an occasional southeast and light-collecting, therefore, remained very poor indeed.

The next morning after we had eaten our first genuine Florida breakfast we started day-collecting with the inspection of the orange groves back of our hotel. It is true, we did not look for butterflies at once, for our eyes rested on the trees covered with beautiful oranges and grape fruit. Recalling the New England farmer who drives boys out of his orchard with a shot-gun when they dare to take an apple, and not being familiar with southern hospitality, Mr. Reiff hesitated very much about eating what the trees offered. It took Mr. Cassino the time of eating three oranges to convince him that certain things for which one may be shot or jailed in the North are perfectly legitimate in the South. It must have been a good doctrine, for oranges and grape fruit were eaten by us thereafter in vast quantities.

There were not many species of butterflies in the groves nor elsewhere, as we found out later, but those we did see were represented in most cases by many specimens. The most abundant species were Papilio cresphontes, palamedes, ajax, Catopsilia eubule, two species of Cissia (Neonympha) and

three species of Hesperidæ. We took a few desirable specimens of the genus Terias in those two weeks, a beautiful and rare but not yet identified Thecla specimen and a female of one of the rare Megathymus which was feeding on a flower growing at the very edge of the Indian River. All the other butterflies which we captured are of minor importance and not scarce. We found all butterflies were very restless and rapidly flying, which perhaps, was caused by the continuous breeze from the river, but the air remained exceedingly hot in spite of a breeze.

(*To be continued.*)

Geometrid Notes

By L. W. Swett

Brephos. infans Var. *oregonensis* nov.

Markings and general appearance very close to eastern infans Moeschler but much larger. Oregonensis has a more blackish outer margin than infans, which seems to be brownish, and at inner margin the black scales are heavier. The primaries above seem to differ only in these respects, the secondaries having the more prominent characters as follows: The black discal spot is very large and round and not connected with inner marginal black bar. The secondaries are rather more yellowish red than infans, and at end of marginal black bar there is a pale yellow spot, then a black, narrow irregular band which stops at about vein 4. Beyond this black scalloped band is a very narrow reddish margin. The entire outer border of infans appears to be black and the black irregular line is not so high up on wing and it has no yellow spot, as in oregonensis. Primaries beneath reddish yellow with whitish bands, the apex having a wide black margin. Discal spot very large and connected with black line on costa. Secondaries as above, the yellow and red mottled appearance is very striking. The black inner marginal bar is very

Catocala ultronia form nigrescens nov.
Plate VI., Vol. 1, No. 10

prominent, where it rather seems to fade out in infans, also the outer marginal, black, irregular line is strong. The yellowish spot is very strong between veins 2 and 3 which is lacking in Prephos infans.

The genitalia of oregonensis is quite distinct from infans though closely allied. The uncus is very long and curved over, the tip being gouge shaped, where infans is shorter, narrower and rather pointed. The valvæ of oregonensis are wide at base and slim at tip with slight angulation just before tip. This angulation is not pronounced in infans, but the shape of the valvæ are very similar. The penis of oregonensis is broad with band of short spines about three-fourths out from base. The vesica has two or three spines, the terminal one being quite thick and long. Brephos infans has the penis more tapering at tip and lacks the spines, but has spines on the vesica. This race would be hard to separate if it were not for the genitalia, and it only emphasizes the fact that in the future this must be carefully studied. I think that many difficult species may be separated and the relationship shown if we could give the genitalia and life histories together.

Expanse 36 m. m.

Holotype May 15, 1917, Pot Orford, Oregon, in the collection of Mr. Samuel E. Cassino, Salem, Mass.

A New Form of Catocala ultronia

By Samuel E. Cassino, Salem, Mass.

CATOCALA ULTRONIA form *nigrescens* nov.

The male expands two inches, the female two and one half inches. This is a very dark variety of this variable species. The head, thorax and abdomen are just a shade darker than the typical ultronia. Nearly the entire surface of the superiors are very dark, there being almost no grayish scales on the wings, the usual markings thus becoming very indistinct and nearly lost.

The Apical patch is of a dark chocolate color, the apex being a shade lighter. In the male the reniform is not distinguishable. The basal line, usually very prominent and much darker, is but little darker than the color of the wing in the female.

The basal dash in the male specimen is very dark, but the whole wing is so dark that it is very little differentiated. In the female the dash is more evident as it has a very delicate line of whitish scales on the upper edge. The reniform is slightly indicated in the female by whitish scales. The apex and apical patch are bordered on the lower edge with black scales. There are whitish scales above the basal dash extending to the costa, and between the reniform and t a line is a patch of darker scales. Veins one to seven are very black at the outer margin, the black scales tapering off as the veins extend inward. The zigzag lines on the outer edge between veins 1b, 1c and 2 have whitish scales on the outer edge.

The secondaries do not differ from normal except in being a shade darker. The under surface of the wings are the same as in the regular ultronia type.

One male from New Washington, Pa., collected by Neill McMurrey, August 2, 1916. One male collected at Salem, Mass. August 15, 1917, in collection of author.

One female collected in Salem, Mass., Aug. 25, 1916, by Walter F. Eastman. In collection of author.

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THE LEPIDOPTERIST

Official Bulletin of the Boston Entomological Club.

SAMUEL E. CASSINO, PUBLISHER.
Salem, Massachusetts.

VOL. I. AUGUST, 15, 1917. No. 11

Editor's Corner

A number of people have asked for information about the Boston Entomological Club. The club at present has 33 members residing in several states. Most of the members live within twenty-five miles of Boston, but no restrictions are placed on members in regard to the state in which they live. Anyone can apply for membership, and as practically all entomologists are good people there is small chance that they will be rejected. Membership carries only one obligation—50 cents a year. Meetings are held the second and fourth Tuesday of the month. From seven to fourteen members are usually present. After a short formal meeting a talk is given by one or more members, and then an opportunity is given members to have their duplicates sold at auction. A member can offer only ten items at any one meeting. Members could exchange specimens, but it has seemed better to sell in this way, and many members both buy and sell. Prices are usually much below the "list" prices but it frequently occurs that an especially fine example will bring more than catalogue rates. This is especially true in regard to Catocalæ.

Members residing at a distance may send insects for the auction, and may also send bids. It has been suggested that lists of species to be sold be printed in "The Lepidopterist" so that absent members may

send mail bids, but so far this has not been practical. Members submitting specimens for a sale may limit the price. A commission of 10 per cent on net sales is charged by the club. This, and membership fees, may be used in paying for printing "The Lepidopterist."

The auction may be thought to indicate that the club is "commercialized" but every member is an ardent collector and uses money simply as a convenient method of conducting an exchange.

Colias Philodice Godt. rothkei

Plate VII—Vol. I, No. 11

Lepidoptera—Rhopalocera

BY William Reiff, Jamaica Plain, Mass.

Upperside. All veins black, the yellow parts of primaries on inner margin close to marginal band heavily clouded with black scales. Costal area of secondaries also heavily clouded with black. The other parts of the yellow surface of all wings is not as densely covered with black scales but enough to cause the dark appearance of this specimen.

Underside: Secondaries normal, but primaries from inner margin up to discal area deep black with small gray spot enclosed on inner margin. Veins of primaries black.

Collected August 27, 1905 in the Susquehana Valley, Pa., by my friend Max Rothke.

Type 1 male in Mr. Rothke's collection.

This specimen is very similar to the one I found September, 1909 at Forest Hills, Mass., which was placed in the collection of the Bussey Institution of Harvard University. The specimen here described is of particular interest because it is a male. Most records of melanistic Colias specimens refer to females.*

*See paper on "Colias philodice Godt. f. nigrofasciata Reiff," pages 22 & 23, Vol. I. No. 3 of The Lepidopterist, also concerning the causes of the origin of such aberrations.

The Reminiscences of A Lepidopterist

By R. Ottolengui, New York, N. Y.

When I was about eleven years of age I was sent to a salubrious summer resort in the pine woods of Summerville, So. Carolina, to rid myself of a bad cough. I was one day amusing myself with a net, catching butterflies, when the Minister stopped me and asked this question: "Little boy, are you catching those insects just to amuse yourself, forgetting that you are destroying life, or are you making a collection with the idea of studying a branch of Natural History?"

I only had about a tenth of a second to come to a decision, with those mild but steady eyes looking straight into my brain, but I promptly decided to "study natural history."

This purpose once aroused of course I captured everything that came to my net, little dreaming of the space that would be required for such a collection.

College and the study of my profession interfered somewhat with my collecting zeal but it never quite died out, and after moving to New York, sometime in the eighties I began again on a more systematic scale, deciding to devote myself to lepidoptera. And now we approach the moral of this little narrative. It was not very long before I discovered that even lepidoptera was a large field. Hence I again limited myself, this time calling it Macro-lepidoptera. But soon space compelled another elimination, and I presented Dr. Hulst with all my Geometridæ, and at once began to taste one of the greatest pleasures that I find in collecting; viz: to give a specialist something that he wants, and which I can easily spare without hesitation.

My collection grew until it filled one hundred large drawers. By that time I had become more especially interested in moths, and desiring more cabinet room disposed of my diurnals thus recovering a cabinet of twenty drawers.

From then on, while devoting myself to the ac-

quirement of Sphingidæ, Bombycidæ and Noctuidæ, I really became more interested in the Plusia group, and in 1902 issued my monograph thereon, having the pleasure of figuring at that time every valid species found in Boreal North America, from photographs made by myself. In my own collection likewise I had every one of these species except two unique types, one in the National Museum and the other in the collection of Dr. Barnes, but both described by myself.

This work completed I fear that I lost interest somewhat. I kept my collection in good condition but I dropped out of active collecting for thirteen years.

Just at the outbreak of the war I was in London and visited the British Museum and examined the collection there. When I found numerous species which I possessed, absent from this great collection, all my ardor was resumed.

On my return home I went through the literature of the past thirteen years and discovered that in all that time but three species had been described.

About this time I was obliged to give up my house and move into an apartment and for lack of room was completed to abandon my general collection. I determined however to keep the Plusias and resume work thereon. And now at last comes the moral.

I have had more pleasure in collecting during the past two years than ever before. Of course one cannot restrict captures to one's favorite group, but one may say when taking a good thing, "This will please my friend X" or "this will please my friend Y." Selfishness passes, and one is glad when away in some distant mountain or at the sea shore to be able to add perhaps to the collections of his friends.

Then again the craze for collecting is just as well satisfied with a small group as with a large collection. Who can ever hope, with a large collection to obtain "the best collection in the world!" But the specialist may still do this. He may also make long series of specimens, recording variations, local forms, etc., etc., until at length he finds that there is

Colias philodice f. rothkei f. nov.
Plate VII. Vol. I, No. 11

no such word as "finis" in a specialist's collection.

I particularly mention this because the chief change that I note in the entomological world, that, whereas fifteen years ago lepidoptera and coleoptera attracted the greatest number of students, today the lepidopterists and coleopterists are growing scarcer every year. I can see no explanation save in the notion that these fields have been worked out; that there are no new species to discover. But this is not true. As I have above mentioned, in thirteen years the general collectors discovered but three new species in the Plusia group, yet in two years workings as a specialist I have acquired one of the two species absent from my collection in 1902, two of the new species described in the interim, three or four new species, and three or four new varieties or races.

Moral: Lepidoptera is still a fertile field for the student.

A Sugaring Trip For Catocalas

By N. Stowers

At the regular meeting of the Boston Entomological Club on Tuesday, August 14, a collecting trip was planned, as usual in the summer months, for a week from the following Saturday. As the woods in and around Salem, Mass. seem to be the most productive and easily accessible, we decided to go there. So those of us who live in Boston met on the 5 o'clock train, in the smoker, (every entomologist I know is an inveterate smoker) and immediately began to conjecture as to the weather, the moon, our chances, etc. In half an hour we were in Salem, where we met two more of the party and then started for the collecting grounds.

As only the "Catocalists" were on this trip we chose an ideal Catocala grove, of nut, wild cherry and oak trees; mostly nut. I say "ideal" because the trees are the right size, about ten inches in diameter, and because there is no underbrush to tangle your feet; but it is far from ideal in regard to mosquitoes, for

I know of no other place where they are half as thick or a tenth as large. The grove, of about four hundred trees, extends over an area a quarter of a mile long and about two hundred feet wide. We divided our party, one half taking the upper edge and the other half the lower edge, and started "sugaring" about fifteen minutes before dark.

A mixture of stale beer, rum, brown sugar and old molasses, about the consistency of maple syrup was used. With a one-and-a-half inch brush we put a spot about five inches long and two inches wide on every tree along the path. By the time we reached the end of the grove, darkness had fallen and the wind, which before had been rather cool, had died out so that the evening was quite warm. By great good luck there was no moon. All in all, a fine night! What would we get?

We didn't wait a minute but snapped on our electric lights, put a jar in every pocket and started. From then on our hearts never left the vicinity of our mouths. Did we sugar this tree? Is there anything on it? Ah, there is one! Suppose we miss it! What's that? Is it a new variety? These and a hundred other possibilities provided enough excitement in an hour to furnish a month of reminiscenses next winter.

At the end of the first round both parties compared notes and found that several specimens were taken on the very first trees, although it was only a few minutes after dark. It is interesting to note that every one of the eight species and two varieties that were taken during the evening were seen on the trees on this first trip, although only seven of them were caught. Two more round trips were made and then we decided to pack up and start for home.

All specimens were removed from the jars and pinned in relaxing boxes made of marshmallow tins with moist peat in the bottom. Then when every specimen had been securely pinned and bags tightly packed we were ready for the home trip, the time when you learn what the other fellow has caught, how many of

a kind, what varieties, etc. Our chatter, boiled down, said that we had taken eight species (namely, Catocala viduar luctuosa, concumbens, ultronia, præclara, goynea, habilis with the female from basilis and badia) and two nice varieties, (variety lucinda of ultronia and variety phoebe of badia). The most of any kind was fifteen of ultronia, the least being one vidua and one præclara. The largest number seen at a time on one tree was five. Forty-eight specimens was the total. No other Noctuids or Geometrids were taken, although many specimens were seen.

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Supt. of Sales; Wm. Reiff

THE LEPIDOPTERIST

Official Bulletin of the Boston Entomological Club.

SAMUEL E. CASSINO, PUBLISHER.
Salem, Massachusetts.

VOL. 1 NOVEMBER 15, 1917 No. 12

Hooverize

At the present time of increase in prices on all commodities, everyone is talking economy. How can I get the most for my money! How can I save a few cents on this or that! "Hooverize" has become the slogan of the world. No matter who you are, nor where you are, it should be your individual responsibility to make a dollar go as far as possible, both to help yourself and to help Uncle Sam.

Where can you get any more for your money than in the "Lepidopterist" at fifty cents a year? That means roughly four cents a copy. A half of this goes to the post-office department to insure prompt and safe delivery. For the other two cents you get descriptive articles from people all over the world, often accompanied by plates; you get notes on club affairs; you get helpful hints gathered from the experiences of others; and, through the advertisements, you get offers of specimens for sale or exchange. Certainly fifty cents could go no further.

Invest in the "Lepidopterist" and get 100 per cent. value. If you are already a subscriber tell your friends what an invaluable magazine it is and get their subscriptions. N. S.

To The Subscribers

The Boston Entomological Club wishes to apologize for the appearance of Mr. Rudolph Bartsch's name as Editor of number ten of "The Lepidopterist," as he was in no way responsible for the same.

The Work of W. H. Edwards

We must all recognize W. H. Edwards as the greatest butterfly student which this country has ever produced or probably ever will. He described a good majority of our species; but his work on the life-histories was greater yet. The key to his great success in these two lines was his numerous correspondents in every part of the country to which he exhibited the greatest unselfishness in help and encouragement. He was really a great *teacher,* and I believe in that way his life work was greater than in his descriptive or life-history work. His correspondents were not mere collectors but were students as well, who observed, thought and wrote. Look at the co-operation in the Butterflies of North America. Here are some: Hy. Edwards, Behrens, Mead, Wright, Rivers, Bruce, Wittfield, Geddes, Fletcher, Behr, Stretch, Morrison, Baron and others. It was surely a great inspiration to work under such a great man and teacher as W. H. Edwards.

Edwards took a trip to the Amazon river in Brazil, before he took up the study of the American butterflies, and on his return he wrote a book of his travels there. The reading of this book by Wallace and Bates decided them to go to the Amazon country together. So he had a direct connection with the development of the evolutionary idea. Later W. H. Edwards contributed largely to the evolutionary theory in his work on temperature effects on butterflies. The many sidedness and the greatness of our great butterfly student has hardly, I believe, yet been brought home to us. He was a poet also. And he wrote a genealogy of the Edwards family.

The three volumes of "The Butterflies of North America" rank with Audubon's "Birds of America" as a classic in natural history and it will probably never be exceeded in quality, scientific value, or interest.

F. Grinnell, Jr.

Some Notes on Basilarchia astyanax and var. albofasciata Newc

By Dr. Robert Unzicker, Chicago, Ill.

Before I describe my experience with the different food plants of astyanax, I want to give a short description of the method by which I obtained the var. albofasciata.

During the last years I noticed that in Chicago's surroundings albofasciata specimens were not very rare. I never saw one in the spring; all were observed in the fall, especially in August and September. I thought that it might be possible to obtain the variety in the same way as antiopa var. hygiaea is obtained. To this purpose I waited till I got some larvae from choke cherries so I was sure they would not be dissippus as the differences in the larvae of these two species are very insignificant. After they had fastened themselves to change into the pupa stage I placed them in an icebox and there they were left for one week. Some could not be induced to change under these conditions so I took them out again till they changed into pupae and then I placed them back in the icebox. From about 60 caterpillars treated in this way only one var. albofasciata emerged and one specimen with white stripes on the forewings but normal hindwings. The others did not approach at all the white-banded variety.

I hope to be able to repeat the experiment again next year.

Concerning the food plants I am convinced that the caterpillars of astyanax feed as well upon willows and cottonwood as upon cherries. In July I found far out in the prairie and half a mile from any other tree or shrub, a cottonwood tree and on its bark a caterpillar which I supposed to be dissippus. I fed it with cottonwood leaves and after about one week it pupated and after ten days more there emerged a fine astyanax specimen of more than 3 inches expansion. Later I found in another place on the prairie

many caterpillars upon willows and special big ones upon a willow with large, dark green leaves. There were about 80 larvae and I fed all with the small leaves of willows I was using for larvae of polyphemus and of Sphingidae. From this number 21 astyanax emerged. It therefore cannot be doubtful any more that astyanax feeds upon willows and cottonwood as well as upon cherries.

Entomological Conditions in and Around Chicago

By Dr. Robert Unzicker, Chicago, Ill.

THE old entomologists here say that twenty years ago the opportunity to catch many specimens of good species was very much better than at present, but still Chicago has yet a long record of species of Lepidoptera; however, it is necessary to know the places in which one can find them. It is a tough job to hunt all over the surroundings of a big city to find a place that looks opportune for collecting, but such places are still there and I found more than one good hunting-ground. For instance, there is a big lot right beyond one side of the city limits where we can find a large number of larvae of Bombycidae and Sphingidae upon the numerous willows and grapes. There is another place not far from Chicago, only one hour's walk, where we can find a real gathering of larvae of all kinds of butterflies and moths. In one of the biggest cemeteries are hundreds of Saponaria flowers and when we go hunting there in the summer evenings we always come home with a good catch of moths. The parks again are specially good for spring collecting.

I have so far this year collected and bred over 2500 caterpillars and I am not through with collecting yet. They were all found in the city and just beyond its boundaries. The following general list shows what larvae I have already found this year:

Different species, 1223.
Polyphemus, 237.
Sphingidae on grape, 400.
Sphingidae on willow and tilia, 278.
Turnus, 28.
Cerura species, 22
Acronycta species, 95.

I am in hopes to get at least 500 more larvae before the season is over.

Included in the number of different species are many Pap. asterias, Arctiidae, Notodontidae, Cuculliae, Catocalae, and other Noctuidae. Acronycta Americana was found in large numbers, and also another large Acronycta caterpillar which was feeding upon Acer campestris. I don't know yet what species will emerge from these larvae.

The Sphingidae, feeding upon grape, were achemon, thysbe, abbotti, nessus, myron and some which I have not identified. The other Sphingidae were auscitiosa, geminatus, myops, chersis, drupiferarum, excaecatus, undulosa and some others which are unknown to me in the larval stage. Many of the polyphemus cocoons are extremely large and heavy. They seemingly do not suffer as much from parasitis as does cecropia. From these I found about 80 full grown caterpillars and not one was free from parasites. The polyphemus were parasitized to only about 2 per cent.

Sesiidae were numerous this year and I found a copula of a large species with reddish thorax and black spots and the characteristic last pair of legs resembling brushes.

At present the Catocalae are on their wings and my collection has already fresh specimens of nurus, amica ilia, cerogama, cara and unijuga. Abbotti and nessus were flying in larger numbers this year than I ever noticed. Cat. vidua and Apantesis virgo will appear about the middle of September and a little later Tolype velleda and the two Euthisanotia species. Lineata was not seen the whole summer, but other entomologists probably have met with this species.

Below is a list of subscribers to The Lepidopterist whose addresses are missing from the files. If you know the addresses of any of these kindly send them to us.

Baylis, E.
Chagnon, G.
Coxey, Judson
Dean, F. R.
Dirks, Jack
Erhardt, H.
Fletcher, Frank C.
Foster, Roberta
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Wright, W. S.
Zaiser, P

Exchange For Catocalae

I am desirous of securing specimens of common species as well as rarities mounted or only pinned, of catocalæ from all parts of North America. Good specimens only are wanted, and I will gladly exchange or buy for cash. Send me a list of what you need and what you can supply.

Samuel E. Cassino, Salem, Mass.

QUESTION BOX

What is the most successful method of keeping naked pupæ over winter? G. C.

