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The Canadian Entomologist.

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NOTES ON THE LARVA AND CHRYSALIS OF NEPHELODES VIOLANS.

BY G. H. FRENCH, CARBONDALE, ILL.

During the last of April and through the month of May, 1877, I found the larvæ of this moth in grassy places in Washington County, Illinois. When full grown they were 1.75 inches long, robust, the head four-sevenths the width of the middle of the body. The color of the under side yellowish gray. Above the line of the lower part of the stigmata, four broad dark brown stripes alternating with three narrow grayish yellow ones, the latter in the dorsal and sub-dorsal regions, and much lighter at the extremities of the body. Head gray, mottled with brown, brown border to the inner part of eyes. Cervical shield very dark brown, crossed by dorsal and sub-dorsal light lines. No hairs noticeable except with glass.

Changed the fore part of June, under ground, to dark brown chrysalids, .80 of an inch long, very thick through the central part, rapidly tapering to the next and so on to the last segment. The terminal segment nearly cylindrical, rough, joined to the back part of the preceding, tipped with two short, diverging bristles. Imagines appear about the middle of September.

While in confinement fed freely upon corn, grass and *Polygonum aviculare*. They fed mostly at night, remaining concealed during the day time, either under the rubbish of the box, or in the dirt, resembling in this respect the cut worms (*Agrotis*, etc.)

THE BEATING NET.

BY JAMES S. BAILEY, A. M., M. D., ALBANY, N. Y.

The uses of the beating net are obvious and can at once be appreciated in the collecting of Coleoptera and larvæ. A convenient and simple form is here presented, with directions for its construction.

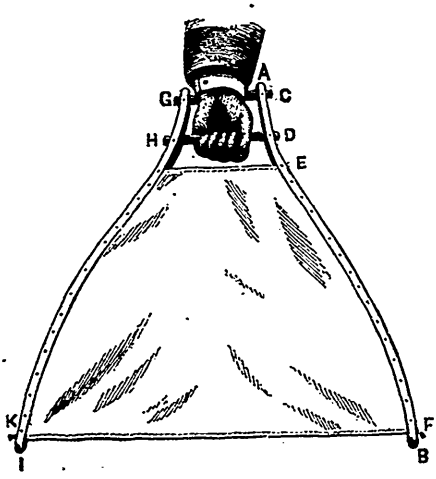

Fig. 2.

Fig. 3.

This particular form of net was invented and presented to me by my friend, Mr. T. B. Ashton, of Tonganoxie, Kansas, who has not only distinguished himself as a Coleopterist, but has shown himself to be an excellent mechanic.

By grasping the net with the left hand, as shown in fig. 2, thrusting it under a shrub, and giving the bush a quick shake, or blow with a walking-stick, every living thing upon it will instantly fall upon the apron of the net. If Coleoptera, they can be secured with the fingers or a small net held in the other hand for that purpose. If caterpillars, they can be gently rolled into a receptacle prepared for them.

The frame work is made of well seasoned hickory. The sides, A, B and G, I, are composed of strips 37 inches long and 1¼ wide at the ends A and G, and tapering uniformly until they are ⅝ of an inch wide at the other ends, B and I. Each piece should be ½ inch thick when dressed. After these pieces are steamed or boiled in water until thoroughly pliant, the wider ends A and G can be placed together and securely fastened in a vice, the free ends B and I separated widely and a block of wood forced between at the point E, and securely fastened, while the ends B and I can be secured with a piece of strong twine until dry enough for the frame, to maintain its shape. Then the sides should be sand-papered until smooth and two holes bored in each piece for the rounds G, C and H, D to pass through; for this purpose a half-inch bit will be sufficient, its point being inserted in the stick ¾ of an inch from the end of the widest part C, G, and again 5¼ inches at D, H. A round should be turned of the same material to fit the hole, and should be 6½ inches in length. The other round must be of the same size and 8½ inches long. One end of each round can now be fastened into one side piece by a hickory peg ⅛ of an inch in diameter; the other side is fastened in the same manner, but the pegs on this side must be fitted so that they may be taken out to enable the net to be folded for transportation.