What is the best way of keeping insect pests out of a collection? M. M.

Will some one please describe the best method of degreasing specimens. N. S.

The editor will be glad to have records of rare finds from any part of the country. Interesting notes, information or suggestions of use to brother entomologists are very welcome. Authors may send descriptions of new species and secure prompt publication.

Announcement

In reply to continuous inquiries concerning the whereabouts of specimens originally contained in the famous "Jacob Doll Collection" we wish to state that we sold:

The Plusia group with its related genera to Dr. R. Ottolengui of New York. This series included the native as well as the exotic species of that group.

All North American species of the following families, in total 7588 specimens, including 15 Types, 29 Cotypes and 100 Homotypes, were sold to Dr. Wm. Barnes of Decatur, Ill.:

Noctuidae with the exception of the Plusia group and except the genus Catocala; Hesperidae; Agaristidae; syntomidae; Pyromorphidae; Pericopidae; Lithosiidae; Nolidae; Limacodidae; Cossidae; Hepiatidae; Syntomidae; Pyromorphia; Pericopidae; Platypterygidae and Thyatiridae.

The Geometridae went to Samuel E. Cassino of Salem, Mass.

All other families are still in our possession, although there have been considerable sales in some groups, specially in the Sphingidae.

NEW ENGLAND ENTOMOLOGICAL CO.,
366 Arborway, Jamaica Plain, Mass.

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Salem, Massachusetts.

VOL. I. DECEMBER 15, 1917 No. 13

Editor's Corner

Thirteen numbers of "The Lepidopterist" have been published since November, 1916; the present number completes Volume 1 of the magazine. It has been said that no paper which specialized in this particualr branch of Entomology would receive sufficient support, either financial or otherwise, to make it a success. "The Lepidopterist" in the year 1917, has proved exactly the opposite to be the case. We have at present almost two hundred addresses on our subscription list, seventy-five per cent of these being outside of New England. Many of the subscribers have subscribed years in advance. We have received advertisements from three of the largest Entomological supply houses in the country and from many of the smaller collectors. Our "Trade Column" has always been filled to capacity. Surely this is adequate financial support! We have published many descriptions of new species or varieties. There have been several interesting "notes" on collecting trips, etc. These articles have been contributed by various collectors and we continually receive letters from subscribers commenting on the high standard of our articles and especially praising the illustrations which we print with descriptions when they can be obtained. Surely, this is not lack of support! The only objection we have received is that the copies have invariably appeared much later than they should.

This was not due to lack of support, but solely to faulty administration by the staff itself.

In his connection we must say that the Board of Direcors of he Boston Entomological Club found it necessary on Oct. 21, 1917, to ask for the resignation of Mr. Rudolph C. B. Bartsch, because of failure to properly carry on the affairs of "The Lepidopterist." This resignation was not obtained and on November 20, 1917, his name was officially dropped from the list of members.

The first mail auction of our Club will be held at the first meeting in February, 1918. A complete list of specimens offered will be printed in the January number (Vol. 2, No. 1.)

The Lepidopterist trade column advertising will do all that can be done to shorten and simplify your hunt for that missing specimen.

A New Apantesis

By Samuel E. Cassino, Salem, Mass.

APANTESIS CALIFORNICA N. SP.

Female:—Head yellow and black. Antennae black with exception of the upper side, which is yellow, from near the head, half the length of the antenna. Thorax, red and black. Collar, yellow with two black dashes. Abdomen yellow with strong reddish tinge, more pronounced near the thorax; prominent black dorsal band and lateral lines. Under surface of abdomen with two lines of black spots extending half the length of each segment.

Primaries:—Chrome, lemon and black. The center of the lemon maculation tinged with gambogs. All veins are yellow as in ornata. Two black dashes at base of primaries, on either side of median vein. Two black patches about the center of the primaries extend from the costa to vein 2, the inner one being the narrowest, the outer being wide at the costa and tapering to a point. Two black dashes extend from the

center of wing on either side of vein 1 to inner angle. The dash below the vein is broken by yellow. The black portion above the vein is broken in two places by yellow. Two large light triangles extend from the costa nearly to the inner margin. The outer margin is black, the light portion extending nearly to the margin at two points, forming two triangles, with a black spot in the centre of eah triangle. There is an elongated black triangle extending inward from the hind angle above vein 1.

Secondaries:—The secondaries are vermilion and black. Between the black and vermilion maculation is a very narrow line of redish yellow. A black, irregular border extends along the costal and outer margin, fading out near the inner angle to two black spots. A black basal dash near the inner margin, beyond which is a black spot. Above this black spot is another spot which is connected with the black costal margin by a smaller spot. A rather larger oval spot near the costal margin half way between the base and apex. Fringes, lemon yellow.

Under side of primaries, yellow with black markings similar to upper surface on the costal and outer margins. Under side of secondaries slightly more redish than primaries, with black maculation similar to the upper side but slightly smaller. Expands 1 3-4 inches. This species belongs near ornata.

Type 1 ♀ in the collection of the author.

Two Weeks at Rockledge, Florida

By William Reiff and Samuel E. Cassino

(Continued from No. 10.)

It would have been a very agreeable matter to obtain some rare Catocalae for our collections, but the season was still too early for adult specimens. The vegetation of our hunting grounds, especially the country south of Rockledge, was of such a nature that we

felt certain that at least the oak-feeding Catocalae were present, for there was an abundance of "live oak" and "water oak." We were already planning to make the usual burlap traps for Catocala larvae, when Mr. Reiff found quite accidentally an almost full-grown larva resting on a large oak tree and well hidden in a deep crotch. Now knowing where to find these larvae we at once started to hunt for them; and we were well rewarded. On the average, we found a larva about every ten minutes. In most cases they were from one to five feet above the ground; only a small percentage were resting higher up on the trees, and only three specimens were out of reach. All larvae were in harmony with their surroundings; in some cases the protected position of the larva together with its resemblance to the bark was indeed astonishing. No doubt we missed many, yet our total catch was about seventy-five larvae. Those on "water-oak" were discovered the easiest, as the bark of these trees is rather smooth and does not offer the larva as much protection as the bark of the "live oak." We noticed that no larvae were found on the bark of low-branched trees nor where the woods were thick. In fact, collecting was best on isolated trees. Like all Catocala larvae, those we found were full of vigor. They were moving rapidly when placed in the collecting boxes and would try to escape at the first opportunity. Judging from the structure of the larvae we were in possession of four different species, and we were anxious to bring them to pupation. Two days previous to our departure from Rockledge the first larva began to get ready for pupation and others followed in quick succession. They could not possibly have chosen a more unfit time, as they now had to undergo the transition from larva to pupa under the influence of the movements of the railroad train. We took every precaution to give them the best train service, but all was in vain. Some changed into deformed pupae while traveling, but the largest number died during the transportation period. We obtained only twenty pu-

pae and from these only three specimens emerged: two badly crippled Catocalae, which perhaps were similis f. aholah and one specimen of a Homoptera. This one came from a small lot of larvae in which the head structure was different from all the other larvae, but we had not thought that this group might give rise to a species of Homoptera. The other pupae transformed into adults but were too weak to break the pupa shell and thus died inside of it. This sad experience will be a lesson for us when we go South again. The next time we will stay there till our Catocala larvae have pupated. We have at least the satisfaction of knowing where to look for them.

During our hunt for Catocala larvae we came across a 'water-oak" in which there were numerous holes which were apparently caused by a species of Cossus inhabiting this tree. While we were still considering the possibility of finding Cossus specimens at that season, Mr. Cassino suddenly pointed to something that looked like a knob in the bark. A second look proved to our pleasant surprise that it was a freshly emerged female of some Cossus species. A few moments later we found the pupa shell, still soft, protruding from the tree. The opportunity to obtain additional specimens was so good that we decided to trap the whole trunk as high as possible. The needed supplies were obtained in the next village, and with the help of fallen trees and large stones to stand upon, we were able to cover ten feet of the trunk. A number of small sticks were used to hold the cloth off the tree so that the specimens after emerging would find space enough for their development. On the afternoon of the next day we made our first inspection and to our joy found one male and one female. The next day we found another male, the last one. Apparently we had made the discovery at the very end of the flying period of that species. Without going into details it may be mentioned that it is perhaps an undescribed species, for neither sex agrees with anyone of the known Cossids.

THE END

Note on Catocala helena Cassino

In The Lepidopterist, Vol. 1, No. 8, I described a Catocala under the name of helena. As this name is occupied by a synonym to micronympha described by Pilate I substitute the name "patricia." As the illustration representing this species was unsatisfactory, a new three-color half-tone will be given in a future issue of The Lepidopterist.

Samuel E. Cassino.

A New Variety of Catocala lacrymosa

By Samuel E. Cassino

Plate VIII.

CATOCALA LACRYMOSA F. ALBOMARGINATA, F. NOV.

As will be seen by referring to the illustration depicting this variety of lacrymosa, the outer and inner margins of primaries closely resemble sappho. The apical patch is dusky white, growing darker at the apex. The entire outer margin from the subterminal line is grayish white, very much lighter than f. paulina. Along the inner margin the grayish white border extends the entire length but is broken into by the t. a. and the t. r. lines and the median shade. The under surface is marked like lacrymosa, but much lighter.

Type I ♂ in the collection of the author from the Doll Collection.

Plate VIII will be sent with one of the early numbers of Vol. II.

The Lepidopterist trade columns are the natural channels of communication between people who want things and people who have things to offer:

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E. F. Knight, Adv. Mgr.

TRADE COLUMN

ADVERTISING rates 1c. per word. Matter solid. No display. Cash with copy.

WILL buy or exchange Catocalae. W. F. Eastman, 75 Maple St., West Roxbury, Mass.

WANTED Literature on Catocalae, also eggs and specimens. Theodore Greer, Aledo, Illinois.

FOR SALE—Perfect butterflies in papers. Lycaicaroides, Grapta satyrus and marsyas at 10c. each; Lyc. acmon, Lemonias virgulti, Phyciodes montana, and Hesperia occidentials at 5c; Colias barbara at 12c; Colias keewaydin at 3c. In lots of twenty of each species, 6c. each. Also pinned moths for sale. Esther P. Hewlett, Nellie, California.

WANTED to exchange eastern for western Catocalae. N. Stowers, 15 Anson St., Jamaica Plain, Mass.

WANTED—I desire series of Apantesis from all parts of North America. Would like at once specimens from Southern States. Will name and return if desired. Samuel E. Cassino, Salem, Mass.

WANTED to buy Exotic Butterflies, perfect specimens. Wm. Ewers, 67 Hampstead Road, Jamaica Plain, Mass.

Wanted to buy, briliantly colored Exotic Butterflies, perfect specimens. G. Colman, 64 Seaver St., Roxbury, Mass.

WANTED, for cash, specimens of Beetles of the genus Saperda. Only perfect specimens considered. Unusually large individuals, local variations of form color, etc., particularly wanted. Series from one locality of Saperda candida, concolor, cretata, fayi, moesta, mutice obliqua, populnea, puncticollis, vestita, etc., particularly wanted. John A. Geddes, 331 High Street, Williamsport, Pa.

WANTED, for cash, specimens of rare or uncommon Beetles from all parts of the U. S. Particularly Cerambycidae and Buprestidae. John M. Geddes, 331 High St., Williamsport, Pa.

THE BOSTON ENTOMOLOGICAL CLUB

Unanimously votes to extend a CHRISTMAS GREETING to all of our Subscribers.

The editor suggests that as this number of The Lepidopterist is mailed December 28, this greeting applies on the 1918 account.

THE LEPIDOPTERIST

Official Bulletin of the Boston Entomological Club.

SAMUEL E. CASSINO, PUBLISHER.
Salem, Massachusetts.

VOL. II JANUARY 15, 1918. No. 1

Editor's Corner

This issue is the first of Volume 2. The subscription price is 50 cents which pays for twelve issues. It is not promised that a number will be published on the 15th of each month. Various matters may prevent, but every subscriber will receive the full volume of twelve numbers. While The Lepidopterist is the "official organ" of the Boston Entomological Club, it is entirely under the management and control of the editor and all communications relating to its affairs must be addressed to the publisher. Names of amateur and professional entomologists are desired by the publisher and sample copies will be mailed to addresses of people who should be interested.

Subscribers are requested to send short lists of species offered and desired in exchange. Such lists will be printed free.

Notes From Provincetown

By Carleton E. Preston

During a season of collecting at Provincetown I used regularly to sugar certain trees in a roadside grove. Approaching these one night in the gathering darkness and without a light, I saw, besides newspapers scattered on the ground by a recent picnic

party, a fairly sizable piece of brown paper stuck to the sugar I had placed on one of the trees the previous night. Advancing to pull it off in order to renew the bait I was startled by having the paper take flight and whiz by my ear. A few nights later I caught, on a tree about two hundred yards distant, a rather battered specimen of Erebus odora. The following season I secured another and much better specimen on the same tree.

Among my early moth-hunting trips as a boy, I remember one in which I found a pair of moths, Geometrids, I think, copulating in such a position as to resemble very closely the form of a drying birch leaf. A similar instance of protective resemblance in this necessarily quiet position,—a condition not due to a single moth but to the combined appearance of the pair—is one which I recently came across at Provincetown and of which I was fortunate enough, with the aid of a long-bellows camera, to secure enlarged photos in two positions. The moths in question were Harpyia borealis Boisduval. Resting on a small stick they so closely resembled a mere patch of bird excrement that I twice passed them by before deciding to return and investigate.

Protective devices of this nature are very common in the case of a single moth or butterfly; but instances where the protection depended on the relative position of two individuals have, I believe, been rarely noted.

A New Apantesis

By Samuel E. Cassino, Salem, Mass.

PLATE I.

APANTESIS FLORIDANA N. SP.

Male expands one and one half inches. Antennae black or very dark, densely bipectinate, the pectinations tapering to the tip. Head and thorax of the same color as the primaries. The under surface and sides of head, thorax and abdomen black. A broad

black band extends from the thorax the entire length of the abdomen, bordered by a reddish yellow band on each side of the abdomen. Primaries black, with broad bands of lemon yellow. Obtusely rounded at the apex. About twice as long from the base to apex as the distance from the internal angle to the costa. A band on the costa, narrower at the base, tapers out just before reaching the apex. The yellow costal band is invaded by a round black spot which is connected with the black of the discoidal cell, just beyond the middle of the costa. A broad, longitudinal, yellow band extends from the base about two-thirds the distance to the outer margin. This band bifurcates about the middle of the wing. The branch is quite small and does not, in the type, attain the inner angle. A yellow band connects the costa with the median longitudinal band, which it crosses towards the inner angle, but soon disappears. The branch of the median band bifurcates near the inner angle in some specimens. The inner margin is bordered from the base to the inner angle with a broad yellow band. Fringes are all yellow.

The secondaries are reddish yellow, with dark irregular maculations. A small dark spot midway from the outer and inner angles, and a little removed from the margin extending along the costal and upper portion of the outer margin. These are not as black as in the primaries. The reddish color of the secondaries is deepest near the base, becoming yellowish at the margins. The maculations of the under side of the wings are like those of the upper side but are not as deeply tinged with red.

Female expands one and one half inches. The primaries of this beautiful insect are a rich velvety black and lemon: elongate; the apex well defined, but the outer and inner margins constitute a continuous graceful curve, leaving little indication of an inner angle. A narrow band of lemon color on the costa hardly attains the apex. A horizontal band extends from the base one-third the length of the wing, the basal half being broadest, and is finally lost. This line is

broadest at the centre, where it shows indications of bifurcating. In the cotype this longitudinal band is indicated only by a pin point of yellow.

The secondaries in the ♀ are vermillion and black. The black constitutes an irregular band along the costal and outer margins covering more than half the surface of the wing. The under surface of the thorax and abdomen are black. A larger portion of the thorax is black than in the male. The black band on the upper surface of the abdomen is margined by a band of vermillion, or reddish yellow. Antennae black.

Bred from one female specimen taken by Mr. Reiff at Rockledge, Fla., March 20, 1917.

Types ♂ ♀ in the author's collection. 12 ♂, 12 ♀ Cotypes in collection of Mr. William Reiff.

APANTESIS FLORIDANA F. OCHRACEA. F. NOV.

In this variety the primaries are the same as in floridana, but secondaries are lemon yellow and only slightly tinged with reddish at the base.

Type ♂ in collection of Mr. William Reiff. Cotypes 4 ♂♂ in collection of Mr. William Reiff and the author.

Plate will follow with No. 2.

Hints For Amateurs

By Nathaniel Stowers

In making a collection of any kind the work may be divided into three parts,—the actual collecting, the preparation of the specimens, and their preservation. Every collector knows the main points in all of these; but there are many small details, learned only by experience, that are essential in making a good collection. The purpose of these articles is to make the experiences of a

few available for the use of all. First, let us consider where and how to collect; later articles will deal with the preparation and preservation.

Many butterflies, especially V. antiopa and the interrogations, may be found in the fall around overripe fruit.

Certain species, like B astyanax, may be found in the early morning gathered about a muddy pool in the road, sipping the moisture.

The Papilios chase each other about in sunny openings in the woods and if frightened away often return to the same spot. Here also may be found the common "blues."

A meadow will yield several species of Argynnis during a season. A dry, sandy, sorrel-grown field may be covered with the common "copper."

A patch of milkweed will attract the common "milkweed" butterfly. A tangle of thistles is a favorite abiding-place of such species as the "Painted Lady" and the "Red-Admiral."

Many localities have local species. Watch for them! They increase the value of your collection and are fine for exchange.

Hundreds of moths may be collected under electric lights. Go before dark and look for them sitting on the grass, bushes or buildings, near the light! Go after dark and catch them while flying!

When walking through a grove watch the trees for Catocalas and other moths sitting on the trunks. Look sharp, though; for the wings are just the color of the bark and even the best eyes cannot always discover them.

Live females of many moths, especially, C. promethea, may be used to attract others of the same species. Place a lantern nearby to show what visitors she has and catch them with a net.

The Noctuidae can be easily captured by "sugaring" after dark. Put a two-by-four spot of molasses on the trees at dusk. After dark go round with a dark-lantern and collect.

The net should be used for taking specimens from flowers, from the ground, and, of course, while flying. In collecting from "sugar" and from tree-trunks a collecting-jar is necessary. There are several forms of these jars that can be obtained from any supply house. But a home-made one can be prepared by placing one ounce of potassium cyanide in a straight-sided jar and covering with half an inch of sawdust. The whole should then be covered with half an inch of Plaster of Paris. Hold the jar over the specimen on the tree. When it flies off the tree fit a tight-fitting cork stopper in the bottle. The one objection to this arrangement lies in the deadliness of the fumes. The commercial jars are made with a bulb, containing cotton at one end. This cotton may be wet with chloroform and the jar used without danger.

Cocoons or chrysalids may be found by careful search under stones or bark, on twigs or leaves, or about fences and buildings. Caterpillars and eggs may be found on or near the food plant. There is no locality, even with the present careful system of arsenic spraying, where the lepidopterist canot add to his collection.

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WANTED, to buy Catocalæ. Send list and price. H. J. Law, 131 Savin Hill Ave., Dorchester, Mass.

WISH to buy good specimens of the following species of Catocalæ: sappho, aggripina, moderna, barnesi, beaniana, meskei (from eastern localities.) Samuel E. Cassino, Salem, Mass.

Wanted to exchange insects from Fullerton, California for Eastern or Exotic material. Coleoptera and Lepidoptera preferred. E. G. Osterhoudt, 241 East Truslow, Fullerton, California.

WANTED to exchange eastern for western Catocalae. N. Stowers, 15 Anson St., Jamaica Plain, Mass.

WANTED—I desire series of Apantesis from all parts of North America. Would like at once specimens from Southern States. Will name and return if desired. Samuel E. Cassino, Salem, Mass.

WANTED to buy Exotic Butterflies, perfect specimens. Wm. Ewers, 67 Hampstead Road, Jamaica Plain, Mass.

Wanted to buy, briliantly colored Exotic Butterflies, perfect specimens. G. Colman, 64 Seaver St., Roxbury, Mass.

WANTED, for cash, specimens of Beetles of the genus Saperda. Only perfect specimens considered. Unusually large individuals, local variations of form color, etc., particularly wanted. Series from one locality of Saperda candida, concolor, cretata, fayi, moesta, mutice obliqua, populnea, puncticollis, vestita, etc., particularly wanted. John M. Geddes, 331 High Street, Williamsport, Pa.

WANTED, for cash, specimens of rare or uncommon Beetles from all parts of the U. S. Particularly Cerambycidae and Buprestidae. John M. Geddes, 331 High St., Williamsport, Pa.

THE LEPIDOPTERIST

SAMUEL E. CASSINO, PUBLISHER.
Salem, Massachusetts.

VOL. II February 25, 1918. No. 2

Editor's Corner The Lepidopterist is no longer the "Official Organ" of the Boston Entomological Club of Forest Hills, Mass. It will continue to be issued from the same address as for some months past. A number of colored plates illustrating articles in Vol. I will be published shortly and more will be given from time to time. Authors who desire illustrations are requested to write to the publisher in regard to the matter. Thanks are extended to friends who have sent addresses for sample copies. More will be gladly received. Descriptions of new material and anything of general interest are desired.

A New Catocala Form

By Wm. Barnes M. D. and J. McDunnough, Ph. D.

CATOCALA HERMIA FORM VESTA FORM. NOV.

In the fall of 1916 we received a batch of eggs from Mr. T. Spaulding which had been laid by a single ♀ captured in Deer Creek, Provo Canon, Utah and which at the time we took to be a specimen of a race of *briseis* which has recently been described under the name *minerva* as a new species by Cassino (1917, Lepidopterist I, 63), his type specimen belonging to a pale form closely approaching *albida* Beut. from Manitoba.

The larvæ fed up readily on willow catkins and resembled so closely those of *briseis* (which we knew well from breeding in previous years) that we failed to take any detailed notes on the various stages; we were successful in bringing twenty-five through to the imago stage but found to our great surprise that the species was not *briseis* at all; ten specimens were typical *hermia* and the remaining fifteen were a pale form much resembling certain specimens of *diantha* Beut. except for their large size and rather brighter pink secondaries; the primaries are of an even dark blue-gray shade without any of the heavy black shading found in *hermia;* as it seems advisable to name this form in order to distinguish it from very similar forms of *verecunda* and *briseis* we propose for it the name *vesta.*

The *briseis* group, which, based on the similarity of the larvæ, includes *verecunda, luciana, hermia* and *californica* and probably a few others whose life history is unknown, is one of the most puzzling in the genus; typical Eastern *briseis* is readily separated but in the Rocky Mt. region where it tends to pale forms it can prove very puzzling; the race *minerva* Cass. occurs in both pale and dark forms, the latter approaching typical *briseis;* one of the best means of separation from allied forms is found in the brownish area beyond the t. p. line; in briseis and its races this is composed of peculiar scales overlapping in such a way as to give the appearance of distinct vertical ribbing; this ribbing is practically lacking in *verecunda* and *hermia.*

Verecunda in its typical form bears considerable resemblance to *luciana* but is smaller and with less of the salmon shades to secondaries; its dark unicolorous from *diantha* is, as already noted, strikingly similar to *vesta* but lacks the blue-gray shade of primaries, being more of a dull olive or smoky brown with duller colored secondaries.

Hermia in some specimens is very close to *californica* and it was this resemblance doubtless which led Strecker to figure (Lep. Het., Pl. XI, fig. 13) a colora-

do specimen (which we have examined in the Field Museum and would refer to *hermia*) as this latter species.

Regarding *californica* there has always been a variety of opinions as to its identity; the type cannot be found; it was described from Yreka, Siskiyou Co., Calif. and according to Strecker (l. c. p. 98) was once in the Collection of the Am. Ent. Soc. at Philadelphia; he later (l. c. Suppl. III, p. 35) lists it as in his own collection but it is not to be found in either of these places. In the Carnegie Museum at Pittsburg we discovered an old specimen among some Noctuids formerly in the Mead Collection which was labelled 'Yreka, Cal.' and which was probably one of the type lot if not the type; this we believe identical with *mariana* Stkr. and have based the synonymy in our recent Check List on this comparison; our own collecting experiences in the Shasta region, which is quite close to Yreka, would point in this direction as among some sixty odd specimens of Catocalas that were captured at sugar over 80 per cent were this same species, the others being *montana* Beut., *allusa* Hlst. and *aholibah* Stkr.; the species shows both pale and dark suffused forms, a specimen of each form having served respectively for the descriptions given by Strecker (l. c. p. 99) and by Hy Edwards (Pac. Coast Lep. p. 76) which tended to still further confuse matters. The larva of *californica* is much darker brown than those of *briseis* and *verecunda;* further details concerning these we must reserve for the *Catocala* revision in course of publication by the Amreican Museum of Nat. History. Plate II.

The plates called for in papers by Drs. Barnes and McDonnough and Cassino are in process of engraving and will be sent with the issue for March or April.

How to Degrease Specimens of Lepidoptera

Mr. Philip Laurent of Philadelphia explains an easy and satisfactory method of cleaning greasy Lepidoptera. White blotting paper is placed on each side of

the groove of a setting board; the specimen to be cleansed is then placed in position with the under side of the wings resting on the paper. Blotting paper is now placed over the upper surface of the wings, and white twine is wrapped around the board, paper and specimen to keep every thing in place. Gasoline is gently poured over the blotting paper, being careful that none gets on the body of the specimen. The specimen is then placed in a box until the gasoline has evaporated, which takes but a few hours. At the end of this time if the grease has not all been absorbed by the blotting paper, the operation should be repeated, using fresh paper. After the second operation, if not the first, we will find our specimen as bright and clean as the day it was captured.

Two Hermaphrodites

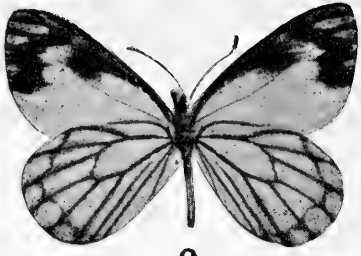
By Samuel E. Cassino

In No. 9 of The Lepidopterist I described a case of peripheral gynandromorphism in Collosamia promethia. The upper illustration in plate III figures a gynandromorphic specimen of Sabulodes arcasaria Wlk., from the collection of Mr. Max Rothke, of Scranton, Pa. which was taken in August 1906. The right wing of this specimen shows the maculation of the female, while the left side is that of the male.

The lower cut represents the Gypsy Moth (Porthetria dispar Linnæus.) In this monstrosity the thorax and abdomen are male. The right antenna is male and the left, female. Both primary and secondary on the right side have male maculations. The right primary is female, while the right secondary has the male coloration at the base, with dashes of the lighter female markings extending from the outer edge about half way to the base. This specimen was taken by Mr. C. V. Blackburn in Stoneham, Mass. in 1914 and is in the collection of the author.

The incident mentioned by Dr. Holland in his very excellent Moth Book in reference to the introduction of this pest into America is not quite correct.

1.



2.

3.

Plate IV. Vol. II., No. 2

Mr. L. Trouvelot, who was an accomplished entomological artist, did not "carelessly allow the moths to escape through an open window." Some of the cocoons were blown out of the window and Mr. Trouvelot, when the loss was discovered, not only searched diligently for the missing cocoons but advertised the loss in the American Naturalist and the local papers. Plate III.

A New Aberration

By Dr. John Adams Comstock

Curator of Entomology, Southwest Museum, Los Angeles, Cal.

NEOPHASIA MENAPIA FELDER, F. NIGRACOSTA ABERR. NOV.

Plate IV Figure 1, upperside. Figure 2, underside.

Primaries, upper surface, differ from typical form as follows: the black bar running along the costal margin is broadened as a suffusion posteriorly over the anterior half of the discal cell. It also is extended outward toward the apex, entirely obscuring the white of the subcostal area. This suffusion results in a partial obliteration of the white marginal spots, and a marked blurring of the white submarginal area between the discal cell and the apex. The underside of primaries show all the suffused areas carried through but to a lesser degree. The white marginal spots are not involved, however, in this suffusion.

Secondaries, upper surface shows a slight tendency for the dark venation to carry through from below, along the marginal area, this feature varying a little in the two specimens before us. The under side of secondaries show a tendency for heavier lineation of of the nervules.

Described from two males collected by the author in the high Sierras of Tulare County, California, altitude 9000 to 10,000 ft. (near Orlancha Peak).

Plate IV Fig. 1. August 20, 1917. Fig. 2. Aug. 25, 1917. Fig. 3 shows a normal male for comparison. Types in the author's collection at the Southwest Museum, Los Angeles, Cal.

A New Race of Catocala delilah Strecker

By Samuel E. Cassino

CATOCALA DELILAH F. UTAHENSIS.

In general appearance *utahensis* is much lighter than *delilah*. *Delilah* is a rich, Van Dyke brown, in some specimens a Roman sepia, while the general effect of *utahensis* is a bluish gray in the lighter portions of the superiors. The t. a. and t. p. lines are composed of black scales, but are not heavy and broad as in *delilah* or *desdemona*. The whitish scales in the apical patch of *desdemona* are bluish gray in *utahensis*. The line of whitish scales near the subterminal line in *desdemona* is only very faintly indicated in *utahenses*. The subterminal line is barely indicated except by two black arrow points. The scales of the median space are bluish gray instead of the rich brown of *delilah* and *desdemona*. The subterminal space or outer margin is darker, and between this and the median region the scales are lighter brown. A black spot on the costa above the reniform and a smaller one a little nearer the apex. Reniform not very distinctly marked; subreniform distinctly marked. The space between the outer margin and the t. p. line and extending from the inner margin half way to the costa is devoid of very distinct maculation, but in *desdemona* this is not the case.

The secondaries do not differ from *desdemona* except that the mediam black band is somewhat narrower.

All the specimens I have seen from Utah belong to this race, and are readily distinguished from those taken in Arizona or Texas, by the lighter coloration.

Type ♂ in the outhor's collection. Taken July 24, 1912 at Provo, Utah.

Paratypes 5 ♂ 5 ♀ in the author's collection taken from July 3rd to Aug. 3rd at Provo, Utah.

The accompanying plate V figures *delilah* Strecker and forms *desdemona* Hy. Edwards and *utahensis* Cassino.

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I DESIRE specimens of the Plusia group from all parts of North America. Wish to arrange with collectors for the coming season. Samuel E. Cassino, Salem, Mass.

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Salem, Massachusetts.

VOL. II MARCH 25, 1918 No. 3

Notes on the Larvae of Catocala and Their Habits

By William Beutenmuller, New York.

The larvæ in shape are elongated, tapering towards both extremities, rounded above and flattened beneath. They are smooth with the lower parts of the sides provided with filaments or fringes which are more or less prominent or are wanting entirely. The eighth segment is generally provided with a dorsal elevation or protuberance or is entirely smooth. The eleventh segment is also sometimes more or less elevated. The two first pair of abdominal legs in the young larvæ are rudimentary and scarcely discernible. The pairs of legs gradually develop in the succeeding stages and rarely if ever, attain the same size as the two last pair of abdominal, causing them to be semi-loopers in walking. The anal legs are elongated. The head of all the species is very characteristic in shape and subject to no modifications, as far as my observations go. The markings are quite constant and subject to very little or no variation. The head may be used as a good distinguishing character of closely allied species. On the first prothoracic segment beneath, is an eversible gland, as has been detected by Prof. Poulton. This gland probably emits a pungent liquid or disagreeable odor used in defense for the larva against its enemies. Mr. William White (Proc. Ent. Soc.

London, 1886, p. XVI) called attention to some remarkable processes upon the underside of the larvæ of *Catocala,* a character which is said to exist only in the *Catocalinæ.* Upon the underside of the two European species, *C. fraxini* and *C. electa,* he found a curious marking between the legs of the second and third thoracic segments, and a further series of marks of various forms upon the third, to seventh abdominal segments. These markings are of a dark mahogany brown color, fading into dull orange all around. (These markings in our species are black, brown, orange, red or pink). In connection with them there is found to be, when examined with a strong lens, a development of some strange process of a pocket-like appearance. These pockets are subcutaneous and are not actually upon the surface, as they appear through the transparent cuticle to be, and vary considerably in grade of development amongst the segments. The functions of these processes do not seem to be clearly understood. In the North American species these glands and processes are also present.

Notes on the Habits of Larvae of Catocala

By William Beutenmuller, New York.

All the larvæ of *Catocala* are arboreal and as a general rule nocturnal, while those of a few species are also sometimes diurnal in habit (*badia, antinympha, muliercula,* etc.). They lie hidden and motionless during the day in the crevices of the bark, usually at the base of the tree or shrub and often in the grass nearby. At dusk they become active and ascend the trees to their respective feeding places. They feed on the young and tender leaves on the tips of the branches. They eat only the soft parts leaving the midrib and usually the hard lateral veins. In color nearly all are brown or gray, varying from light to dark, owing to the more or less density of their black markings. The larvæ of *C. illecta* and *amestris* are gayly colored and differ in this respect from all other

known species. When at rest they lie lengthwise with their flattened underside closely pressed against their places of concealment. This habit, together with their protective coloration, makes it very difficult to detect them. When disturbed they jerk themselves from side to side and move off rapidly with the gait of a semi-looper. They may be trapped by placing boards or paper close to the trunk or on the ground at the base of their food-plants. They leave their feeding places about day break, but during their earlier stages do not wander far away. The larvæ of the following species have been described, but additional notes are still needed for most of these. *Aholibah, amatrix, amestris, amica, antinympha, aspasia* (?), *badia, beutenmulleri, blandula, californica, cara, cerogama, clintoni, coccinata, concumbens consor, crataegi, desdemona, epione, flebilis, grynea, habilis, ilia, illecta, innubens, insolabilis, irene, judith, lacrymosa, micronympha, minuta, meskei, muliercula, neogama, nubilis, ophelia, obscura, parta, paleogama, piatrix, pretiosa* (?), *pura, residua, retecta, relicta, serena, stretchi, ultronia, unijuga, verecunda, vidua, viduata, zoe.*

They are not general feeders and *oak, hickory, poplar and willow* are the principal food-plants. A paper on the same will soon appear in the Lepidopterist.

An Interesting Letter from Mr. Tom Spalding, Provo, Utah.

The following, taken from a personal letter from Mr. Tom Spalding to the editor, is interesting enough to print. It was not written for publication, but is published with Mr. Spalding's consent. *Editor.*

In re Mr. Grinnel's article in June 15 number I took a lot of Hepialus lenzi one year at Stockton. One night I was cooking my supper—I was leasing a block of ground on the 500 level in the Ben Harrison Mine, and "baching" in the old bunkhouse—about 8 o'clock, and outside the window on some scrub oak, I noticed what I thought to be a moth swinging on a

spider's thread, like a pendulum—forth and to—as the Cousin Jacks say, swinging in an arc of 6 or 8 inches. In a few minutes I looked again and he was still there, and again later, so I went out to investigate—and burnt the slapjack of course—took a jar along, and lo! and be dammed! it was H. lenzi. Next night I was going up the trail to the bunkhouse about 8 and saw another "swinging on a thread," went for my net and captured it, and another a little higher up. So I hunted for a while and took a few more but about 8.30 the supply gave out. Next night I started out about 8 and in a few minutes began taking them, but at or just before 8.30 they disappeared. I got a lantern and followed the trail to camp, and on the higher side, about a foot from the ground on oak leaves, sprigs of sagebrush, grass etc., I found several couples in coitu, but none flying. Sometimes there would be one or two ♂ ♂ camped alongside, watching the other fellow. I got quite a few that year—latter end of May and "Early June," but never saw one on the wing before 8 p. m. or after 8.30. Another funny way of doing business: the afternoon flight of Pseudohazis hera. They fly in the middle of August, from about 1 p. m. till 3 p. m., perhaps a little later. One year, at Stockton, they were very plentiful. I took a lot of their larvæ—they feed on sagebrush—and built a bughouse arrangement round a big sage brush and pastured them out on it. They sink a little shaft to pupate in. About the first to emerge was a ♀ and I was going to bed when I noticed three males trying to get inside. I was on the Graveyard shift all the time, those days, running a hoist at the Honorine air shaft, so slept in the middle of the day, some days. I got my net and three cyanide jars and when I got back to the bughouse there were two or three dozen ♂ ♂, highly excited, scrambling around on the outside. I got busy canning bugs, three bottles going at once, did not need any net. They climbed all over me and fought like Canadians. From that one ♀ I caught 82 ♂♂ in three days. As soon as two pair, the other males seem to lose all interest and fly away, sour

grapes, I reckon. Their power of scent must be something fierce. One day I watched a male flying backwards and forwards across the wind, east of the bughouse, till he had worked south, easily between 200 and 300 yards. He was clearly visible as he had a low green hill for a background. When at that distance he happened far enough West to cross the scent of a ♀ in the bughouse and immediately made a bee line back North to the ♀ and I nailed him with my hands before he had time to regain his breath. Lately they have been scarce. I think they pass the winter in the larval stage, the eggs hatching late in the Fall as I've seen small larvæ early in February, I think it was.

Three New Forms

By Addison Ellsworth, Johnson City, N. Y.

NEOLEXIA XIMENA N. SP.

Male expands nearly one and one-half inches. Antennæ filiform, light brown. Head and thorax brown; abdomen a shade lighter with irregular wavy rings and tip of tan or ecru. Primaries light tan; basal patch dark brown. A broad dark brown transverse band covering nearly one-third of the wing and bending at right angles near the center, extends from the costa, where it is the widest, to inner margin, and has the appearance of being laid up with blocks or squares, each square separated from the rest by a minute line of a darker shade. There are three light ecru spots within band on costal margin, of which the center one is much the largest. There is also an irregular three cornered brown spot on outer margin just below the apex. Discal dash or bar very dark brown.

Secondaries light tan bordering on pale yellow, with a sprinkling of brown near inner angle. The veins show up quite prominent giving the appearance of a scalloped sub-marginal band.

Under side reflects the markings of upper side but

in an inconspicuous manner, and much lighter. There is a small black or very dark brown discal spot on each wing.

Female slightly larger but not so clearly marked as the male.

Types ♀ and ♂ described from specimens taken in a pine and hemlock woods near New Milford, Pa., July 17, 1916.

Hadena formosus, n. sp. or var.

Same size and shape as Hadena arctia, of which it may be a variety. Head, thorax and primaries of a velvety, redish brown, so dark as to nearly obliterate all lines or markings, and give it a one color appearance. There is, however, the slighest indication of a sub-marginal band of a lighter shade, upon careful scrutiny. Abdomen and secondaries uniform black, and much darker than in the typical arctia. It has also a slight metalic lustre.

Described from one female taken at Johnson City, N. Y., August 21, 1916.

Limenitis archippus v. advena

Same size, shape and markings as normal form, except the black transverse median band on secondaries is bordered inside with a broad band of white, on under side of wing, and with a very fine white line on upper side.

Five examples taken at Johnson City, N. Y., in August 1917, three males and two females; but on two of them there is no indication of the white line on upper side of wings.

Apantesis californica

In vol. I No. 13 of The Lepidopterist in connection with the discription of A. californica I failed to give the locality. This specimen was taken at Eldrigde, Cal.

Samuel E. Cassino.

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FLORIDA Lepidoptera for exchange. Addison Ellsworth, Johnson City, N. Y.

WISH to buy good specimens of the following species of Catocalæ: sappho, aggripina, moderna, barnesi, beaniana, meskei (from eastern localities.) Samuel E. Cassino, Salem, Mass.

Wanted to exchange insects from Fullerton, California for Eastern or Exotic material. Coleoptera and Lepidoptera preferred. E. G. Osterhoudt, 241 East Truslow, Fullerton, California.

I DESIRE specimens of the Plusia group from all parts of North America. Wish to arrange with collectors for the coming season. Samuel E. Cassino, Salem, Mass.

WANTED to exchange eastern for western Catocalae. N. Stowers, 15 Anson St., Jamaica Plain, Mass.

WANTED—I desire series of Apantesis from all parts of North America. Would like at once specimens from Southern States. Will name and return if desired. Samuel E. Cassino, Salem, Mass.

Wanted to buy, briliantly colored Exotic Butterflies, perfect specimens. G. Colman, 64 Seaver St., Roxbury, Mass.

FOR SALE—Perfect butterflies in papers. Lyc. icaroides, Grapta satyrus and marsyas at 10c. each; Lyc. acmon, Lemonias virgulti, Phyciodes montana, and Hesperia occidentalis at 5c; Colias barbara at 12c; and Colias keewaydin at 3c. In lots of twenty of each species, 6c each. Also pinned moths for sale. Esther P. Hewlett, Nellie, California.

WANTED — Correspondence with lepidopterists everywhere, for exchange of specimens, experiences and ideas. Addison Ellsworth, Johnson City, N. Y.

THE
LEPIDOPTERIST

SAMUEL E. CASSINO, PUBLISHER.
Salem, Massachusetts.

VOL. II APRIL 25, 1918 No. 4

Notes on Collecting, Preparing and Preservation Of Lepidoptera

By Rudolf C. B. Bartsch, Roslindale, Mass.

In Vol. II, No. 1 page 4 there appeard an article "Hints for Amateurs" by Nathaniel Stowers which contains nothing but rambling suggestions. This is to be expected from a collector as young and inexperienced as Mr. Stowers. "Hints" if they are to be of any value must contain information definite enough to really make it possible for a collector to find any certain species or group of species. The suggestion that when walking through a grove you should look carefully over the trees for Catocalas is so vague that is has no value. It makes considerable difference whether your grove is composed of evergreens, or oaks, willows, hickories and poplars. Your chances in the grove of evergreens would be extremely small but among the other trees your chances would be excellent, if the season is right. A collector in the latitude of the New England states would have no luck until late June or early July, while on the other hand collectors in the southern states are all through looking for Catocalas by early June.

Certain groups of the Noctuidæ can be taken at "Sugar" but not at all seasons and seldom easily,

atmospheric conditions playing a great part. The locality of the grove to be "sugared" also makes a great difference. I have collected large numbers of Catocalæ and other Noctuidæ in a grove at Concord, Mass., in the day time on the trees, but this same grove at night under a "sugar" treatment yields absolutely nothing. This is due no doubt to the heavy underbrush interfering with the flight of the insects. A grove of medium sized trees, not too close together with little or no underbrush usually makes an ideal place to try "sugaring." A path running through a grove makes it much easier to find the treated trees after dark. The "sugar" used consists of molasses, mixed with a little stale beer, if possible with a little rum, and 2 or 3 drops of Amylacetate. The mixture of beer and molasses is boiled down, making it as thick as possible witout solidifying when cool and then is thinned a little with a wineglass of rum. Just before using drop in 2 or 3 drops Amylacetate. The mixture should be placed on the trees at sun down, collecting commences as soon as it becomes dusk. Some success can be had in the early spring. May and June do not as a rule, in this vicinity, yield very much. July to November being the most satisfactory time for this method of collecting.

Collecting by "light," in the larger towns and cities, can be carried on under the arc lights in the streets; many rare and beautiful moths being thus found, which probably would not be taken any other way. For those living in the country a powerful kerosene or acetylene lamp with the rays thrown an a white cloth will give good results.

The use of living females to attract males of their own kind is restricted to a few species, mostly the Saturnidæ and the Cossidæ. Mr. Stowers did mention the fact the the female must be virgin and must be confined in a cage, so that the males that are attracted can not mate with it, for once that copulation starts the attraction for the males ceases. This method of collecting is especially worth while with the Cossidæ

for the males are rarely found and are listed high in all price-lists. The females can be found resting on the trees in day time during May and June in this vicinity.