Now that the frame work is constructed, each side must be ripped centrally with a saw for 29 inches, commencing at the point B and extending to E. Through this slit a piece of unbleached domestic cloth must be drawn, a hem ¾ of an inch wide having previously been made across the ends at the points E and F. Fourteen screws are now inserted into each blade two inches apart, which will hold the sheeting firmly and form the apron. The outside edges can now be cut closely to the frame work with a sharp knife. Previous to this operation a stout twine should be passed through the hem at the points F, F, and a knot tied at each end, but the twine should be an inch or two shorter than the apron, which will cause it to sag and better hold its contents. Where the twine passes through each side piece a gimlet hole ⅛ of an inch in diameter must be made to accommodate the twine.

The drawing is introduced not only to assist in constructing the net, but to represent the manner of handling it when collecting. Fig. 3 represents the net folded for transportation.

LARVAL AND PUPAL HISTORY OF DARAPSA VERSICOLOR HARRIS.

BY GEORGE D. HULST, BROOKLYN, N. Y.

Last summer I was so fortunate as to obtain fifty eggs of the rare Sphinx, *Darapsa versicolor*. They were found between June 26th and July 20th, on the under side of the leaves of the common swamp button bush, *Cephalanthus occidentalis* Linn., and, with two exceptions, were laid singly. The egg is round and slightly flattened—about the size of rape seed. It is at first light green and translucent, afterwards milky and opaque; a few before hatching became, about the spot where the larva emerged, russety. The longest any egg continued without hatching was six days, and it is almost a certainty that the duration of the egg state is seven days.

The larva, just emerged, is a uniform pale white, three lines in length. The caudal horn, from four to five hours after the emerging of the larva, becomes dark purple. The caterpillar gradually becomes pale green. The first caterpillar hatched June 27th, and completed its first moult early July 2nd. The moult occupied about 30 hours.

After First Moult—Length 6 lines. Head nearly spherical, with greenish tint. Body linear, light green in color. A lateral whitish line extends from the mouth to the caudal horn, which, as the age advances and size increases, is revealed to be composed of several lines as follows: A sub-dorsal line extending from each side of the mouth to the upper part of the eyes, and thence back to the rear of the 4th segment of the body; a similar line runs obliquely from the lower part of the 4th segment, under and just including the stigmatal point, upwards and backwards to the rear of the 5th segment, meeting it just below the dorsal line. This is followed by five other and parallel lines, each beginning and ending one segment further back, except the last, which extends across the three last segments up to the base of the caudal horn. There are faint indications of other lines at the lower part of the 10th and 11th segments. The caudal horn is a violet purple, becoming towards the end of the age lighter in color, and during the age is always held parallel with the body. The second moult was completed early July 6th, occupying about 24 hours.

After Second Moult—Head and body light green. Body finely granulated; markings as before, but more distinct. Stigmata marked by red points. Caudal horn reddish, darker in front and behind than on the sides. During this age the head almost ceases to develop, so the body increases rapidly in size from the head to the fifth segment. The third moult ended July 10th, occupying about 30 hours.

After Third Moult—Head somewhat triangular, and with the body green. Markings as before. Fore legs pink. Stigmatal points red; body covered with granulations, and much swollen at 4th and 5th segments. Caudal horn straight, greenish white in front and behind, almost white on the sides. The fourth moult ended early July 16th, occupying about 40 hours.

After Fourth Moult and Mature Larva—Head small, somewhat triangular and elongate. Head and first four segments yellowish green; the rest of the body pea green. Markings as before, without granulations, which have become white specks. The body more heavily marked with these on either side of the back, forming a green dorsal line. Stigmatal marks red, oval, with yellow point at each end. Horn stout, curved backward, sharply pointed, black in front and at the end, red on the sides.

About one in five varies from this normal form in having the ground color a pinkish brown instead of green. The shadings are then pinkish white.