The following data on when and where to collect certain of our moths and butterflies is given for the lattitude of Boston, Mass., collectors to the north or south having to make allowances for distance from this lattitude. Washington, D. C. about one month to six weeks earlier, Carolinas about two months and Florida up to three months earlier. As soon as the frost leaves the ground we look on the hemlock trees for Feralia jucosa, a beautiful yellowish green moth with black and white markings, a week or two later another member of same family, Feralia major. This is found on the pine trees, is emerald-green with black markings and considered quite a capture. About this time the early Geometridæ begin to appear, including the Phigalias and the Nyctobias, some of which are not common. The early and quite rare Noctuids including the Psaphidias, Eutolype, Copipanolis, are also found in early April on the tree trunks and at night under the lights.

(*To be continued*)

A Light For Collectors

Who has not wished for a suitable light for collecting? And generally wished in vain. There is one, however, and it is easily obtainable. It burns gasolene, weighs less than three pounds, has a new style mantle which does not break with ordinary usage, is nickel-plated, stands about twelve inches high, and is four hundred (400) candle power.

The retail price is about $10.00, but the editor of The Lepidopterist has arranged to supply subscribers at a wholesale rate (about 5.25 delivered). If interested write The Lepidopterist.

A New Form of Catocala Minuta

MINUTA FORM HISERI F. NOV.

Plate VI Fig. 4

This form is readily distinguished from *minuta* and its varietal forms, *parvula* and *mellitula* by the comparatively uniform coloration of the superiors. In the twenty-five specimens I have examined the color is a brownish grey while the other forms are Van Dyke brown.

The reniform is obsolete, but the sub-reniform is clearly discernible. There is no indication of a basal dash. There is a slight tendency to a darker shade under the sub-reniform and outside the t. a. line but the dark maculation in the inner margin of *mellitula* and *parvula* is abesnt.

The t. p. line apparent but obscure except near the costa, where it is narrow but well defined. The metalic lustre seen in most specimens of *minuta* seems to be entirely lacking in this form. The black bands on the underside are appreciably darker than in the other forms of *minuta.*

Type ♂ in the author's collection.

Paratypes10 ♂ 9 ♀ in the author's collection all taken at Nevada, Iowa, by Mrs. O. F. Hiser, (for whom the form is named,) from June 5th to June 13, 1917.

The Food-Plants Of Catocala

By William Beutenmuller, New York.

The following notes on the food-plants of *Catocala* may prove of value to collectors wishing to rear the species from their eggs. I would suggest that collectors having additional notes publish the results of their observations, in order to prepare a more complete list of the food-plants, a number of which are still unknown.

WILLOW AND POPLAR.

Amatrix, babayaga, briseis, californica, cara, concumbens, diantha electilis, faustina, irene, luciana, meskei, nevadensis, portia, parta, pura, relicta, stretchi, unijuga, verecunda.

HICKORY, WALNUT AND BUTTERNUT.

Angusi, consor, clonympha, flebilis, habilis insolabilis, judith, lacrymosa, luctuosa, neogama, obscura, palæogama, piatrix, residua, retecta, robinsoni, serena, subnata, vidua, viduata.

OAK.

Aholibah, amasia (?), *chelidonia, coccinata, delilah, epione, elda, herodias, ilia, micronympha, similis, verrilliana.*

APPLE, PLUM, THORN AND CHERRY

Blandula, clintoni, cratægi, grynea, mira, pretiosa, titania, ultronia.

WAX MYRTLE

(*Myrica cerifera*) and Sweet-fern (*Comptonia peregrina*).

Antinympha, badia, muliercula.

LINDEN

Cerogama

LOCUST

(*Robinia pseudocacia*)

Amestris, nubilis. The former feeds also on False Indigo (*Baptisia fruticosa*).

HONEY LOCUST

(*Gleditschia tricanthos*)

Illecta, innubens, minuta.

BUTTON-BUSH

(*Cephalanthus occidentalis*).

Connubialis (*Sancta Hulst*). More information regarding the correctness of this food-plant is needed.

OAK

Aholibah, beutenmulleri, desdemona, ophelia, zoe.

WILLOW, POPLAR

Aspasia, diantha, californica, hermia, faustina, irene verecunda.

Notes On Distribution

By A. W. Lindsey, Iowa City, Ia.

The identification of specimens taken by the writer in Iowa during the past ten years frequently brings to light a few records which very considerably extend the published ranges of the species concerned. Among the butterflies about ninety-three percent of the species found in the state are eastern or more distinctly central, while the remaining few are western, and include one or two whose occurrence in the state is decidedly anomalous. The moths are so numerous that no such summary as this can yet be drawn, but such of the material on hand as has been examined indicates that this portion of the lepidopterous fauna presents very similar characters, and in illustration of this probability a number of interesting records are presented here. With the exception of *E. deflorata* and *T. zenobia* it will be noted that all of the specimens listed represent eastward extensions of the ranges of species heretofore regarded as distinctly western.

Ctenucha venosa Walker; Dyar's List, p. 78: "Mex., Tex., Col." Neumœgen & Dyar, Jn. N. Y. Ent. Soc. I, 104, 1893: "Texas to Venezuela". Holland, Moth

(*To be continued*)

Book, p. 102: "The species ranges from Colorado to Mexico".

One ♂ taken at Sioux City July 21, 1915. This specimen was in perfect condition, and could hardly have flown a long way.

Ecpantheria deflorata Fab. Neumœgen and Dyar, Jn. N. Y. Ent. Soc. I, 175, 1893; "Southern Atlantic States to New York".

A larva feeding on *Liparis liliifolia* was taken on Sept. 25, 1917 by Prof. Shimek, in the vicinity of Iowa City. Considering the nature of both flora and fauna in this part of the state it seems strange, not that this specimen was taken here, but that the species is not recorded more frequently.

Maenas vestalis, var. *amelaina* Dyar, Neumœgen & Dyar, Jn. N. Y. Ent. Soc. II, 2, 1894: "California and the Pacific Northwest."

Dyar's List, p. 87: "Pacific States."

One ♀, Sioux City, May 1916, det. W. T. M. Forbes.

Apatela quadrata Grote. Smith, Proc. U. S. N. M. xxi, 106, 1899: "California; British Columbia; Calgary, Canada; Nebraska and Kansas".

Both Nebraska and Kansas are large states, but the capture of one ♀ at Sioux City, Aug. 21, 1917, extends the range beyond the most liberal interpretation of Smith's remarks.

Raphia coloradensis Put.-Cr. Ent. Amer. ii, 142, 1886: Described from specimens from Colorado.

Smith, B. 44, U. S. N. M., p. 32, 1893. "Canada to Texas; Colorado; Northern States, and Canada in June and July."

Three specimens, Sioux City, May 22, 1914; July 19, 1916 and Aug. 15, 1916. The range of variation exhibited by the three specimens is marked, but all are of this species.

(To be continued)

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Beginning with the issue of May The Lepidopterist will be edited by Louis W. Swett and Samuel E. Cassino.

THE LEPIDOPTERIST

EDITORS
SAMUEL E. CASSINO,
LOUIS W. SWETT

PUBLISHER
SAMUEL E. CASSINO
SALEM, MASS.

VOL. II | MAY 25, 1918 | No. 5

Editor's Corner

We wish to notify our subscribers that "The Lepidopterist" from now has no longer any connection with any club or society. It is published and financed solely by Mr. Samuel E. Cassino of Salem, Mass. "The Lepidopterist" will cover an entirely different field from the past, devoting its pages to structure and biology, with collecting notes, lists of insects, descriptions of new forms, and newest methods of entomotaxy.

Notes on the Eggs of Catocala

By William Beutenmuller, New York

The eggs of *Catocala* are laid in masses in the crevices of the bark, and little concerning them is known.

They are spheroidal in shape or are more or less flattened on top and at their base. The surface is grooved longitudinally, with many furrows. When flattened they are usually laid overlapping one another somewhat like the shingles on a roof (*C. palæogama*). The eggs remain unhatched until the following spring, after being laid, and all the species are single brooded excepting *Euparthenos nubilis* (and possibly *Allotria clonympha*), which is double brooded and hibernates in the pupa-state. The egg stage lasts from about 150 to nearly 300 days, for example,—

eggs laid in June, July or August, do not hatch until late in April, May or June the following year (in the latitude of New York). Mr. A. Koebele obtained eggs of *C. clintoni* which hatched only after 15 months had past. This, however, may be considered an abnormal condition. In color the eggs are dirty white, gray purplish or greenish gray. One of the best methods of obtaining the eggs is from females captured in the field and permitting them to deposit in captivity. This may be done by keeping the females alive, feeding them on sugar water, or sweet fruit juices. The moth will then, usually, deposit on pieces of bark or thin cloth, folded into pleats, in the breeding cage or jar, which should be kept well ventilated. The eggs of the following species have been described. *Aholibah, amatrix, aspasia, beutenmulleri, californica, cara, clintoni, desdemona, ilia, irene, minuta, ophelia, palæogama, pura, retecta, relicta, stretchi, verecunda, vidua, zoe.*

Melitaea anicia: Two New Aberrations

By Dr. John Adams Comstock
Los Angeles, Cal.

Mel. anicia Dbldy. & Hew.

MELANODISCA aberr. nov.

Plate VI. Figure 1, upper side. Figure 3, under side. Figure 2 shows upper side of typical form.

This aberration is of the typical form of anicia which has heretofore gone under the name of *brucei* Edw., namely the small dark high alpine variety found in Colorado, and which Drs. Barnes and McDunnough have shown to be synonymous with the type.

DESCRIPTION. *Primaries, upper surface*: the the discal cell contains two red patches, one at the lateral end, the other running across the centre. The

remainder of the discal cell and also the entire discal area is solid black. In the limbal area the black band of the typical form is replaced with a brick-red and the outer row of yellow spots is nearly suppressed. The inner row remains but is considerably blurred, and is a little more prominent on one of the two specimens before us (Figure 3) than on the other.

The submarginal black line is intact, but blurred, and the marginal line of red is much as in the typical form. The nervules are finely dusted with black.

Secondaries, upper surface: all of the typical yellow markings are completely suppressed and their places taken by a black suffusion. The entire wing, in fact, is a solid black with the exception of the marginal band of red, one row of red spots running through the centre of the limbal area, and a single blurred irregular red spot in the outer and upper portion of the discal cell.

Primaries, under surface: much as in the typical, but with the yellow of the discal area largely suppressed, and its place taken by a dark powdery suffusion, more marked anteriorly. The limbal area has the reds and yellows blurred and indistinct. The submarginal black line is blurred, and partially or nearly suppressed.

Secondaries, under surface: all of the yellow spots of the basal and discal areas have been suppressed, and their place taken by an irregular mottling of black and brick-red. The line of red spots running through the limbal area on the upper surface is repeated below but is more clearly a line, also it is margined with yellow. The marginal red border is intact, and internal to it there is a clearly defined black band, varying somewhat in width on the two specimens.

Described from two females, both taken by the author in Hall Valley, Colorado, at an elevation of about 10,000 feet. Figure 1, taken July 18th, Figure 3 taken July 20th, 1902.

Types in the author's collection, Southwest Museum, Los Angeles, Cal.

RUBROLIMBATA aberr. nov.

Plate VI, Figure 4, under side.

This aberration, I am inclined to believe, is of the race of anicia termed capella Barnes, which occurs not uncommonly at lower levels than the typical form in Colorado.

Primaries, upper surface: all of the yellow spots suppressed except for one line which runs across the inner portion of the limbal area. There is a repression of the black bands and mottlings of the limbal area, giving the appearance of a brick-red wide margin. The venules, however, are edged with black, and there is also a fine black submarginal line. The basal area is predominantly brick-red, with black lines crossing the discal cell, and a darker powdering at the inner edge of the area. All yellows in this area are suppressed.

Secondaries, upper surface: all yellow spots and lines are wanting, and all black bands in the limbal area missing except for the black lineation of the nervules and a submarginal narrow band. This gives the same characteristic brick-red wide margined appearance as that of the primaries, which is further heightened by an almost complete suffusion of the basal, and inner part of discal area with black. One semilunar red spot only occurs in the outer part of the discal cell.

Primaries, under surface: not dissimilar to *melanodisca* except for the lighter color of the discal cell and costal erea.

Secondaries, under surface: the black bands and spots of the typical form have been suppressed except for the striping of the nervules, a fine line running around the basal area, and a narrow submarginal stripe. The marginal and discal areas are a solid yellow crossed longitudinally in the center by a red band. The basal area is predominantly brick-red, with some irregular yellow spots margined with black. The pattern is well brought out in the plate. (Fig. 4.)

Described from one male, taken by the author in South Park, Colorado, July 13th, 1902.

1.

2.

3.

4.

5.

6.

Plate VI. Vol. II No. 5

Type in the author's collection, Southwest Museum. Los Angeles.

Figure 5 represents an interesting variation of *Melitæa nubigena Behr*,—figure 6 representing the typical form of this species. Both the specimens are males. In the variation it will be noted that a blurring of the outer submarginal row of yellow spots has occurred on the primaries. There is also a widening of the red band in the limbal area of the secondaries.

The specimens were taken by the author in Tulare County, Calif. August, 1917, at an elevation of 8500 feet.

Notes On Distribution

By A. W. Lindsey, Iowa City, Ia.

(*Continued from page* 31)

Euxoa nivcilinea Grote. Smith, B. 38, U. S. N. M., p. 139, 1890: Arizona, New Mexico."

Sioux City, Ia., Sept. 7, 1915, 2 ♂. Both fresh specimens and very well marked, though the secondaries are quite heavily powdered with fuscous along the outer margin above.

Tæniocampa utahensis Smith, Proc. U. S. N. M. x, 473, 1887. Described from specimens from Utah. In his description Smith says: "S. t. line obsolete, barely traceable by a few pale scales," but in the specimen in the writer's collection, this line is very well marked, even better that in some specimens of *oviduca*. The genitalia of this specimen agree with the figure of the genitalia of *utahensis* which Smith gives, (Proc. U. S. N. M. xii, pl. xxiii, fig. 8) as well as with the original description of these organs.

Sioux City, Ia., Sept. 7, 1915, 1 ♂.

Dasypoudea lucens Morrison. Smith, Trans. Am. Ent. Soc. x, 214, 1882: "Nebraska, Montana, Colorado." Dyar's List, p. 214, "Rocky Mts."

Sioux City, Ia., July 16, 17, 1917. 2 specimens. I note that this has also been recorded at Decorah, in the northeastern part of Iowa, by Mr. A. F. Porter (Ent. News ix, 372, 1908.), and I have seen specimens

from the southwestern part, so that Iowa may well be included in its normal range.

Tarache virginalis Grote. Dyar's List, p. 214, "Arizona". Smith, Trans. Am. Ent. Soc. xxvii, 79, 1900: "Denver, Col.; Arizona."

Moderately common at Sioux City. I have also a small series taken in Dickinson County in August, 1915.

Thysania zenobia Cramer. A single battered specimen of this great moth was picked up on the campus of the State University in late September or early October, 1917, and later came into the possession of the writer through Mr. L. L. Buchanan, at that time assistant in Entomology in the University. Smith says that its range is "Florida; Southern States; occasional northward; Colorado" (B. 44, U. S. N. M., p. 367) in this country, and Holland mentions it as "a very abundant species in Mexico and South America" (Moth Book, 279.).

Fernaldella fimetaria G. & R. Packard, Monograph of the Phalænidæ of North America, p. 229, "Waco, Tex., June 6, Aug. 18," "Dallas, Tex., May 15."

Dyars List; p. 303, "Rocky Mts."

Xanthotype crocataria Fabricius

With descriptions of new species.

By L. W. Swett, Lexington, Mass.

My attention was attracted to the differences of a series of Xanthotype crocataria Fabricius, as I was working over the collection of the Museum of Comparative Zoology at Cambridge, Mass. I tried to arrange this species according to markings, but found that specimens from certain localities differed widely from one another. Next I made slides of the genitalia of the different forms and an examination of the same showed different species and races. I appealed to my kind friends for more material and was fortunate in securing large series from numerous localities. These showed, after a careful study of the genitalia, more races and speccies. It was then necessary to determine what

crocataria of Fabricius could be and select a type answering nearest to the description.

Fabricius in the "Supplementum Entomologiæ Systematicæ" Page 450, No. 43, 1798, describes crocataria as "a yellow geometrid from Virginia." The description calls for a yellow geometer with minute dots and transverse spots, the latter having pale centers. It is evident from an examination of a series that this description might apply to a number of races and species. The females, from all localities, tend in most instances, to having the pale centered innner marginal spots. The males of the same species may or may not have the pale centered spots, so it is evident that this is of no specific value. Therefore, it is rather difficult to select a type from such a meager description. The locality Virgina shows it to be an Atlantic Coast form and probably about the same as would occur around Washington, D. C., New Jersey or New York, possibly Pennsylvania. I have a species among my material which answers to Fabricius descriptions and occurs in the states mentioned above. This species I have selected as the type because it is most readily recognized from the genitalia and les liable to be confused with the more complicated forms. It is very difficult to classify from the markings except in one or two cases as practically all species look about alike. There may be good characters in the markings which could be made out when a large series of bred specimens and life histories are available but until then we must rely on the genitalia.

Figures I. and II. show typical male and female genitalia of crocataria Fabricius.

I would have liked to have given the life histories in this paper but hope this will pave the way for a future paper on that subject.

The genitalia of male crocataria shows a broad, kite-shaped penis with several spines on the outer margin near top. There is a wart-like projection on the upper costa of valvæ, covered with spines, which is called the ampulla and is, in some cases, an important character. There is a horn-like projection near the base of the valvæ which I have termed the ceros, and in typical crocataria this organ is much reduced.

(*To be continued*)

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J. Siclair, Dealer in Rare Insects, Los Angeles, Cal., can furnish such rarities as P. pergamus, P. brevicauda, P. indra, P. oregonia, Vanessa hagiæa, P. curvifascia Cossus centerensis and mnay others. List free.

FERTILE eggs of Sphinx drupiferarum, Ceratonia amyntor, Marumba molesta, Citheronia regalis, 50 eggs, $1.00. Actias luna, Automeris io, 50 eggs, 50c. No orders for less than 25 eggs accepted. Cash with order. A. J. Potter, East Killingly, Conn.

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THE
LEPIDOPTERIST

EDITORS
SAMUEL E. CASSINO,
LOUIS W. SWETT

PUBLISHER
SAMUEL E. CASSINO
SALEM, MASS.

VOL. II JUNE 25, 1918 No 6

Xanthotype crocataria Fabricius

With descriptions of new species.

By L. W. Swett, Lexington, Mass.

(*Continued from page* 39)

The organ in the middle of the valvæ called the harpe, is rather short and blunt in crocataria. A glance at the penis and ceros of typical crocataria will separate it from all other forms. The minor characters of crocataria are the prominent ampullæ, broad rounded valvæ and serrate lower costa, or in some species smooth.

The female genitalia consists of an elongated bag or bursa and a round, doughtnut-shaped body called the signum, which rests at about the center of the bag.

I will discuss the genitalia further and the important parts under some of the other species.

The life histories and notes will be given at the end of this article so I will not include them here.

Typical crocataria occurrs around Washington, D. C., New Jersey, New York, Massachusetts, Pennsylvania and Illinois, and undoubtedly in most of the Atlantic Coast States, possibly as far south as Georgia, but I have no other records than those above. A series of typical crocataria will be figured later in this article as the plates of the other forms were made first, and the markings are not so important as the genitalia.

In 1825 Huebner described a form of crocataria as "Therapis citrinaria," Zutrage Exotische Schmetterlinge" Page 26, No 250, figures 499 and 500. Huebner's figures are very good and show the female with pale centered inner marginal spots, and from the description it would undoubtedly seem to be crocataria. The type was from Herr Escher taken in "North America" and according to records Escher collected from Georgia to Pennsylvania. Therefore, without much doubt citrinaria is an Atlantic States specices and evidently the same as crocataria. The name citrinaria is not given the full termination in either Dyar's or Barnes and McDunnough's lists, so should be corrected.

In 1886 Hulst in the Entomologica Americana Vol, I, page 208 described caelaria as a form of crocataria but gave no type localities. The description calls for a yellow geometrid with brownish spots having pale centers. It is unfortunate that Hulst selected this form as both Fabricius and Huebner's names have priority. The variation is not a marked one and occurs in most species and forms and might be produced in rubbed specimens. Thus it would seem that Hulst's name, caelaria must fall before the older one, crocataria. His two types are also not conspecific, one being from Long Island, New York, and other from Colorado. The Long Island type is in the collection of the Brooklyn Institue of Arts and Sciences and the Colorado type in the Hulst collection at New Brunswick, N. J. I shall restrict the type to the Long Island, N. Y. specimen rather contrary to custom, as it leads to less difficulties. Mr. Samuel E. Cassino kindly examined the type of caelaria and sketched it for me. He stated that it was in wretched condition, practically only the right and lower wings remaining, but the markings at inner margins plainly showed the brown spots with pale centers. The sketch of the type leaves little doubt that it is a typical crocataria and probably a female as there are very few strigations. The Colorado type, as stated before, is not conspecific and I shall describe as new later on in this paper. Typical crocataria so far as I know is not abundant in any particular place and is scattered over quite a wide area of territory. It may occur throughout New England, but so far Massachusetts is my only record, then south to Georgia possibly, and then through Illinois to Turtle Mountains,

North Dakota. The North Dakota specimens appear to be exactly like eastern except for more serrate tip to valvæ where there is one or two rather longer spines than usual. The markings of the North Dakota specimens are very similar to those from the Rocky Mountains, yet the genitalia are entirely distinct. Possibly with the series of slides and a long series of specimens there might be minute differences in the markings, but they are not apparent at present.