The larva when full grown is from 2½ to 3 inches in length. It becomes bluish black before pupating, and several, before leaving the food plant, were noticed rubbing the mouth over the entire body as if covering it with saliva. The food plant was left during the night, July 21st–22nd. The pupation was on the ground under leaves, in a slight cocoon made by drawing together leaves and grains of dirt with some silk. The larva became a pupa in from three to four days after leaving food plant.

The pupa is of a dirty light brown color, with dark chocolate brown spots—these almost covering the wing cases and anterior parts. The eyes and stigmata are black. The pupa is, as well, black between the segments.

The imago appeared Aug. 12th. The later broods remain in the pupa state of the same early brood; some emerged; others, exposed to the same conditions, remain pupæ.

The larva from the beginning is very quiet in its habits, never leaving a stem of the food plant so long as a leaf remains. In eating it always hangs from the mid-rib of the leaf below (or, when small, from one of the minor ribs), and eats usually from the extreme end, finishing a section across the leaf as it goes. It generally eats midrib and petiole down to the woody stem. It is easily reared and will endure almost any hardship. Like others of our Sphingidæ, it is but partially double-brooded on Long Island.

NOTES ON THE EARLY STAGES OF SOME MOTHS.

BY L. W. GOODELL, AMHERST, MASS.

Euloncha oblinita Grote.

Larva, one specimen—Body black; a broad coral-red band on the back of each ring and a row of bright yellow blotches on the sides. The black ground color is variegated with white on the sides. On each ring are ten small warts, each of which bears about eight short, stiff, spreading brown spines, which sting severely when touched. Head roundish, coral-red, with two brown spots on the crown. Length when full grown, 1.4 inches. Feed on the smooth alder *(Alnus serrulata)*. Changed to a pupa within a tough cocoon attached firmly to a twig. Imago June 6.

I am indebted to Prof. A. R. Grote for the identification of this species, and to Dr. A. S. Packard, jr., for the following Geometrids:

Eumacaria brunnearia Pack.

Larva, eight specimens—Body smooth, stout and uniform; black with a large, indistinct, grayish blotch on each side of the five middle segments. Head black, as wide as the body, not bifid. Length when full grown, 0.6 to 0.7 of an inch. Feeds on the apple tree. Pupated Aug. 30th to Sept. 15th.

Pupa—Length 0.33 to 0.42 inch; dark brown; subterranean. Imago early in June.

Eubyja cognataria Guen.

Larva, two specimens—Body thick and of uniform width, carinated on the sides; brown tinged with olivaceous and punctated with dark brown, thickest on the back and anterior part of the segments. On the first ring are two small angular tubercles, and two still smaller sub-dorsal conical ones on the 8th. The 11th segment is slightly humped and on the back are two large, kidney-shaped, pale ochreous spots, which are edged with dark brown; and there are two small dorsal grayish spots on the anterior part of each ring. The tubercles on the first ring are brown tipped with reddish, and those on the 8th are gray thickly spotted with black. Spiracles red. Head sub-quadrate, deeply bifid, with a crescent-shaped indenture in the middle of the front; color yellowish brown, banded with darker brown and the lobes tipped with dull red. Feeds on apple and pear trees. One specimen became fully grown Aug. 18th, and the other Sept. 16th, and measured respectively 2.3 and 2.4 inches in length.

Pupa—Length 0.7 inch, obtuse, dark shining brown; subterranean. Imagines last of June.

Cymatophora crepuscularia Pack.

Larva, one specimen—Body smooth and of uniform thickness; pale yellow on the sides, shading to creamy white above; a straight, light brown stripe on the back, and below this, situated close together, are several narrower, wavy, dark brown stripes. All the stripes are obsolete on the last segment. Head roundish, a little wider than the body and reddish brown in color. Venter bluish white. Found May 30th, on the plum tree. Length when fully grown, 1.3 inches. Pupated June 6th.

Pupa—Length, 0.5 inch, of the usual form and color; subterranean. Imago June 19th.

NEW SPECIES OF ACOPA AND HELIOTHIS, AND NOTE ON HAMADRYAS.

BY A. R. GROTE, A. M.,

Director of the Museum, Buffalo Society Natural Sciences.

In *Acopa carina* Harvey, from Texas, the accessory cell on the primaries is smaller than in a new species which I have received from Prof.

Snow from Southern Kansas. In this genus the body is linear and slight, tibiæ unarmed, ocelli small, male antennæ brush-like with distinct joints, thorax with a tuft behind, abdomen untufted, linear. Fore wings 12-veined with accessory cell, from the outer apex of which spring veins 7 and 8; 9 out of 8, a long furcation to costa. Hind wings 7-veined; median vein 3-branched; 8 out of 7 not far from the base. Primaries with oblique outer margin and produced apices. Front with a clypeal plate. Labial palpi narrow, linear, improminent; legs slender, tibiæ unarmed.

Acopa perpallida, n. s.

♂ ♀. Larger than *carina*, with white secondaries. Primaries white, shaded with ochrey and with narrow fuscous lines. Basal line indicated; anterior line upright, forming two large teeth; outer line denticulate, outwardly produced opposite the cell; orbicular obsolete, reniform concolorous, obscured by a dark shade. Subterminal shade line fuscous, even, continued to vein 7 from internal angle, above which it appears as an inwardly oblique shade from costa to vein 7. A terminal interrupted line; fringes white. Hind wings white, very slightly soiled, with discal mark and in distinct line; fringes white. Beneath yellowish white, shaded with fuscous on primaries; fringes white. Body whitish. *Expanse* 28 mil.

The median lines on primaries are further apart than in *carina*. This species was sent me by Prof. Snow under the number 504.

Heliothis nuchalis, n. s.

♂. Wings ample; body comparatively slight. Eyes naked. All the tibiae armed; fore tibiae with an inner terminal spine and an outer one of same size, the latter followed by two smaller spinules. Fore wings with pale whitish ochrey ground, much shaded with fuscous. All three stigmata present, very large, sub-equal, and dark. The reniform has an internal annulus and a central pale streak, likewise the smaller rounded orbicular; the broad claviform is cut by the narrow submedian shade. Posterior line narrow, fuscous, angulated on subcostal vein, roundedly produced opposite cell, interrupted by the pale marked veins. The terminal fuscous field is cut by the whitish subterminal shade; fringes dark. Hind wings whitish ochreous, with thick discal mark, central discally angulated line and with a series of irregular pale interspaceal blotches cutting the fuscous terminal shading of the wing; fringes white, interlined at base. Beneath whitish with faint ochrey tinge. Discal marks large,

black, distinct on fore wings. Outer line narrow, distinct, discally bent; subterminal shading obvious. On the secondaries there is a discal mark, a central narrow uneven line and terminal shading; fringes white with faint interline. On fore wings the fringes are here whitish at base. Body whitish beneath, above fuscous. *Expanse* 33 mil. Prof. Snow, Kansas, number 371.

This species is wider winged and smaller bodied than *cupes*, differs by the presence of the large claviform and in the armature of the fore tibiæ. The fuscous margin of the hind wings above is much more broken up with pale blotches than in *umbrosus* and *phlogophagus*.

Fam. TINEIDÆ.

For Dr. Clemens' genus *Hamadryas*, preoccupied in the Lepidoptera by Hübner and Boisduval, I propose the generic name *Euclemensia* for *E. Bassettella*.

NOTES UPON GRAPTAS COMMA AND INTERROGATIONIS.