In Bedford, Mass. I took typical crocataria flying about in the dense wooods among the brake ferns, and it also comes to light readily. There are sometimes two, possibly three, species occurring in the same state. and no doubt this has lead to confusion. Then again some of the species are double brooded but there are only minute differences in the genitalia here. For convenience I have called the upper and lower edge of the valvæ, upper and lower costa. Sometimes the lower costa in certain species is smooth without serrations in other species it is very serrate. However, too much stress should not be laid on this as I find in apparently double brooded forms one brood may have the costa more serrate than the other. The penis is very reliable, the shape and character of spines being important. The horn, or ceros, as I have termed it, at base of lower costa is another very important character. The shape of the valvæ and harpe carry some weight but vary some in the same specimens. However, possibly more slides might give more definite results.

I cannot give the life histories of the new species so I will give here the references in regard to crocataria Fabricius as we have known it in the past, and in some cases they may apply to the new forms. I am greatly indebted to my kind friends Dr. Barnes and McDunnough, Watson and Lutz of the the American Museum, New York, Jacob Doll of the Brooklyn Institute, Dr. H. G. Dyar of the National Museum, and Samuel E. Cassino, for loan of large series of specimens which has made this paper possible. Also Mr. Nathan Banks has helped me greatly in the loan of specimens from the Museum of Comparative Zoology, and with suggestions in regard to nomenclature and literature. Mr. S. E. Cassino of Salem, Mass. who drew many of the plates for Packard in his Monograph of the Geometrids, executed the plates and

drawings for this paper, and I owe him a debt of gratitude for his assistance.

The records of crocataria so far as I can find them are given below for what they are worth. Packard in his Monograph, Plate IX, Fig. 52 gives an idea of some of the specimens of crocataria. Others seem to lack the strigations almost entirely. Whether this be the true crocataria may be a matter for conjecture as no locality is given so far as I can see.

Holland in the "Moth Book, Plate XLIV, figure 39, male and figure 40, female, published in 1903, really gives the best idea of eastern crocataria. This form is not especially typical as the transverse spots should have pale centers but I think this should be disregarded and all considered typcal crocataria whether having pale centered spots or not.

This Atlantic state species will now become the genotype of Xanthotype Warren.

On W. H. Edwards' Types of Catocala

By Wm. Beutenmuller, New York.

While preparing my monograph of North American catocala I made an effort to locate and consult all the types of the species in collections, but could find no trace of those described by W. H. Edwards. These were supposed to be with the American Entomological Society, but I could not find them there nor in any other collection. I consequently wrote to W. H. Edwards shortly before his death asking for information on the matter and he informed me that all his catocala went to Mr. Julius Meyer, Brooklyn, N. Y. After Mr. Meyer's death his collection was bought by the Kny-Scheerer Co., New York, and Dr. G. Lagai writes me that the catocala part of the same was sold to Hon. Walter Rothschild, Tring, London, England. If Edwards' types are still extant the same will probably be found in the Rothschild collection. They are as follows: C. marmorata, californica, tristis, walshi, nebulosa, serena, similis, gracilis, minuta, var. parvula,

1. Xanthotype rufaria Swett ♂ Holotype, Glenwood, Fla.
2. " rufaria Swett ♂ Paratype, St. Petersburg, Fla.
3. " rufaria Swett ♂ Paratype, Fort Lee, N. J.
4. " urticaria Swett ♂ Holotype, Nova Scotia.
5. " urticaria Swett ♀ Allotype, Nova Scotia.
6. " urticaria form Watsoni Swett ♂ Holotype, New Foundland.
7. " attenuaria Swett ♂ Holotype, Dallas, Texas.
8. " attenuaria Swett ♀ Allotype, Dallas, Texas.
9. " attenuaria Swett ♂ Paratype, Greenville, Miss.

Notes on Collecting, Preparing and Preservation of Lepidoptera

By Rudolph C. B. Bartsch, Roslindale, Mass.

(Continued.)

During the warm days of late April and early May we find the little reddish colored Geometer Brefos infans, reminding one of our small copper-colored Chrysophanus hypophlæas, flying among the birches and alders. The cutting of gagshes in the birch-trees allowing the sap to flow makes a very good bait for this little moth.

Among the butterflies appearing at this time of the year, we have the early seasonal form of Colias philodice, Pieris rapæ forma immaculata, the various forms of Lycæna psuedargiolus, and the sombre colored Theclas. The Theclas and Lycænas can be found in sunny barren wood paths where violets are blooming or on the blue-berry blossoms along the edges of the paths. Many of the Theclas are uncommon and are in many cases quite local in their distribution. For the collector desiring members of the Hesperidæ group the month of May is most ideal in this vicinity. With the blooming of the lilacs, aszelias and rhododendrons we find many of our Hawk moths seeking the "Sweets" late in the afternoon, just before it before it becomes dusk. As the season advances the number of species increases rapidly until the maximum is reached in the middle of June. Then the flight decreases gradually to the early part of August when when there is again a steady increase to the latter part of September. From this time on the flight of the insects depends on the weight of the early frosts. To collectors of the Noctuid group, especially the forms which appear in the fall and hibernate over the winter appearing agagign on the wing in early spring, I would recommend "sugaring" in the late fall. At this time many of the "hard-to-get" species are at seasons quite plentiful, in beautiful condition, and

usually very plentiful at "sugar. Here are included the Zylinas, Agrotis, Acronyctas, Mamestras and allied groups. I have taken over 500 perfect specimens of these groups in one night's "sugaring" at Concord, Mass. in the middle of October.

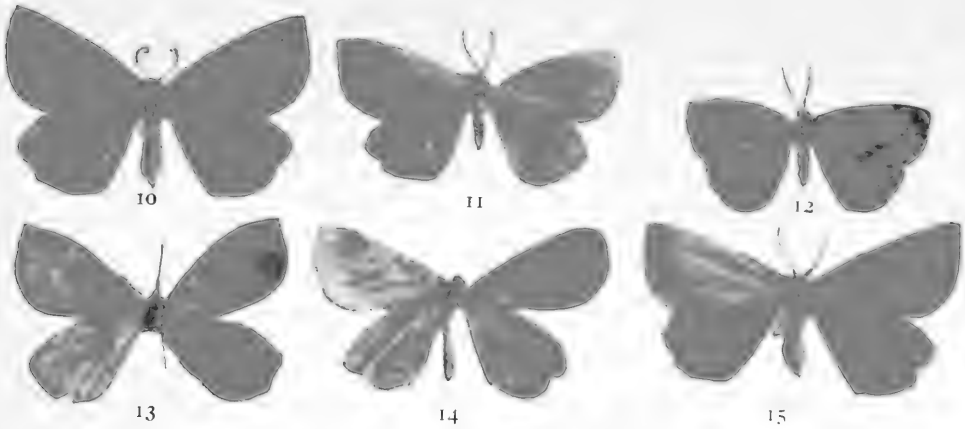
For Catocalæ collectors there seems to be a general rule, which of course has exceptions, that seems well to follow. The appearance of the various species can be divided quite definitely into three groups as follows: first appearing, the oak feeders, followed by the willow and poplar feeders, and last the hickory feeders. The groups overlap to some extent and such species as C. badia, C. ultronia, C. antinympha being found mostly during the middle period.

A New Form of Catocala Sappho

CATOCALA SAPPHO FORM CLEIS FORM NOV.

By Samuel E. Cassino, Salem, Mass.

This form of sappho is so different from the type described by Strecker that it deserves a name. In the typical sappho the t. a. line is broad and black on the costa but soon fades out and almost disappears, but in sylvia it is of a uniform blackness and very pronounced. The t. p. line is much better defined than in sappho, and plainly geminate. The sub-terminal line is faint but fully developed. The scales on veins near the outer edge are darker than in sappho. The reniform is composed of brown scales, surrounded by a line of white scales defined by black. There are more dark scales between the reniform and the t. p. line than in sappho. Sub-reniform black on the inne side but open on the outside. The line of brown scales which follows the t. a. line is well defined and darker, almost black on the costa and the inner margin. There is a dash of brown scales above vein 1. b. extending from the t. a. line to the t. p. line. Terminal lunules darker than in sappho. The under side of the wings differ from sappho in having the white bands consid-



10. " barnesi Swett ♀ Allotype, Plumas Co., Calif.
11. " manitobensis Swett ♂ Holotype, Auverne, Manitoba.
12. " vagaria Swett Variety New Washington, Penn.
13. " barnesi Swett ♂ Holotype, Plumas Co., Calif.
14. " vagaria Swett Var. turbidaria Swett ♂ Holotype, Plum Creek, Colo.
15. " vagaria Swett Var. turbidaria Swett ♀ Allotype, Clear Creek, Colo.

erably wider.

This is a most beautiful form of our most attractive catocala which Strecher very appropriately called "the ermine of the catocalæ."

Taken at Tampa, Florida, May 18, 1918.
Holotype. ♂ Six Co-types in the author's collection.

NOTE

In LEPIDOPTER*A* Mr. William Reiff calls attention to the description of Catocala minuta f. hiseri Cassino in the Lepidopterist for April 25 which seems to him to be anonymous. It is usually understood that unsigned articles and notes are by the editor, but that there be no misunderstanding is may be well to state that the author of the description is Samuel E. Cassino.

The Occurrence of Hemileuca lucina in Massachusetts

By Rudolf C. B. Bartsch, Roslindale, Mass.

Hemileuca lucina has never to my knowledge been previously recorded as being found in the state of Massachusetts.

While Trout-fishing in a brook running through Camp Devens, during the latter week in May I was very much surprised to find several clusters of larvæ of this pretty moth feeding on Meadow Sweet (Spiræa salicifolia). The larvæ had already passed through the first moult. Having collected larvæ of Hemileuca lucina for several seasons at Raymond, N. H., I feel that there is not the slightest doubt as to the correct identity of the larvæ found at Camp Devens. However, I shall rear as many as possible from this new locality and report the results at a later date.
June 1, 1918.

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VOL. 11 JULY 25, 1918 No. 7

A Few Missing Types Located

By Rodrigues Ottolengui, New York City.

In Smith's Catalogue of Noctuidæ of Boreal North America (*Bulletin* 44, *U. S. National Museum p.* 249), speaking of Plusia formosa he says: "Mr. Grote mentions incidentally in the Can. Ent. XXI, 124, that he returned it (the type) to Mr. Treat after description. What became of it afterward, I cannot say."

This winter, while looking over the collection in the Museum of Comparative Zoology, at Cambridge, Mass., I was surprised to find a specimen of this species labeled "type." Subsequently I wrote to Mr. Nathan Banks in regard to the authenticity of this "type" and he wrote to me as follows: "Formosa was described from the collection of J. H. Treat of Lawrence, Mass. by Grote in 1865. The Treat collection was given to us some years ago and contains several Grote types. The label reads: 'Leptina formosa, Grote, Type. Law.' I have no doubt it is Grote's original label. The specimen is also labeled 'J. H. Treat's Coll.'"

Grote described formosa as a Leptina. In Smith's Catalogue above mentioned, (1893) it is listed as Plusia. In Dyar's List of North American Lepidoptera (*Bulletin* 52, *U. S. Museum*, 1902, *p.* 198) it occurs among the Polychrysia. Hampson in his cata-

logue (*Vol. XIII,* 1913, *p.* 583) calls it Abrostola. Barnes and McDunnough, 1917, follow Hampson.

In the Cambridge Museum I found another very interesting specimen. In Smith's Catalogue (*Bulletin* 44) speaking of vaccinii Hy. Edw., he says: "The type is with Dr. Thaxter," but he gives no authority for this statement. In the Edwards Collection, now in the Museum of Natural History in New York, there is a specimen of this species carrying a label in Edwards's handwriting reading "vaccinii. Type 2." This would seem to indicate that he did return the primary type to Mr. Thaxter. In his description Edwards says: (*Entomologica Americana, Vol.* II, *p.* 170) "we owe the discovery of this species to Mr. Roland Thaxter who took it on Mt. Washington, N. H. in July, and also raised it from the larva found by him feeding upon a species of vaccinium."

The Thaxter Collection is in the Cambridge Museum. I did not find any specimen of vaccinii with a type label, but I did find one carrying labels from which I quote the following interesting statements.

"White Mts. Alpine. ♀ Laid eggs Aug. 5th." A larger label reads: "Eggs truncated, spherical, base rounded off, closely beset with vertical narrow ribs, too numerous to calculate, coming to the apex above and below, and regularly and closely wrinkled or bead-like; dirty, pale greenish yellow, with irregularly scattered black dots, each giving rise to an attenuated streak, all perhaps foreign to it; Diameter .03 in. Height about .024 in; Laid about 40, very adhesive, on Aug. 5th. Hatched about Aug. 13. When dead, seen to greenish, hairy worm with two pairs of abdominal prolegs." The words "seen to", near the end of the above do not fit the context, and are perhaps misread as the writing is very minute. Possibly Mr. Thaxter meant to write "seem to be," or "seen to be."

As I found no other specimen of vaccinii among the Thaxter material, I have taken the liberty to attach a manuscript label reading "Probably the primary type. Ottolengui."

In my monograph of this group (*Journal of the*

New York Entomological Society, Vol. X, P. 66-7), speaking of culta I said: "I examined the type of culta in the presence of Professor Lintner and he gave me one of the two accompanying specimens which he declared were from the original lot. I make this statement as authenticating my specimen because since Dr. Lintner's death I have been unable to find the type in the Albany collection."

I made a second search for this type about a year ago, but it was absent from the collection proper. A while later, however, the State Entomologist, Mr. E. P. Felt, found a "duplicate" box containing some specimens, and this box evidently was before us when I conferred with Prof. Lintner. In it was the missing type of culta, together with some specimens of vaccinii, bearing my labels, and evidently donated by me at that time.

I belive that I may consider my specimen to be a genuine "paratype" as it bears a manuscript label written by Prof. Lintner, and a MSS. locality label reading "Albany, March 5th, 1883, Dr. Salvin." In Lintner's communication (*Lintner's Second Report Ins. N. Y. P.* 94, 1885) he says: "bred from larvæ found destroying plants in a hot-house in Troy, N. Y., in the month of February."

I have a manuscript note by Dyar on this subject reading "May not this be some South American species introduced with the plants " Dr. Dyar is probably correct in this surmise, as this specimen, placed by myself as a synonym or rogationis, and by Hampson grouped with dyaus, rogationis and others as oo, is much closer in color and size to the Central and South American forms, which seem to be rather uniformly smaller than those found in the United States.

I would be grateful for information concerning authentic types of the Plusiinæ; especially would I like to know what became of Grote's types of species, described after his main collection went to the British Museum.

New Species of Catocala

By Samuel E. Cassino, Salem, Mass.

CATOCALA ATALA SP. NOV.

Expands 68 mm. Head and thorax dark gray; abdomen pale brown. Primaries dark gray, sprinkled lightly with brown scales. Lines black and heavy. T. p. line broad and black on the costa, then narrow on the sub-costal vein, forming a tooth, thence at right angles to the costa, forming two more dentations, the middle one being the smallest, then extending to the inner edge parallel with the outer margin in a zig-zag line of six serrations. The t. p. line is followed outwardly with a more or less distinct line of white scales. The t. a. line is heavy, very broad on the costa, irregularly dentate. Space between the t. a. line and base uniformly dark gray. Indistinct black spot on the costa near base. Reniform black, connected with costa, center with light gray scales. Sub-reniform large, distinct, enclosing very light scales. Space between reniform and t. a. line very light, shading darker towards costa and becoming very light near the sub-reniform. Median space below reniform dark; deepest on inner edge near t. p. line. Sub-terminal well defined very dark gray. Terminal lunules dark. Veins near the outer edge marked with dark scales. Space between t. a. and sub-terminal lines gray, but lighter midway between costa and inner edge.

Secondaries. Rather light red. Median black band broader than the red band, reaching almost to the inner margin. Marginal band as in briseis. Under side of secondaries much as in groteiana. Fringes white.

Habitat: Hymers, Ontario, Canada, Sept. 18, 1911. Holotype ♂ in the collection of the author.

CATOCALA BARBARA SP. NOV.

Expands 70 mm. Head and thorax brown; abdomen light brown. Primaries pale grayish brown,

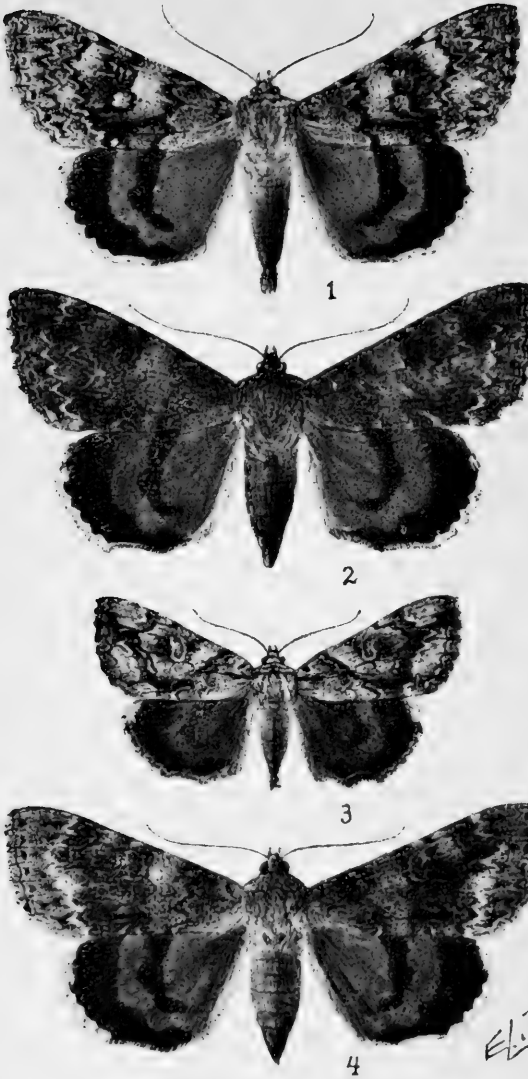

Plate IX. Vol. II. No. 7

Fig. 1 Catocala atala Cassino
Fig. 2 Catocala barbara Cassino
Fig. 3 Catocala mira var. dana Cassino
Fig. 4 Catocala elizabeth Cassino

somewhat like arizonæ, but with lighter maculations and ground color not so dark. The lines are well developed but not so much contrasted as in arizonæ. This species resembles irene somewhat but is quite distinct. T. p. line geminate with lighter scales in center, dark on the points of serrations; fades out just before reaching the costa; with long dark dash parallel with inner margin. T. a. line broadly geminate with center of slightly lighter scales. Space between the t. a. line and base and between the t. p. and t. a. line of nearly even color, but with a dash of light scales just inside and below reniform. Reniform dark, prominent, with light center, connected with costa by two dark spots; a dark spot just inside and three dark spots outside. Sub-reniform defined but not prominent, with lighter scales. A curved line, indistinct in part of its course, extends from the sub-reniform nearly to the costa between the reniform and the t. p. line.

Secondaries, lightish red. Median black band not as wide as the red ending some distance from the inner margin. Marginal band broad. Beneath, the median band is broader than the red. Fringes black and white.

Habitat: Los Angeles, Calif.

Holotype: 1 ♂ in author's collection.

Catocala elizabethi sp. nov.

Expands 70 mm. Head and thorax dark gray; abdomen ashy brown. Superiors dark. T. p. line black, not well differentiated, is lost in very dark space on the costa and is considerably confused throughtout its course by a very dark shade, slightly tinged with dark brown scales near the center. Subtreminal not prominent, is bordered on inside by very light scales. Apical space, and between s. t. line and outer edge, uniform dark gray. Prominent black spots on the outer edge, between the veins. Fringe black and white. T. a. line heavy and black followed inwardly by line of lighter scales. Basal space very

dark. Reniform dark in middle, ringed with light scales and surrounded by black. Sub-reniform well defined and composed of dark brown scales. Reniform and sub-reniform bordered outwardly by a large somewhat triangular patch with one angle touching the t. p. line. Between the reniform and t. a. line a dash of white scales.

Secondaries: red; median black band attains the inner edge; red band same width as black. Fringes white, becoming sordid near the anal angle. The bands of the under side of wings similar to those above.

Habitat: Truckee, Calif. Taken in August.

Holotype ♀ in collection of the author.

CATOCALA MIRA VAR DANA VAR NOV.

Expands 48 mm. The primaries are a pale grayish brown, not as even and dark as in mira, and lack the rusty brown scales which the characterize the type form. The reniform and sub-reniform are lighter, and the apical dash and lines are more prominent, owing to the light ground color. The maculations being more distinct than in mira give this form a general appearance similar to pretiosa from which, however, it is entirely distinct. The line of brown scales near the t. a. line is much deeper than in mira. The fringe on the back wings of the allied forms is alternately black and yellow. In dana, next to the outer band it is yellow bordered by brown. Otherwise, hind wings are similar to mira, but not as deep yellow. The chocolate line outside the t. p. line is more prominent than in mira.

Habitat: Springfield, Texas.

Holotype ♂ in the collection of the author.

Notes on the Pola—Minuta Croup of Melitaeas, With Description of a New Species

By John Adams Comstock, M. D., D. O., F. E. S.
Curator of Entomology, Southwest Museum,
Los Angeles, Cal.

In examining a series of Melitæa secured in the Monache Meadows of Tulare County, during the summer of 1917 I was led to an intensive study of the Pola-Arachne-Nympha group.

The result of this investigation has led to the conviction that we have in California a distinct species, or perhaps well differentiated local race of this group.

In defining the special characteristics of these nearly related forms, a few notes are in order.