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

I. COMMA; dimorphic forms HARRISII and DRYAS, both figured in But. N. A., Vol. 1.

In CAN. ENT., v., 184, Oct., 1873, I gave the result of breeding this species from eggs laid by the form *dryas*, viz., 6 *dryas*, but many more of *Harrisii*, establishing the dimorphism. Since that time I have raised several broods from the egg, and both before and after 1873 recorded in my journal the history of several lots of larvæ found by me. I have therefore some material for illustrating the peculiarities of the species. At Coalburgh there are three broods annually, and the butterflies of the third brood hybernate. The hybernating females deposit their eggs last of April or early in May, and the first brood of the butterflies emerges from chrysalis about 1st June; but should the weather be cold during May, then from the middle to last of June.

The second laying of eggs occurs in July, between 15th and 30th, and the butterflies from these appear last of Aug. or first of Sept.

And the third laying occurs in September, the butterflies therefrom emerging in October. The several broods are accelerated or retarded in their periods by the weather, great heat quickening every one of the preparatory stages.

So far as I know from breeding, or from very extended observations in the field, the last laying of eggs produces *Harrisii* only, and the series therefore begins in the spring with eggs laid by that form.

The result of the eggs laid by *Harrisii* has in all cases been *dryas* only, with a single exception, when one *Harrisii* ♂ emerged.

The next brood of the season, the eggs having been laid by *dryas*, has sometimes consisted wholly of *dryas*, but again, as in the instance recorded in the ENT., and first above mentioned, of both forms, *Harrisii* considerably outnumbering *dryas*.

The third brood, from eggs laid by *dryas*, has resulted in *Harrisii* wholly, and closed the season.

Harrisii is the winter form of the species, and *dryas* the summer. The first brood of the summer is *dryas*, and were the season here as short as it is in the Catskill Mountains of New York, these two broods would comprise the whole round. In the Catskills the first eggs are laid in June, a full month after the first are laid in Virginia, and the butterflies emerge in July, all *dryas*, and eggs laid by these produce *Harrisii* in August, and this form hybernates. So that the two northern broods correspond with the first and third southern broods, and the second brood at the south is the interpolated one, and consists of both forms of the species. In some years *comma* is excessively common here in October and November, and in no season is it rare. I give a statement of results obtained:

FIRST BROOD: Eggs laid by HARRISII.

1871—Between 10th and 18th May, found larvæ. Result from 20th May to 2nd June—7 *dryas*.

1873—20th May, found larvæ. Result about* 12th June—4 *dryas*.

* I. e., a few days before and after the date named.

1874—10th May, obtained eggs from ♀ *Harrisii* in confinement. Result about 27th June—34 *dryas*.

1875—14th May, obtained eggs from ♀ *Harrisii* in confinement. Result about 18th June—19 *dryas*.

1869—18th June, obtained from chrysalis 1 ♂ *Harrisii*.

This last is the only exception to the rule which I have noticed.

SECOND BROOD: Eggs laid by DRYAS.

1873—30th July, obtained eggs from *dryas* in confinement. Result about 2nd September—6 *dryas*, many *Harrisii*.

1875—29th July, obtained eggs from *dryas* in confinement. Result about 24th August—5 *dryas* only.

THIRD BROOD: Eggs probably laid by both forms.

1870—Last of Sept., found 70 larvæ which must have come from eggs laid early in Sept. Result, in Oct.—all *Harrisii*.

I have never taken or observed an example of *dryas* in the fall or in the spring after hybernation. This form is recognizable at sight, as both sexes have the hind wings black on upper side, whereas in *Harrisii* these wings are red.

II. INTERROGATIONIS; dimorphic forms FABRICII and UMBROSA, both figured in But. N. A., Vol. 1.

I have raised several broods of this species, obtaining eggs by confining the females, during the past six years, and have also recorded the results obtained from eggs or larvæ found. There are at Coalburgh three full broods annually, as with *comma*, but there is an effort towards a fourth, more or less successful, depending on the length of the season or the temperature in the fall months. Some individuals hybernate, and the females so surviving lay their eggs in the last days of April or early in May. From these eggs come butterflies last of May or first of June.

The second laying occurs early in June and the butterflies therefrom appear early in July.

The third laying takes place last of July and the butterflies appear in September, some as early as first, others late in the month. The females of this brood, which is the third of the year, or some of them, lay eggs about middle of September and the butterflies emerge in October. But

the larvæ now are apt to be caught by cold weather and destroyed, or their food plant is cut off, so that few can reach chrysalis. Once in the chrysalis stage they are safe, and sooner or later, as the weather may permit, the butterflies will emerge. I am inclined to think that the butterflies of the third brood do not hybernate, and that the continuance of the species here depends on the few individuals which survive from this fourth brood. In no other way can I account for the scarcity of this species as compared with *comma*. Both these species feed on same plants, hop, early in the season, then nettle and *Böehmeria*, then *Celtis* and elm, and neither suffer to any extent from parasites. But *comma* is fifty times more abundant than *interrogationis*, and in the spring while many of the former are seen, I rarely see an *interrogationis*. In midsummer and early fall this last becomes common, and if the individuals of the third brood generally hybernated, surely the species ought to be common in the spring. If *umbrosa* ever passes the winter here I have failed to discover it. All the spring examples noticed by me have been *Fabricii*.

First Brood—The eggs obtained from ♀ *Fabricii* in April gave in May 21 *umbrosa*, no *Fabricii*.

The results of the next succeeding, or second, brood have been variable, just as in second brood of *comma*, and both forms have appeared from eggs laid by one female.

The result of the third brood has also been variable, both forms resulting. This, therefore, differs from the corresponding brood of *comma*, in which all the butterflies were of the one form, *Harrisii*.

The only examples of the fourth brood raised by me to imago came from larvæ found on elm 10th October, and when found were past third moult. They must then have proceeded from eggs laid about the middle of September. The chrysalis period was much protracted, but in December there resulted 4 *Fabricii*, no *umbrosa*. I have, however, in several years seen the larvæ of this brood late in the fall. As some individuals of every brood of any species of butterfly appear earlier than the average time and others later, so individuals of this fourth brood of *interrogationis* doubtless appear early enough in the fall to ensure early hybernation. And if the chrysalis stage is reached the butterfly is sure to emerge at last unless destroyed by a parasite or an enemy. In the case of *comma*, when compared with the behavior of that species to the northward, where there are but two annual broods, it is the second brood which is interpolated in

this region. In the case of *interrogationis*, when compared with the species northward, it is the second and third broods which are interpolated in this region, and when compared with *comma* of this region, it is the third brood of *interrogationis* which is interpolated. To the southward the fourth brood would have ample time to reach the imago before winter set in, and the species should be as abundant, where the food plants are found, as *comma* is here.

I say nothing of *interrogationis* in the Northern States, because I find nothing immediately bearing on the periods of the broods in my note books, and by correspondence I have failed to obtain special information. I simply know from experience that in the Catskills there are two annual broods, but whether the hybernating individuals are altogether *Fabricii*, or whether the brood which proceeds from these is wholly *umbrosa*, I do not know and cannot learn. I think *Fabricii* will be found to be the winter species there, and *umbrosa* the summer, but this is conjecture. I hope some lepidopterist at the north will examine this matter and report.

I give a statement of results obtained:

FIRST BROOD: Eggs laid by *Fabricii*.

1877—28th April, obtained eggs from ♀ *Fabricii* in confinement. Result about 4th June—21 *umbrosa*.

I had watched for years for a ♀ *Fabricii*, but this was the only one I was ever able to take.

SECOND BROOD:

1871—4th June, eggs laid by *umbrosa* in confinement. Result about 1st July—11 *umbrosa*, 6 *Fabricii*.

1869—5th June, found larvæ. Result about 25th June—26 *umbrosa*, no *Fabricii*.

1873—June, found larvæ. Result last of June—19 *umbrosa*, no *Fabricii*.

1870—4th July, found eggs. Result 10th August—1 *umbrosa*, 2 *Fabricii*.

THIRD BROOD:

1871—1st August, confined 11 *umbrosa* and obtained multitudes of eggs. Result 1st September—63 *umbrosa*, 34 *Fabricii*.