The various members of this group which have received descriptions are:

MELITAEA

minuta, Edwards
Proc. Acad. Nat'l. Sciences, Phila. 161, 1861.
Type loc. "Texas"

pola, Boisduval
Ann. Soc. Ent. Belg. xll, 56, 1869
Type loc. "From one specimen caught in Sonora."

arachne, Edwards
Trans. Am. Ent. Soc. 11, 372, 1869.
Type loc. "One female, Colorado."

nympha, Edwards
Pap. IV, 53, 1884
Type loc. So. Arizona.

approximata, Strecker.

Authorities are agreed that approximate is synonymous with minuta.

(*To be continued*)

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THE LEPIDOPTERIST

EDITORS
SAMUEL E. CASSINO,
LOUIS W. SWETT

PUBLISHER
SAMUEL E. CASSINO
SALEM, MASS.

VOL. II AUG. 25, 1918 No. 8

Notes on Collecting in Florida

By J. G. Bonniwell

There are many features of collecting in Florida that are entirely unlike those in the North and other sections of the country. For instance sugaring for moths. This is a standby method of obtaining quantities of lepidoptera in other parts of the United States but it has been my experience, coupled with that of many others, that sugaring in Florida is a failure. I have tried dozens of different mixtures and have yet to find one that will repay a collector for his time, much less his trouble.

The most successful method that I have found to collect moths in this warm part of the country is by light trap. I use a powerful gasoline gas-mantle lamp that is wind and rain proof. My method is not original as I am indebted to Messrs. Denton Bros. for the suggestion. I use a single large flat pan (or a set of four smaller ones) about thirty inches square and three or four inches deep. In this I put a couple of inches of water and pour on this sufficient coaloil so as to form a thin film. The lamp, which burns two whole nights with one filling, I set in the center of this pan, using a block of wood or any convenient object as a rest for it. The

moths are attracted to the light and in their downward dash land in the film of oil which kills them. Next morning I carefully remove such specimens as I wish to keep and laying them on a sheet of blotting paper the excess oil is soon absorbed. I then immediately place them in a shallow pan filled with gasoline and allow them to remain in same for half an hour. Again I remove them with care and place on a fresh sheet of blotting paper, which together with the air, rapidly absorbs the effects of the gasoline bath and as soon as they are thoroughly dry I pin them or place in relaxing jar for future mounting. By this method my wife and I have taken hundreds of nice specimens and the beauty of the scheme is that it "acts while you sleep."

In seaching for larvæ in the semitropical climate of Florida the collector must bear in mind that as a rule the food plants, even of the more common things, will be different. Then, too, in the matter of season he will find accepted months for laval state of certain species, decidedly topsy-turvy. As an example, I will say that I have taken freshly hatched specimens of the common Ute. bella during every month of the year with the possible exception of December. Seasons overlap and are very confusing. There does not seem to be any definite dormant season as in the North—most things being a case of almost continuous performance, excepting, of course such things as are purely single-brooded. Even in the latter case the actual season of emerging is often much longer than elsewhere.

The following are a few notes on the food plants and habits of some of the species that I have particularly observed.

Dahana atripennis, Grt: This rare little moth I have taken on flowers near evening during the months of March to June. It deposits its eggs singly on the fresh new filaments or leaves of the Spanish Moss. The eggs are small—about the size of Aut. brassicæ white, but turn a lovely shade of lavender just before hatching, which takes place in from four to five

days. The little caterpillars eat the soft outside of the leaves and show a tendency to burrow into the flower and leaf joints. The pupæ are to be found encased in a loose cocoon, usually fastened to the moss and on account of its similar gray color it is a singularly difficult thing to see.

Pholus fasciatus: The food plant of this is given as any species of Viticeæ but I have never found a caterpillar of this lovely hawk-moth on anything save a species of Jussiæa, probably J. leptocarpa—a tall shrub-like weed with yellow primrose-like flowers, that grows in damp places. The caterpillar of this moth is dimorphic, some are banded in colors like a stick of candy, other are almost solid green with only a slight white striping.

Syntomedia epilais: The oleander hedges of Key West are a fruitful hunting ground for this species while in the larval state. I have not taken it north of that point.

Cydosia majuscula: The food plant I do not know but I suspect the oak as I have found numerous larvæ and pupæ on fences that enclosed groves of oaks, the queer little baskets hanging to the barbed wire.

Apantesis placentia: Have found the caterpillars on the common low scrub oak but could not swear that same was its food plant.

Sierarctia echo: Holland gives the food plant of this as the Sabal palmetto but my experience after raising hundreds of specimens is that the natural food plant is the "coontie" or Zamia integrifolia. They will eat the blossom buds of the low saw-palmetto but I have yet to find one on sabal or cabbage palmetto.

Halisidota longa: the food plant is a wide-bladed marsh grass that grows near fresh water lakes and ponds. The caterpillars can be found just before dark and look very much like Isia isabella.

Composia fidelissima: the flies can be taken on the wing in the bright sunshine on most any of the extreme lower Keys of Florida.

Prodenia ornigalli: have raised hundreds on the melon-pawpaw tree (papaya).

Dilophonota ello and alope: Look on the under side of wide leaves of the melon-pawpaw tree for caterpillars.

Rhodophora guaræ: For the larvæ of this beautiful moth you must look on the flower stems of the Guara and as it is pink like the flowers you will not find them easy to locate.

Artace punctistriga: Oak and possibly ash.

Oiketicus abbotii: Oak and various plants. The "bags" exactly resemble Thy. ephemeræformis.

Sabine stimulæ: To the lengthy food plant list of this pest I wish to add the cocoa-nut tree. I have seen them almost denuded by "pack-saddle" caterpillars.

Logoa pyxidifera: Oak and possibly pear as in common with other Megalopygidæ.

At a later date I may send in some data on the food plants of the diurnals and also as to the sort of places a collector is apt to find them.

Descriptions of New Catocalae

By William Beutenmuller, New York City.

CATOCALA ROSA SP. NOV.

Forewings with the ground color rose colored, evenly overlaid with brownish scales. T. a. line geminate filled with pink. T. p. line narrow with the dentations not sharply pointed and followed by a narrow pink line. The lower inward bend of the t. p. line is very indistinct, and at the end almost straight to the inner margin. S. t. line pinkish, scarcely edged with black outwardly. Reniform, pink, black-ringed and not strongly defined. Subreniform closed, pinkish dusted with brown, dark ringed, and very indistinctly connected with the t. p. line. Between the t. p. and s. t. lines is a paler pinkish shade at the middle and subapically there is a slight blackish shade. Terminal row of spots small, black. Fringes pinkish, with a blackish, very narrow, wavy line. Hind wings pinkish

Apantesis californica Cassino
Vol. 1, No. 13, page 100

Apantesis floridana Cassino ♂
Apantesis floridana Cassino ♀
Apantesis floridana f. ochracea Cassino
Vol. II., page 2

red, median black band not broad, terminating bluntly, some distance before the inner margin. Outer black band continuous. Fringes creamy white, slightly brown on the veins, and almost wholly so at the hind angle. Head and thorax pink mixed with brown-black. Expanse, 68 mm.

Habitat: Huachuca Mts., Arizona.

One male. Type, Coll. Samuel E. Cassino.

Catocala huachuca sp. nov.

Forewings pinkish gray heavily overlaid with black particularly at the base and the lower half of the wings to the subterminal line, obscuring the t. a. line and lower half of the s. t. line. T. a. line black and scarcely evident. T. p. line black and rather sharply dentate, the two teeth opposite the cell rather long. Reniform dark ringed filled with brown, and preceded and followed by a lighter shade dusted with black extending to the t. a. and t. p. lines. Subreniform pale, scarcely visible in the dark shade, and probably connected with the t. p. line. S. t. line broad, pinkish with the dentations vaguely edged with black. Between the t. p. and s. t. lines at the middle dull pinkish, and from the teeth opposite the cell to the apex is a blackish shade. Fringes concolorous to the outer pinkish gray part of the wing. Hind wings pinkish-red, median band rather narrow, slightly bent terminally and ending some distance before the inner margin. Outer black band continuous; fringes yellowish white mixed with brown. Expanse: 70 mm.

Habitat: Huachuca Mts., Arizona.

Type. One male. Coll. Samuel E. Cassino.

Catocala ritana sp. nov.

Forewings uniform purplish brown, evenly overlaid with darker and glaucus scales. All the lines and markings present, but not strongly defined and contrasting. T. a. line blackish, geminate, with three outward curves. T. p. line black, with the teeth not very strongly defined. S. t. line

glaucus, edged with blackish. Reniform, black ringed. Subreniform scarcely evident, only indicated by a somewhat paler shade. Below the apex to the s. t. line is an indication of a blackish shade. Hind wings dull red, with the median black band broad, and almost of uniform width, and bluntly pointed some distance before the inner margin. Outer black band quite broad, the inner part almost even and but very slightly excavated before it reaches the hind angle. Fringes sordid white, cut with brown. Head and thorax color of the forewings. Expanse, 70 mm.

Habitat: Santa Rita Mts., Arizona. Altitude 5-8000 feet. (F. H. Snow.)

Type. One male. Coll. Samuel E. Cassino.

Catocala elsa sp. nov.

Forewings pale ashen gray, somewhat glaucus, sparsely dusted with brown scales. T. a. line broadly geminate, brown, most distinct on the costa; it is preceded by a dark brown line extending to the lower end of the basal line. T. p. line with long sharp teeth, with a long, broad, inward loop at the lower part. The dentations are blackish, followed by a very narrow pale gray shade. S. t. line wavy and not continuous, and vaguely defined, especially at the middle where it is confluent with the brown shade between the t. p. and s. t. lines. Reniform, brown, dusted with blackish, and with two shade lines of this color to the costa. Subreniform large, closed and very narrowly connected with the t. p. line. It is dark ringed, and filled with creamy brown. Terminal part of wing pale grayish, row of spots small and black. Fringes gray, lined with brown. Hind wings, yellowish red. Median band rather narrow, slightly curved and ending some distance before the inner margin. Terminal black band continuous, slightly notched with yellowish red outwardly and at the apex. Fringes white cut with brown on the veins. Head and thorax gray, mixed with brown. Expanse 70 mm.

Habitat: Prescott, Arizona.

Type. One male. Coll. Samuel E. Cassino.

CATOCALA CASSINOI SP. NOV.

Forewings evenly and uniformly covered with light blue and black scales. T. a. line black and scarcely defined, most distinct on the costa. T. p. line practically lost in the ground color with the dentations scarcely evident. S. t. line bluish with the black dentations not strongly indicated. Terminal row of spots, lunate and touching on the veins with outward dashes. Reniform black ringed, filled with bluish scales. Subreniform slightly indicated by creamy white and its shape not defined, and with no indication of being connected with the t. p. line. Between the t. a. and t. p. lines below the middle of the wing is a black longitudinal dash. Fringes gray. Hind wings red. Median band irregular with slight indication of extending to the inner margin. Outer black band rather broad, continuous. Fringes sordid white, brownish at the base. Expanse 80 mm.

Habitat: Vineyard, Utah. (T. Spaulding.)

Type. One female. Coll. Samuel E. Cassino.

CATOCALA GEORGEANA SP. NOV.

Forewings black, rather heavily overlaid with pale blue scales. T. a. line faintly black, not contrasting, almost obscured by the black ground color and filled with bluish white. T. p. line black, distinctly defined, and with long and sharply pointed teeth as in C. nevadensis. S. t. line dentate, broad, pale bluish white edged with black, with indications of black streaks to the row of terminal black spots which are marked with white dots outwardly. Fringes, bluish gray. Reniform confluent, black with a few bluish scales, and a central whitish dot. It is preceded by a small whitish patch. Subreniform, whitish, scarcely indicated, connected with the t. p. line and with the black ring lost in the ground color. Space between the t. p. and s. t. lines creamy white, dusted with black, especially at the costa and inner margin. On the costa on the inside of the t. p. line to the lower part of the long tooth is a narrow, bluish white streak.

(*To be continued.*)

THE LEPIDOPTERIST

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Descriptions of New Catocalae

By William Beutenmuller, New York City.

(*Continued from page* 63)

Head and thorax, blackish, mixed with gray and white. Hind wings, red. Median band quite broad and not reaching the inner margin. Outer band, black, ad scarcely excavate, before the hind angle. Fringes, white, mixed with brown at the base. Expanse 78 mm.

Habitat: St. George, Utah.

Type. 1 male. Coll. Samuel E. Cassino.

CATOCALA STRETCHI VAR. MARGHERITA VAR. NOV.

Forewings pale bluish gray, rather heavily and evenly overlaid with black scales giving a dark gray appearance to the wings. The transverse lines are quite indistinct and almost obliterated in one example. When evident, the wavy t. a. line is preceded by an ochreous shade overlaid with black scales. The dentations of the narrow t. p. line are short with the two opposite the cell but slightly longer than the others. The s. t. line pale with black dentations, very indistinct in some examples or wanting. Reniform in a black cloud, extending to the costa in two black marks.

Subreniform ochreous, with black scales, narrowly black ringed, and connected with the t. p. line. Terminal row of black spots small. Hind wings, salmon pink, with the median black band narrow and terminating in a distinct hook some distance before the inner margin. The outer black border broadest at the anterior margin, gradually becoming narrower, deeply excavate or broken at the hind angle. Terminally, the wing is rather broadly salmon pink, with black dashes on the veins. Fringes, white mixed with brown on the veins, except at the apex. Expanse 65-70 mm.

Habitat: Mendocino Co., California.

Type. Coll. Samuel E. Cassino. Cotypes Coll. William Beutenmuller.

CATOCALA BRISEIS VAR. CLARISSIMA VAR. NOV.

Forewings rather light gray, dusted with black atoms. Transverse lines and other markings black and strongly contrasting on the pale ground color. T. a. line broadly geminate. T. p. line narrow, edged with pale gray outwardly. S. t. line, pale gray edged with large black lunules inwardly. Terminal row of black spots large, edged with pale gray. Space between the t. p. and s. t. lines creamy brown, especially along the middle. Reniform in a black cloud. Subreniform black ringed, narrowly open and connected with the t. p. line. Hind wing as in briseis. Expanse 63 mm.

Habitat: Cartwright, Manitoba, Canada.

(E. F. Heath.) Winnipeg, Canada. (J. B. Wallis.)

Type. Coll. Samuel E. Cassino. Cotype Coll. William Beutenmuller.

Life History of Catocala nuptialis

By O. F. and J. S. Hiser, Nevada, Ia.

The egg is shaped like an inverted bowl, battened on top with 18 elevated, much branched ridges running up the sides, and short ridges between them. Color of egg is light gray.

Eggs began hatching May 18, 1918. Mr. E. A. Dodge of Santa Cruz, Cal. had advised us to try Amorpha canescens for this group *C. whitneyi abreviatella* and *nuptialis*, as he and his brother, the late Geo. M. Dodge, were almost sure that was the food plant. When the first *nuptialis* hatched we offered it leaves of *A. canescens* which it refused and died without eating. They hatched slowly one or two at a time, and when the next one hatched on May 20th we gave it a leaflet of *Amorpha fruticosa* which it ate readily.

The larvæ when newly hatched are 1-8 in. long. 1st. molt May 25th. 5-16 in. long, body color white striped longitudinally with dark brown lines. 2nd molt, June 1st. The larvæ now take on the markings that they keep with a few minor changes through all later molts. 3rd. molt, June 8th. 4th molt, June 16th. Spun, June 27th and pupated July 1st. Moth emerged July 27th.

Mature larva is 2 1-8 in. long. Head white, a gray line slightly divided at the jaws runs through the middle of the face over top of the head. On each side of this a black branching line from back of head down the face nearly to the jaws. A double line outside of this much branched on back of head extends down the face and connects as one line above the jaws. Still another line outside of this on each side with several short black lines running obliquely along the side of head. Lobes have an orange shade.

After second and third molt the line running down center of head is black instead of gray and much heavier and extends over the second segment to the third where it branches into the dorsal line of three rows of dark dots.

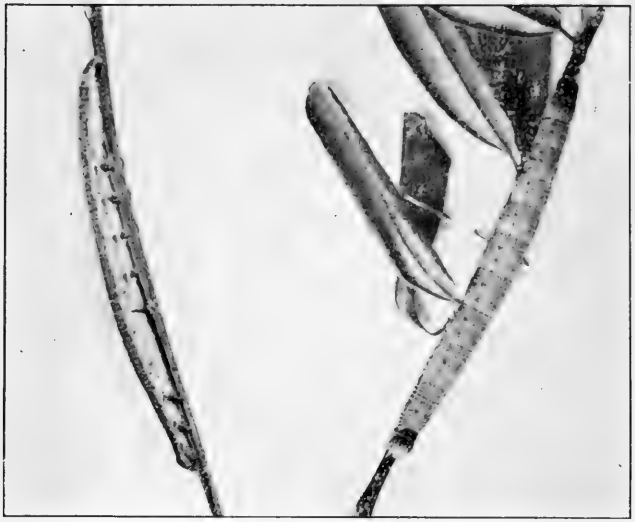
This larva is a smooth slender worm. It has no horn or other elevation anywhere, and has no fillaments. The ornmentation consists entirely of numerous spots or dots arranged in longitudinal bands with the white of the body color showing as narrow lines between. The dorsal line is composed of many fine black dots gradually widening to the 9th segment,

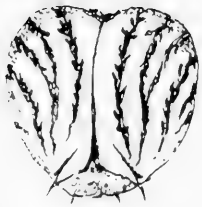
where it again narrows to the caudal shield. Subdorsal line is a broad band of heavier black spots. Lateral line, three rows of fine dots, the outer two black and center one brown. Spiracular line a broad band of very heavy black spots. Spiracles on lower edge and black. Between each of these rows there is a single row of faint brown dots running through the center of white stripes. The black spots on the second segment are large and arranged very irregularly making that segment appear much darker than any of the others. Below the spiracular line there is a broad band of the white body color with a line of brown spots through the center. This band is a distinctive feature. Below this is a band of fine black dots just above the legs. True legs white with black markings. Prolegs and caudal shield white with black spots. Tubercles orange with a fine short hair springing from each. Ventral surface white, entirely covered with small black dots. A large black spot on each segment. The four on the segments between the prolegs large and very black. All others longer than wile and all are connected by a heavy line of fine black dots.

Pupa slender, 7-8 in. long, deep purplish brown and covered with a rather heavy white bloom.

On June 16th we beat a few plants of Amorpha fruticosa and got 6 larvæ ranging in size from one fourth to one and a quarter inch long. A few days later we beat another clump of the same plant and got 7 more larvæ. These varied some. Eight were like the ones reared from the eggs and were undoubtedly nuptialis. One differed only in having the markings more pronounced and another with the markings less pronounced than the one described.

There were three others that were surely a different species. They were from three fourths to one and a quarter inches long and had the bands on the body arranged in the same way as nuptialis described, but the spots and dots were larger and very black and did not have the line of brown spots running through the white spaces between bands. There was no brown





Catocala nuptialis Walker

on it at all, and was a much blacker looking worm owing to the heaviness of the black spots and the absence of the brown. The line down center of head was not so heavy as in the nuptialis larvæ and was broken in the middle. The large one died when two inches long and the two small one were parasited. Were they larvæ whitneyi or abreviatella? Nuptialis appears here on the wing about a month later than the other two, but we have taken belated specimens of whitneyi along with the first nuptialis.

To our great disappointment we were unable to get any of these wild larvæ through. A large number of them were parasited and the others died. This seems to be a very delicate species as we were only able to rear to maturity one nuptialis from nine hatchlings. This was not due to lack of care, for a "million dollar baby" never got better care than this interesting family of worms.

The growth of the larvæ hatched from the eggs was so slow and they seemed so delicate that we were in doubt as to whether they were getting the proper food plant, but finding them in such numbers on Amorpha fruticosa established it as their true food plant without question.

Mr. Dodge says that in Nebraska where Amorpha canescens was common these three species were also common, and where it was scarce they were feeding on canescens. After finding them on A fruticosa we examined a lot of A. canescens, but failed to find any, and the canescens or "shoe string" showed no signs of having been eaten.

Drawings of egg and head were made by Mr. E. A. Dodge from eggs, a cast head and description of head sent him by us. Photographs of larvæ by Frank Ingalls.

Notes on the Pola—Minuta Group of Melitaeas, with Description of a New Species

By John Adams Comstock, M. D., D. O., F. E. S.
Curator of Entomology, Southwest Museum,
Los Angeles, Cal.

(*Continued from page* 55)

The clearing up of a long-standing misidentification of minuta and pola has resulted from Drs. Barnes and McDunnough's figures and notes on the two species (Contrib. Vol. III, No. 2, p.92). Oberthur's figure of the type of pola (Et. de Lep. Comp. IX, 2, Fig. 2188) is practically the same as W. G. Wright's figure of so-called minuta (Pl. XX. Fig. 194.) The specimen shown was taken in Southern Arizona. The true type locality of pola is doubtful. Dr. Skinner believes it was Sonora, Mexico, and Drs. Barnes and McDunnough "anywhere in the desert region of southeast California." We have seen specimens identical with this figure from Arizona, close to the California border, in the lower Sonoran life-zone. These are doubtless as near topotypes as can be secured. They do not differ in any particular from specimens we have taken in the lower zones throughout Colorado.

Dr. Henry Skinner believes arachne to be a synonym of pola. Drs. Barnes and McDunnough retained it in their list as a race of pola, but they have in recent letters affirmed that there seems to be no essential difference. It is safe therefore to place arachne as a synonym. This would leave only nympha and minuta to consider.

From Drs. Barnes and McDunnough's notes, and from specimens taken at Comfort, Texas, I am convinced that minuta is a very distinct form, not represented outside of a limited territory in Texas. (Fig. 4.)

From specimens of nympha collected in west Texas which match Edwards's description fairly well and are not dissimilar to the figure shown by Wright (Pl.

XX. F. 191, "So. Ariz.") I would judge this form to be more closely related to pola than to minuta. We possess specimens from Colorado tallying with this form on the upper side, but which have a much greater proportionate area of cream-white on the under surface, showing distinct pola affiliations. Intergrades between these forms occur. (Figures 5-6.)

I believe the forms characterized by dark ground color with a band of whitish through the discal area may be considered typical nympha, and the lighter checkered forms with two shades of buff spots as a ground color may be accounted typical pola.

Our Tulare County captures differ from all of the above in several particulars, and may be described as follows:

Melitæa monache sp. nov. Figures 1 to 3.

Male. Upper side. Primaries, ground color uniform ochrous, crossed by numerous irregular fine black lines. Outer margin fringed with alternate black and white, the black at ends of nervules, with the white slightly in excess. Fine double marginal stripe tending to fuse into a single black wide marginal line. Limbal area, nervules very finely lined with black. A series of irregular narrow broken black lines crossing the limbal area at right angles to the fine striped nervules, which marks off a series of irregular squares and oblongs. The outer band of yellow thus defined is however made up of dentate rather than squared spots. The black lines are partly or completely wanting between the 2nd and 3rd median nervules (more marked in the female). In the inner portion of discal area a heavy tortuous black line shaped somewhat as a cupid's bow, tending to be interrupted at the 3rd median nervule. At the outer end of discal cell an irregular ochrous oblongate spot bordered with black. Discal cell crossed by two wavy black lines. At the base of the cell a narrow black constricted O enclosing an ochrous spot. Below the discal cell an irregular figure 8.

Upper side. Secondaries. Fringe and marginal lines as on primaries. Nervules, narrow black lines.

Two constricted lines crossing the limbal and outer part of discal areas, more regular than the lines on primaries, and dividing this portion of the wing into an outer band of ochrous oblongs, a middle band of more or less regular squares, and an inner band of oblongs. Internal to this a wider band of black, closing in the end of the discal cell at its centre.

A round or oval ochreous spot edged with black occupies the centre of the discal cell. Inner portion of basal area blackish.

Inner margin light ochreous toward the anal angle, tending to black toward the base.

Both primaries and secondaries are quite uniform as to the ochreous ground color, the ochre greatly in predominance over the black. There are no lighter colored spots as in pola (arachne) and the wings have the appearance of being striped irregularly with black, rather than checkered. Furthermore, the secondaries are not markedly darker than primaries as with the average nympha. Pola (arachne) shows characteristically the "deep fulvous sinus in discal cell of secondaries" (variable) while monache always shows the centrally placed O.

There is no "whitish" band on upper side of secondaries in monache as with pola.

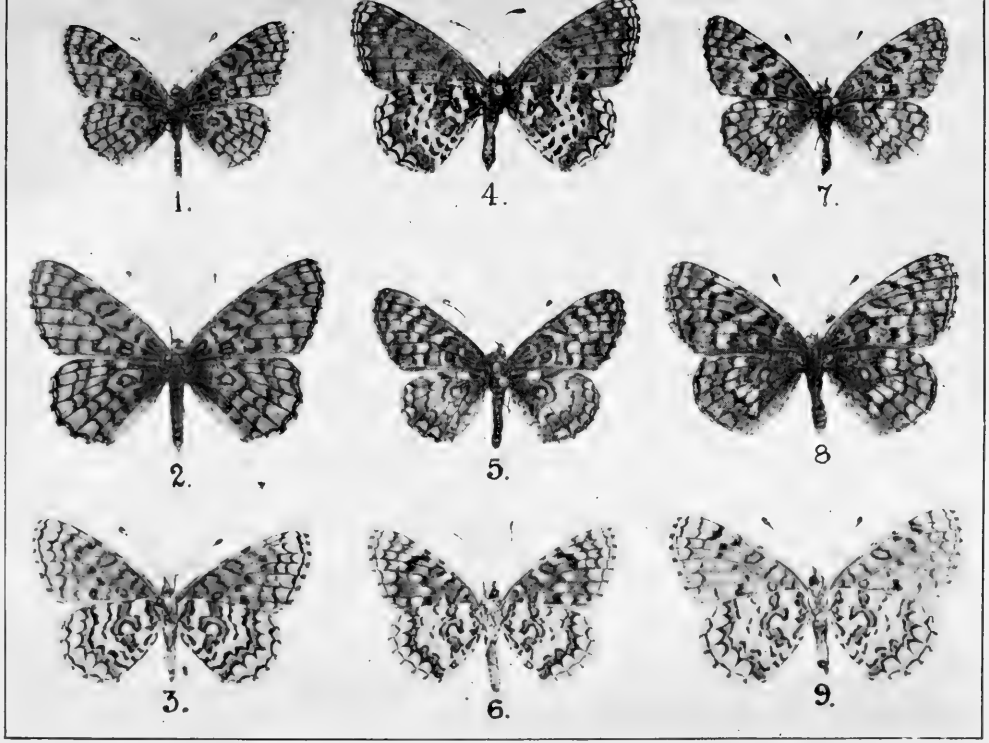
Upper side. Primaries. Similar to pola, but the ochrous color of the basal and discal areas is a little richer, and the yellowish-white is confined to a narrow subapical area.

The same four bands of cream-white occur on secondaries as are found in pola, but the marginal band tends to be wider (not distinctly composed of crescents as in arachne). The centrally placed wide light-colored band is relatively narrower than in pola, and is bordered by wider, more nearly complete black lines.

The outer black border in particular is practically an unbroken line in monache. The basal whitish patch is almost obsolete.

Palpi and abdomen much as in pola. Antennæ show a shade more ochre.

Female, similar to male, but with slightly greater



1. Melitæa monache (type) ♂, Monache Meadows, Tulare Co., Cal., Aug. 3, 1917.
2. Melitæa monache (type) ♀, Monache Meadows, Tulare Co., Cal., Aug. 3, 1917.
3. Melitæa monache ♀ underside, Monache Meadows, Tulare Co., Cal., Aug. 7, 1917.
4. Melitæa minuta ♂, underside, Comfort, Texas, July 27, 1901.
5. Melitæa nympha ♂, So. Arizona.
6. Melitæa nympha, Sulphur Springs, Colo., July 25, 1900.
7. Melitæa pola ♂, Floyds Hill, Colo., Aug. 26, 1902.
8. Melitæa pola ♀, Colorado, 1902.
9. Melitæa pola ♀, underside, Sulphur Springs, Colo.

wing expanse. Our specimens of both sexes show a variation in expanse of from 1⅛ to 1⅝ inches.

Described from one male and ten females, taken at 8500 to 9000 feet elevation, in the Monache Meadows of Tulare County, California, during August of 1917. The district is about 25 miles south of Mount Whitney.

Types in the author's collection at the Southwest Museum, Los Angeles.

A differential table of the three forms follows.

(Omitted from lack of space.)

Monache is not reported north of Mt. Whitney or south into the Tehachapi range, and would seem to be confined to the high valleys of Tulare County immediately south of Mt. Whitney.

No related forms are found in the desert regions adjoining unless it be close to the Arizona border, where no doubt typical pola may later be reported.

Xanthotype crocataria Fabricius

With descriptions of new species

By L. W. Swett, Lexington, Mass.

(*Continued from page* 39)

I have endeavored to give an idea of the genitalia of Xanthotype crocataria Fabricius male and female, but it seems impossible to include all the minute details in an engraving. However, the important characters show well and the species may easily be separated.

Figure 1G shows the penis.

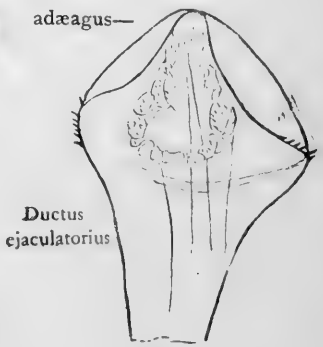


Fig. 1G

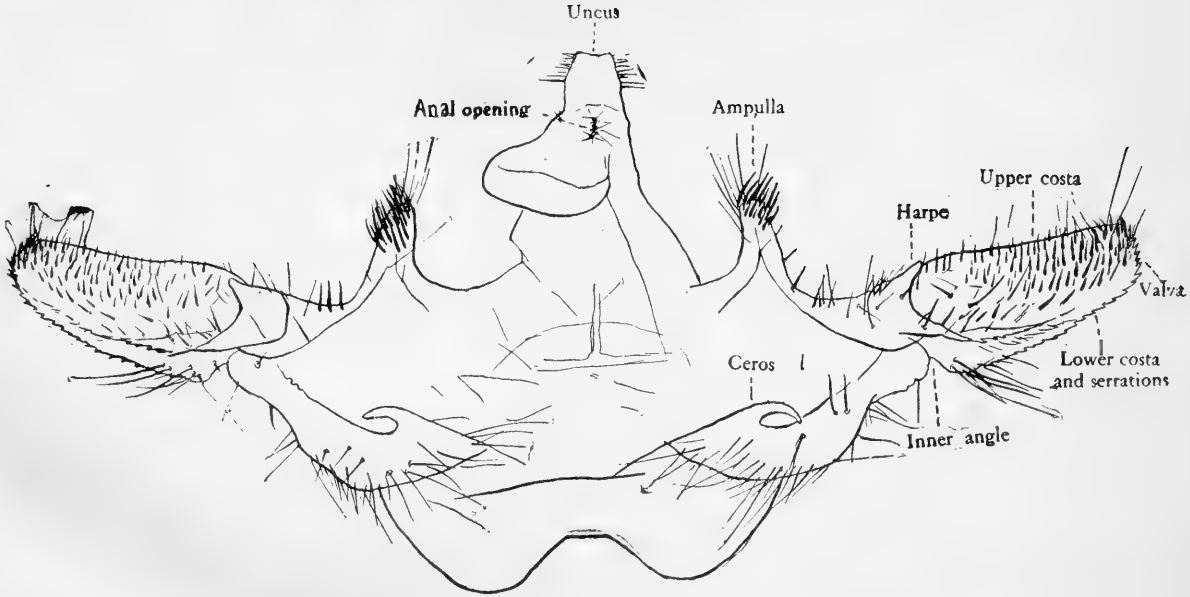


Figure 2G
X. crocataria Fab.

Figure 2G shows the male and 3G, the female genitalia of Xanthotype crocataria.

The ampullæ in some species show good characters, namely the height and breadth and possibly the arrangement of spines. The harpe (or clasper, as it has frequently been designated in error) shows good characters in some species, but is variable in others. The width, length, and general appearance of the harpe form the best characters. Too great importance should not be placed on the harpe alone without a knowledge of its variation for it varies somewhat in the same specimen. I have not been able to consistently use the serrations of the lower costa, valvæ or the shape of the valvæ. There may be differences which can be drawn in a large series, but at present it seems best to use them in combination with other parts. The penis is of primary importance, the shape and character of the spines being the most essential. In the center of the penis is a delicate membraneous, finely-spined tube which is called the ductus ejaculatorius. This can only be made out under high power

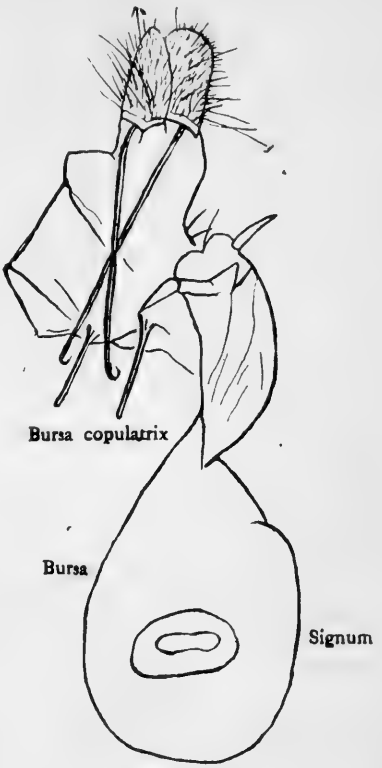


Figure 3G

and when stained with a reagent. Frequently under pressure of the cover glass the ductus ejaculatorius or vessica, as it is called, protrudes from the side or tip of the adæagus.

Dr. McDunnough published a very interesting article in The Canadian Entomologist, Volume XLIIII, page 181, June, 1911, and should be read by everyone interested in the study of genitalia.

However, there will, no doubt, be many changes in the synonomy of parts as the different groups of insects are corrolated.

I have not studied the shape of the uncus or the arrangement of the spines on the valvæ and they may afford some help.

The female genitalia of Xanthotype crocataria, figure 3G, consists of the ovipositor attachment, an elongated bag with neck, containing, near the center, a round, doughnut-shaped body called the signum. In Xanthotype, wide penis group, the signum appears to differ slightly, but I cannot make out constant characters. In other genera the signum affords beautiful characters for separation. Below I include the literature in regard to Xanthotype crocataria which, no doubt, includes other species overlooked by the older authors. It can readily be seen that the easiest and most accurate way to separate crocataria is by the genitalia as the markings are so variable.

Xanthotype

1798 Crocataria *Fabricius* Supp. Ent. Systematicae No. 43, page 450

1825 *Huebner,* Zutraege Exotische Schmetterlinge

1857 *Guenee,* Species General Phal. 1, Page 114, No. 175.

1860 *Walker,* List of Lepid. and Heter. in the Brit. Museum, Vol. XX. page 143

1860 *Walker,* Can. Naturalist, Vol. 5, Page 260.

1869 *Packard,* "Guide to the Study of Insects," page 319, Plate VIII, Fig. 5 and 5a.

1871 *Bowles,* Can. Ent. Vol. III, page 9.

1871 *Saunders* First Annual Report of the Entomological Society of Ontario, Vol. II, p. 37, No. 5, Fig. 34 and 35.

1872 *Saunders* Report of the Ent. Society of Ontario, Page 22, Fig. 12.

1873 *Packard,* Seventh Report of the U. S. Geol. Surv. of the Terr., Colorado Insects, Vol. 5, Page 554.

1876 *Packard,* Monograph. Page 474.

1877 *French,* Seventh Annual Report of State Ent. of Ill. in the Trans. Dept. Agri. III. XXI. Page 243.

1883 *Saunders,* Insects Injurious to Fruits. Page 348

1883 *Forbes,* Thirteeth Report of State Ent. of Ill. Page 80.

1886 *Hulst,* Entomologiæ Americana, Vol. I, Page 208, describes variety cælaria of crocataria.

1887 *Gumppenberg,* Nova Act. Halle, Vol. XLIX, Page 396.

1894 *Dyar* Ent. News, Vol. V, Page 62.

1894 *Warren,* Novitates Zoologicæ I, Page 463.

1896 *Hulst,* Trans Am. Ent. Soc., Vol. XXIII, Page 372.

1899 *Luger,* Fourth Annual Report of Ent. of State Exp. Station of University of Minn, Page 179.

1901 *Dyar,* Psyche, Vol. IX, Page 226.

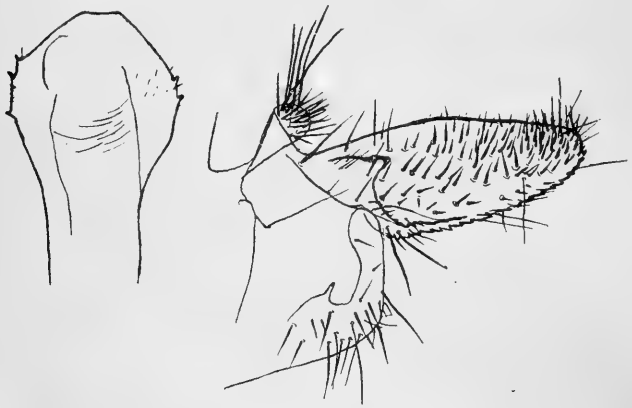
1903 *Holland,* The Moth Book, Plate 44, Fig. 39 and 40, Page 349.

The above date, 1798, for crocataria seems to be correct according to Hagen and the best authorities, and the page reference should also be corrected in Dyar's list.

There is a species closely allied to crocataria, but differing markedly in the genitalia from Aweme, Manitoba, which I propose to describe as new:

Xanthotype manitobensis sp. nov. Pl. VIII, Figure II, Volume 2, no. 6, also Figure 4G.

Primaries pale lemon yellow with onyl basal and extra discal bands of spots showing. The usual strigations are few and faint. The spots are much reduced, being most noticeable at inner margin; fringe with itervenular brown dots.



Xanthotype manitobensis
Figure 4G

Secondaries almost immaculate, only just a few strigæ appearing, most noticeable at inner margin; fringe with dots as usual.

Beneath primaries pale lemon yellow, with brown spots on costa and two at inner margin; discal dots faint.

Secondaries with just a faint spot at inner margin, strigæ so faint as to appear almost immaculate. The genitalia afford the best characters for separation. see figure 4G. The penis is broad near distal end and club shaped. The spines in manitobensis are very heavy, three or four on each side, where they are small and weak in typical crocataria. The ampullæ are not so high and the harpe not so long as in crocataria. The ceros is so reduced in mantobensis as to be dwarfed. The above characters will readily dis-

tinguish this species from crocataria.

Expanse 38 mm.

Holotype ♂ June 29 (N. Criddle) Aweme, Manitoba and in Dr. Barnes' collection at Decatur, Ill. In Vol. II, No. 6, Plate VIII, Figure. 11 the locality is misspelled through typographical error (Auverne) instead of Aweme, Manitoba.

This species is apparently rare, as in all the collections at my disposal this remains unique.

Another species occurring in Texas and Mississippi which differs from the above in structure and markings. I propose as new:

Xanthotype attenuaria sp. nov. Plate VII, Fig's. 7, 8, 9, also Fig. 5G.

Primaries lemon yellow with numerous brown strigæ; basal band indicated by three dots, the extra discal band is solid from inner margin to median vein, beyond which it forks; one of the projections goes to

Xanthotype attenuaria
Figure 5G

spot on costa, and the other to apex of wing; discal dot linear reddish brown.

Secondaries. The band beyond extra discal spot is nearly solid across wing, being interrupted only at center. The basal band is composed of three faint spots. The strigæ are numerous and cover the wings

well. The intervenular dots are not so prominent as in some other species.

Beneath primaries slightly brighter yellow than above, but lacking the numerous strigæ. The bands show through as above. Secondaries are same as above, only lacking the strigæ.

The females are larger than the males and the bands at inner margin are more interrupted, and they lack prominent forked bands.

The gentalia afford the best characteristics for separation. See Figure 5G.

Penis broad and heavily armed with stout spines on side near distal end; the ampullæ are very broad and high; the harpe is most striking, rising beyond the upper costa somewhat like the head of a bird with the beak poinaed towards the top of the valvæ; the ceros is long and broad, being heavily armed with stout spines; the lower costa is slightly serrate.

Expanse ♂ 33 to 35 mm. ♀ 40 to 46 mm.

Holotype ♂ Dallas, Texas (Boll), and in the museum of Comparative Zoology collection at Cambridge, Mass.

That there may be no confusion of terms I will state that the penis as a whole is made up of two parts, an outer firm covering, generally called the adæagus and an inner eversible tube called the ductus ejaculatorius or true penis.

(*To be continued*)

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A New Form of Cataloca blandula Hulst

By Samuel E. Cassino

CATOCALA BLANDULA VAR. MANITOBENSIS VAR. NOV.

This form is very easily distinguished from blandula. In blandula the t. a. line is a rich seal brown which shades lightly towards the base. In manitobensis, the t. a. line has the appearance of being darker and more distinct, and the shade is not as heavy. The brown scales forming a shade outside of the t. a. line are much lighter and in some specimens almost obsolete in manitobensis.

The space between the t. a. line and the reniform is lighter in manitobensis. The median shade has a bluish tint. The whole effect of the superiors is a bluish tint quite unlike that of blandula, the scales of which are more brownish.

Secondaries do not differ materially except that the break in the marginal band near the anal angle is more marked in manitobensis, the yellow extending through to the fringe. The break in the marginal band is found on the under side of the wings, but is not quite as apparent.

Holotype 1 ♂, 6 paratypes. in the collection of the author, Cartwright, Manitoba, July 17.

Monograph of the Genus Catocala

It is a pleasure to announce the publication of Illustrations of the North American Species of the Genus Catocala by William Beutenmuller, with additional plates and text, by Wm. Barnes, M. D. and J. McDunnough Ph. D. It is issued as a memoir of the American Museum of Natural History. New Series. Vol. III. Part I. October, 1918.

This important work will be noticed in a future issue of The Lepidopterist.

The Lepidopterist has received the Proceedings of the Entomological Society of British Columbia for March, 1916 and March, 1917. They contain important papers on the Geometridæ of British Columbia by E. H. Blackmore, the President of the Society. The rarer species are figured in well printed plates, and the article is well worth reading.

A New Geometrid

By L. W. Swett, Lexington, Mass.

CLEORA EXHUMATA SP. NOV.

The head, thorax and abdomen are fuscous gray, palpi moderately long; primaries dull ash gray, secondaries the same color; intradiscal band runs with slight curve from inner margin towards discal spot, reaching the costa about opposite it.

The discal dot is large, round and black on all wings, the extra discal line curves slightly outwardly from inner margin to median vein where it is accentuated on the veins by four or five serrations; it is accompanied by a brown shade line following the same course; a whitish indeterminate band follows the shade line, then another brown one running parallel; outer margin pale gray with intervenullar dots at the base of the fringe, which is long with a hair line running through it.

The secondaries are same color as primaries and are full and rounded except on the outer margin op-

posite discal spot there are two or three slight serrations; a faint basal line running straight from inner margin, fading out just above discal spot where it almost touches; extra discal line curves slightly from inner margin to outer, just below discal dot being accentuated on the veins; this line is followed by two brownish bands with white in between, the margin of wings is dusky shaded and has the usual intervenullar dots.

Beneath the primaries are smoky gray with no lines showing only the round discal spot apparent; secondaries are marked the same as the primaries.

This species is associated with inconspicua Hulst, wrightiaria Hulst, formosata Hulst and agrestaria Grossbeck. In general appearance it is nearest inconspicua Hulst which is said to be a synonym of aethalodaria Dyar.

The genitalia separates this species easily from the rest and is very distinct. The harpe is strongly developed in this species and can be made out with the naked eye In wrightiaria as limited by Grossbeck, the harpe is short with projecting rod, short and narrow, in inconspicua it is long, with a long narrow projecting rod, in exhumata the harpe is long, with long, wide projecting rod. There are other differences in the shape of the uncus or tegumen as some prefer to call it, and in the spining of the penis. Grossbeck wrote an article on this group correcting some of Pearsall's determinations in the "Journal of the New York Entomological Society," Volume XX. No. 4, page 290, December, 1912. Mr. Grossbeck, however, mixed this closely allied species with wrightiaria, calling them all that species. This can readily be explained as there were few collectors at that time interested in Geometers and without the great amount of material which is available now, it was impossible to see that there were to be so many closely allied species. Expands 26 to 27 mm.

Holotype ♂ VI, 4, 1911 San Diego, Calif. (G. Field) and in my collection.

Allotype ♀ VI, 18, 1911, San Diego, Cal. (G. Field) and in the collection of Mr. Field.

Paratypes - 9 ♂s San Diego, Cal. and in the collection of Mr. Field. 4 ♂s San Diego, Calif. and in the collection of L. W. Swett, through kindness of Mr. Field.

1 ♂ San Diego, Calif. in the collection of the National Museum, Washington, D. C.

1 ♀ San Diego, Calif. VI, 22, 1912, Mr. H. C. Fall, and in his collection.

I owe this species to the keeness of Mr. George Field's eye as he could not associate this species with any other in his collection and sent it to me for determination.

Catocala faustina Strk. form rubra f. nov.

By Samuel E. Cassino

In the type form of faustina there are no traces of red and zillah is readily distinguished by the red suffused primaries. It is described by Strecker as follows:—"Zillah is distinguished from the common form by the upper surface of primaries being suffused with rather scattered rust red atoms, especially about the reniform and sub-reniform and along the transverse posterior lines and thence to sub-marginal lines."

No mention is made in this description of a heavy dark shade or dash exteding from the base, parallel with the inner margin, to a point just above the inner angle. An examination of the type reveals the presence of this dark shade. Although the description does not mention this dash, which is a prominent feature, it would seem best to consider it as characteristic of the form zillah. The red form of zillah, in which the dash or shade does not occur should be designated by a form name, and rubra is suggested as appropriate.

In the form, rubra, the reniform, sub-reniform and transverse lines, as well as the space just outside the t. p. line, are quite heavily suffused with brick-red scales. The specimen adopted as type is a ♂ having

a rather dark t. p. line, and ten specimens selected from a large series in the authors collection have been mark paratypes. All taken in Vineyard, Utah in August, 1918.

Arachnis zuni, Neum.

By J. G. Bonniwell, El Paso, Tex.

Last fall, while collecting in the vicinity of High Rolls, N. M. I took a number of larvæ of Arachnis zuni. At the time, while I recognized them as larvæ of some arctiid, yet I was puzzled as I am not familiar with the western fauna. In size and general appearance they closely resemble the larvae of Ecpan. deflorata. The bright red rings characteristic of the latter however are absent, being replaced with a minute red dot between each somite along the sides and along the head which is comparatively small. They have the same habit as the deflorata of curling up when touched and the spines are almost as stiff.

We found them upon half a dozen different varieties of weeds and plants among which was a species of rag weed. Those that we took home and attempted to raise we fed on Virginia Creeper, of which they seemed to be fond. We found that the larvæ of this arctiid is very susceptible to parasitic diseases; out of sixty or seventy that we took home we lost over ninety percent. Along about the first of October the few that remained refused to eat, crawling up in the corners of the breeding cage and remaining in a hibernating state. On November 1st. one spun a very loose cocoon and pupated, this pupa emerged December the 11th. The others having eaten nothing now for two months leads me to think that possibly under natural conditions they may be hibernating larvæ.

Xanthotype crocataria Fabricius

With descriptions of new species

By L. W. Swett, Lexington, Mass.

(*Continued from page* 80)

Allotype ♀ Dallas, Texas (Boll), and in the Museum of Comparative Zoology collection.

Paratypes ♂ Dallas, Texas (Boll), and in the museum of Comparative Zoology, 2 ♂s Greenville, Miss. (G. Dorner) in the collection of Dr. Barnes; ♂ Dallas, Texas (Hunter No. 919, Aug. 28, 1905) F. C. Pratt collection, and in the collection of the United States National Museum.

♀ Dallas, Texas (Boll) and in the Museum of Comparative Zoology collection.

This species seems to be rather rare as this is all that has come to my notice and is one of the few that can be differentiated in most cases by the markings. The solid band at inner margin with forking above median vein is quite distinct..

A form which I have recently received from Plummers Island, Maryland, through the courtesy of Dr. Dyar bears such a likeness to attenuaria that I am inclined to place it as a race of the latter rather than a distinct species, and propose to describe as follows:

Xanthotype attenuaria Marylandensis var. nov. Fig. 5G. Primaries lemon yellow with numerous strigæ, the usual band of spots and the extra discal band is composed of a prominent blotch at inner margin with blotch above extending to median vein. The forking of the band above the median vein is not apparent in this species. The secondaries have few strigæ with no basal band apparent. The extra discal is represented by a small blotch at inner and outer margins; intervenullar dots in the fringe. The genitalia seems to separate this race best from the other species. See Figure 5G.

The ampullæ are broad and high as in attenuaria; the harpe is the same shape but differs in that it pro-

jects to level of upper costa and not above it. The valvæ are rather short and broad and the lower costa is only serrate near tip and not on the lower part as in figure. The ceros is very broad with long heavy spines. The figures 4 and 5G do not show these spines clearly enough. They are quite noticeable on the upper edge of the ceros. The penis is not so broad or havily spined as in attenuaria and the spines are finer.

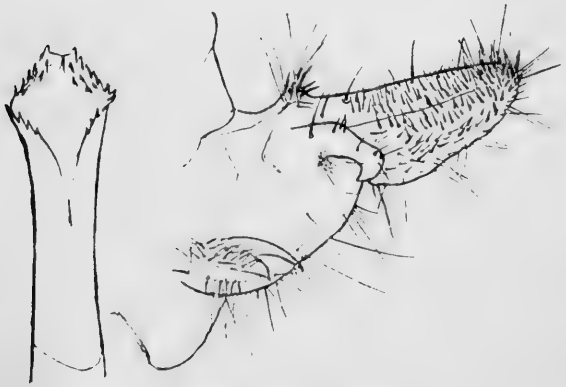
Expanse ♂ 31 to 33 mm. ♀ 40 mm.

Holotype ♂ Plummer's Island, Maryland (R. P. Currie) July 30, 1903 and in the United States National Museum, Washington, D. C.

Allotype ♂ Plummer's Island, Maryland, July 30 and in the National Museum.

Paratypes ♂ Plummer's Island, Maryland, August 3 (R. P. Currie) in poor condition, and in S. E. Cassino's collection, Salem, Mass. through the kindness of Dr. Dyar.

2♀s Plummer's Island, Maryland, August 18 and



Xanthotype rufaria
Figure 6G

August 23, 1903 (Aug. Busck) and in the National Museum collection.

This seems to be a very local variety. I have

never seen this form from any of the neighboring states though it may occur there. The paratype is in very poor condition and much patched, but the genitalia show it to be correctly placed.

This completes the strictly broad, kite-shaped penis forms of crocataria, but there is an intermediate species from Florida which seems best referred here, and I propose to describe as follows:

Xanthotype rufaria sp. nov. Plate VIII. Vol. 2, No. 6, Figures 1, 2, 3 and 6G.

Primaries orange ochre with numerous reddish brown strigæ The usual basal band of spots, with small round extra discal spot beyond. The extra discal band is solid at inner margin to median vein where it has a tendency to fork. The fringe is quite reddish ochre and this seems one of the most constant characters. The secondaries marked as usual with numerous strigæ and outer interrupted band. The fringe is reddish ochre and the terminal dots seem larger than on the fore wings. Beneath, as above only there is a tendency to slightly lighter color on all wings basally.

The genitalia is most distinct from all the other species; the penis is broad, but not kite-shaped, resembling more a long necked vase, with sharp scalloped sides near apex. The tip of the penis has a deep scallop in the center with the highest points on the sides, produced to sharp points. The harpe is of unusual shape, bein somewhat like a duck's head upside down. The ceros is heavily spined and has a flap at base with spines projecting at all angles, and the lower costa is slightly scalloped. The shape of the penis, with the peculiar harpe and flap to ceros renders this species one of the most distinct of the group.

Expanse ♂ 35 to 38 mm. ♀ 37 to 39 mm.

Holotype ♂ Glenwood, Fla. and in Dr. William Barne's collection.

Allotype ♀ Florida (Wm. Schaus collection) and in the collection at the National Museum.

Paratype ♂ Fort Mead, Fla. May; in Dr. Barne's

collection. ♂ Lakeland, Fla., May 1-7, in the L. W. Swett collection through kindness of Dr. Barnes.

2♂s St. Petersburg, Fla., March 14, 1914, and Fort Lee, District, N. J. (H. Wormsbacher) in the collection of the American Museum of Natural History, New York.

♂ St. Petersburg, Fla, March 18, 1914 and in L. W. Swett Collection through kindness of American Museum of Natural History, New York.

♀ ♂ Fla. (Wm. Schaus collection) and in the United States National Museum.

♂ Rockledge, Fla. March 15, 1918 (S. E. Cassino) and in Mr. S. E. Cassino's collection, Salem, Mass.

♀ Venice, Fla. and in the collection of Mr. S. E. Cassino, Salem, Mass.

This species occurs very early from March to May, but does not appear to be common in collections. The genitalia would seem to indicate rather a differnt origin from typical crocataria and possibly may be found among the South American forms. Unfortunately, the females that I have seen were without bodies so that is impossible for me to tell whether they show the same striking differences as the males. Walker refers to a species from Florida in his list of the Lepidoptera of the British Museum under crocataria, Vol. 20, Page 143, 1860 and possibly this may be the same species.

Nothing much is known of the life histories except in some cases the species are double brooded, and as they are all described as crocataria further breeding will be necessary to settle the matter. The true crocataria may occur in Florida as both rufaria, and crocataria occur in New Jersey, but I have never seen specimens from the former locality. Most authors have given an inaccurate reference to the page and date of crocataria in the "Supplement Entomolgiæ Systematicæ." According to copies in the Boston Society of Natural History beloging to Thaddeus Harris and in the Museum of Comparative Zoology at Cambridge, Mass. The description was published on Page 450 (not 146) and in 1798 instead of 1794.

There is a large and numerous group closely related to crocataria but easily distinguished by their narrow, slender penis, which differs markedly from the broad kite-shaped one of the former. This narrow penis group is by far the largest and occurs in nearly every section of North America from California to Newfoundland.

To be continued

The White Mountains of New Hampshire

By L. W. Swett and Samuel E. Cassino

The White Mountains of New Hampshire, on account of their altitude and diversified fauna, offer the best collecting grounds to the average New Eng. land collector. They are very accesible, both by train and automobile, being some two hundred miles north of Boston. From 1870 to 1890 much collecting was done there during the summer months by Dr. Packard, Mrs. A. T. Slosson, Messrs Sanborn, Scudder, Emerton and Doll. Of late years, however, the collecting has been rather spasmodic, a little being done in the different orders by Messrs. Johnson, Frost, Sheriff, Newcomb, Emerton and Dr. McDunnough. Nearly all the collecting has been done from July 1st on, and it has always been a source of wonder as to what might be taken in the early spring.

Mr. G. H. Emerton, the spider specialist, informs us that the last week of June was the earliest record of collecting, to his knowledge. Mr. Johnson did the earliest collecting previous to our trip, but had such poor weather during the third week of June that his catch was not very great.

We decided to make a trip by automobile to Mt. Washington the last week in May. We left Salem early in the morning of May 28, 1918, which proved rather a cold, misty day. It must be borne in mind that the spring of 1918 was at least two weeks earlier than usual, so that the results attained must correspond to the season.

The lilacs were just at their height when we left home and were just as far advanced as far north as Lake Chocorua, much to our surprise. We examined the red pines around the shores of the Lake but did not see a single insect. After leaving North Conway, N. H. around four o'clock, we headed for the "Pinkham Notch" in heavy drizzle. The only thing that varied the monotony of the ride was the scaring up of two fine deer who were drinking at one of the mountain streams. The road climbs through two mountain ranges, and as we approached the base of Mt. Washington the clouds broke for a moment and revealed the mountain in all its splendor. Later in the Afternoon we passed by the trail to Glen Ellis Falls and came to the "Glen House." This is a summer hotel situated on the side of a ridge, and facing Mt. Washington. It is only a quarter of a mile by the road leading up Mt. Washington to the base and there is good collecting in the meadows in front. This hotel is open from the 1st of May on, and the rates are about four to four-fifty a day, possibly less by the week. As the Glen House was full we had to push on to Gorham, N. H. about eight miles further. We found fine accommodations there, with reasonable rates, at Mr. F. A. McLeod's, situated on the main road. In the evening Mr. Cassino decided to try out a new gasolene lamp of 400 or more candlepower, arranged on the idea of a plummer's torch, only with a mantle. The lamp has a pump attachment for air pressure and gives a blinding light, is well worth the $6.00 or $7.00 asked for it. The drizzle had stopped but the air was cold as it is in the mountains, so we took the lamp out near the river. After running it an hour or so we took only noctuids and crambids, which was disappointing for we wanted geometrids.

The next morning was a beautiful warm spring day and we left for collecting around Mt. Washington, taking our lunch with us and prepared to stay into the evening. The lilacs in Gorham were in full bloom as at home, and the trees were just as far advanced, much to our surprise. Along the woodland road

thousands of Papilio turnus flew up at the approach of the car, but we saw no other butterflies.

Arriving at the base of the mountain we left the car and started collecting up the carriage road. The road winds around the mountain for eight miles to the summit, being marked along the way with mile posts. The elevation at the Glen House is about 1500 feet or so, and at the first mile post is about 2000 feet altitude. The carriage road at the base runs along the side of a bank on the right and a ravine on the left filled with birches.

The sides of the road were damp from the spray of the mountain brook and flowers of many kinds grew in profusion. The blue wood violets were so thick in places as to form veritable carpets of flowers, and here and there the Painted Trilium and Wake Robin waved in the breeze. The Bunch Berry was in full bloom with its small white flowers, over which hovered Syrphidæ in great numbers. The air just hummed with Diptera, Coleoptera and Hymenoptera, much as in early spring around the willow blossoms. At every step numbers of Hyperetus amicaria, the pale ashen form, flew up from the middle of the road where they were resting. From the sides of the road we started up Ellopia endropiaria G & R, Campaea perlata Gn. a beautiful pea green when fresh, and Anagoga occiduaria Walk. Also we took Hydrelia inorata, Venusia cambrica, Comptaria and Philobia aemulataria as we approached the first mile post. Occasionally on the telephone posts we took Cleora larvaria Gn, Gonodontes albovittata Gn. As we proceeded up the steep road towards the second mile posts a few firs commenced to appear and occasionally we caught glimpses of the slope below through the trees on the left-hand side. Arriving at the second mile post, where the trail leads into Tuckerman's Ravine and up Mt. Washington we noticed a bright green longicorn beetle running about in the road. To my surprise it proved to be the very rate Anthophalax viridis, and we saw quite a number of others fiying about and succeded in catching three. Also, there

were a number of Eros aurora, a very striking Lampyrid beetle brick red in color running about on fallen timbers. We left our trap lantern here, preparing to collect on our return in the evening.

We then started for the Half Way House, intending to eat our lunch there as it is a good three or four hours climb from the base. The balsams began to appear and once or twice a Eupithecia fluttered out. They proved to be latipennis Hulst and catskillata Pearsoll. Hydrelia inornata became quite abundant and I should not be surprised if either balsam or spruce were its food plant. Also what apeared to be a wild currant was in flower, with a number of yellow and black spotted longicorns feeding on it. So far we had seen only geometers and one or two noctuids mostly Notodontans, but no butterflies. As we progressed towards the third mile post the climb became harder and the air cooler as we were some 2100 ft. in altitude. On the right the trees became thinner and we could see a great valley spread out below. The birchs were hardly leaving out and the flowers of the bunchberry were quite green. We saw two or three Lycænas fluttering along the road, the first butterflies we had seen. Beyond the third mile post the trees became more stunted and there were practically nothing but diptera about. After quite a walk we came to the Half Way House where we sat down for a rest and had lunch. In reality it is only an old house where the men who repair the road stay and is not inhabited in the winter. It overlooks the country for miles around and is held down with chains to keep it from blowing over during the mountain storms. In the rear there is an old barn used to keep the teams and a path running down to an old pasture in the rear. There were no flowers in blossom except what appeared to be the shad bush. It was quite chilly and the wind was very strong so that it was impossible to collect any Lepidoptera. Evidently at the altitude of the Half Way House, 4000 ft. there is little to be taken so early in the season. Mr. Cassino decided to return down the road where we left the lantern, while his son and Mr. Sweet prepared to go to the top of Mt.

Washington and down through Tuckerman's Ravine. We went along the carriage road noting the conditions, especially as we made the sharp turn just beyond the Half Way House. It is here in August one usually sees for the first time Brenthos montinus Scudder about the dwarf goldenrod along the roadside. The Labrador Tea was just budding but only a few leaves of the goldenrod were visible. Except for a few very hairy black spiders and ground beetles, which we disturbed from under stones, there was no other insect life. We passed the fourth mile post just around the curve and made for a small clump of stunted pines on the right side of the road, hoping to find some insects in this sheltered spot. We only found two wild currant bushes in flower, about which were a few Syrphidæ. Pushing on towards the fifth mile post it became colder as there were many snowbanks around, and just as we made the turn we noted a few small white flowers growing from moss-like clumps, and a dwarf willow about six inches high which had started to form white catkins. The country was now spread out beneath us as we had left the tree line at practically the Half Way House, and the mountain resembled a giant pile of broken rocks.

Later in the season at about the fifth mile post we are accustomed to look for Eurymus interior Scudder (so called) and Autographa u. aureum Gn. (Vaccinii Hy Edw.) on the flowers of the sand wort. We saw nothing and kept on towards the summit. It was cold and bleak now, but as we approached what is known as "the six husbands' trail" before the sixth mile post we saw clutsers of a small purple flower on a low bush. They were quite fragrant and we noted a number of large yellow bees with jet black markings hovering about them. It seemed strange to see flowers at this high altitude when below all was bleak and bare, but this evidently was early spring at the top. We left the carriage road here, following the trail which was simply small piles of stone or a white arrow here and there, over the ridge towards Tuckerman's Ravine, arriving at the top of this ridge after a half-hour's

hard climb. In a previous trip in August I saw many Oeneis semidea, Say, in this same spot. Watching the clouds carefully to see that we did not get caught in a snow squall we made our way over rocks and around rocks towards Tuckerman's Ravine, which was a couple of miles away. We were now in what is known as the "Alpine Garden". The only flowers visible were this small bush with pink flowers. A great snowbank lay in one section, covering an acre in extent, but beyond this the mountain was free of snow. We noted a webb in between two rocks with the spider in the center. This seemed unusual at such an altitude and in the face of such high winds. Suddenly we saw a tattered specimen of Papilio turnus blown up the mountain and over our heads, but in such a gale it was impossible to secure it. My attention was attracted to a brown crab spider trying to hide under a rock, and after some effort succeeded in catching it. This later proved to be a great rarity, only the type being known, which was taken by Mr. J. H. Enerton about 1875.

We approached Tuckerman's Ravine with dread, for if it was filled with snow we would have to retrace our steps back the way we came, and it was then about 3 o'clock in the afternoon. As we neared the brink we could hear the sound of running water and decided to take a chance and go down. Except for one or two banks the snow was pretty well melted, making it possible to carefully pick our way to the bottom; we had to be very careful for a slip meant a fall of 1000 feet. The "arch" as it is called, extended about two thirds of the way to the top and as we descended I noted the false hellelon had grown about a foot in height. Later in the season, in August, this is the place where Eupethecia cretaceata Packard is found.

It took us nearly an hour to descend, and we found many of a species of black hairy spider beneath the small stones which we overturned. At the bottom the birch trees were also three feet high and were just beginning to leave. We proceeded along a mountain stream, in and out between boulders for another hour,

until we came to a grove of small spruces. After about half an hour's walk we arrived at a lake of about an acre or so in extent called Hermit Lake, which is a very famous collecting ground. It has a muddy shore and is full of broken trees around the edge, and is said to have some very rare water beetles.

Leaving Hemit Lake we walked along at a brisk pace through spruce woods, up and down hill, for at least four or five hours—it being dark when we reached the carriage road. The trail came out at the two-mile post, which we had passed going up the mountain in the morning. I should think we had walked some twenty miles and I would advise people who intend making this trip to camp at Hermit Lake for the night at it is too much to do in one day.

(*to be continued*)

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by Floyd Bralliar is a new book issued by Funk & Wagnalls Co. It is illustrated by beautifully printed colored plates and is a useful book for young people or any one interested in a superficial way in insects, and it perusal should lead to a more extended interest in entomology. Price $1.75 by mail.

To the Editor of The Lepidopterist:

I live in New Mexico and have a small collection consisting mostly of local species. I would like to increase my collection by exchange. I have not been successful in making exchanges. Why can you not organize an exchange club? Collectors from various parts of the country could send their duplicates and lists could be issued from which selections could be made. The dealers pay so little for what you send them and charge so high for what they sell you that it is discouraging for a beginner. Why can't The Lepidoterist start such a plan?

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