1877—15th August, from eggs of *umbrosa* in confinement. Result about 22nd September—2 *umbrosa*, 9 *Fabricii*.

1870—1st August, found larvæ. Result 13th September—6 *umbrosa*, 16 *Fabricii*.

FOURTH BROOD:

1872—10th October, found larvæ past third moult. Result 8th to 18th December—4 *Fabricii*.

MICRO-LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KY.

TORTRICINA.

It is not my purpose to enter upon the difficult field of this family. My acquaintance with the literature of the subject, and with the characters of the multitude of very unnatural genera into which it has been in modern times divided, is too limited to justify me in so doing; the more especially as Prof. Fernald is now working it up. But the two species mentioned below are sufficiently interesting to induce me to publish the following observation upon them.

EXARTEMA, Clem.

E. fagigemmæana, n. sp.

A single specimen of this species is in the Museum at Cambridge, labelled *Colcotechnites fagigemmæana*, by which name it stood in my cabinet before it was recognized as an *Exartema*. Prof. Fernald having examined it, informs me that it is a true *Exartema*, which genus, though withdrawn by Dr. Clemens, is retained by Zeller.

Palpi ochreous, with terminal joint brown, and with two small brown spots on the outer and one on the inner surface of the second joint. Head ochreous, with a dark brown line across the vertex between the antennæ; eyes green; thorax ochreous, stained with fuscous on the dorsal surface; fore wings from the base to beyond the middle sordid olive green, the

remaining portion brick red, both portions being marked with silvery gray or silvery white, according to the light, and the basal third entirely suffused or overlaid with the silvery hue, except three spots, one of which is just within the dorsal margin, another oblong larger one is within the costal margin and a much larger elliptical one is on the fold. From the silvery part of the wing, at about the middle of the disc, a silvery streak curves obliquely backwards to the brick red color at the fold, where it intersects another silvery streak, which leaves the dorsal margin before the ciliae (at the junction of the olive green and brick red) and curves obliquely backwards to a point in the middle of the apical part of the wing, where it intersects still another silvery streak, which leaves the apical margin near the hinder angle and curves obliquely forwards to a point within the costal margin at the junction of the olive green and brick red colors. On the costal margin, and opposite to the end of the last mentioned streak, is a small ochreous spot, and in it begins another silvery streak which curves obliquely backwards to the apical margin before the apex, running nearly parallel to the last above-mentioned silvery streak, and being intersected by a small costal silvery streak which also arises from a small costal ochreous spot; further back are two other small costal ochreous spots, each of which contains a small black line. Ciliæ dark bluish brown, with two ochreous spots *beneath* the apex, and a dark brown hinder marginal line at the base, before which is an indistinct line of black atoms. From about the basal third of the wing length to the apex the *extreme* costa is dark brown interrupted by ochreous spots, and the basal third is ochreous interrupted by three or four dark brown spots. Thus the basal half of the wing is olive green suffused with silvery, except upon the three spots before mentioned, while the apical half is brick red divided by anastomosing silvery lines. Under a lens the silvery parts of the wing appear to be dusted with brown.

The hind wings are fuscous, pale at the base, deepening towards the apex. Ciliae yellowish silvery with a dark brown hinder marginal line at the base. Abdomen dark brown above, ochreous below. Legs ochreous, the first pair dark brown on their anterior surfaces, and the tibiae of the hind pair fuscous on their anterior surfaces; tarsi dark brown on the outer surface, annulate with fuscous. *Al. ex.*, ♂, 9½ lines; ♀, 8 lines. Kentucky.

This insect is chiefly interesting from its larval habits. I have known the larva long, and it is mentioned, I believe, in a previous paper in the

CAN. ENT. It is sordid yellowish white, with the head piceous and the next segment stained with fuscous. It feeds inside the leaf buds of the beech *(Fagus sylvatica)*, and when it has well eaten out the contents of one bud, it cuts it off at the base, and using it as a case, travels off to another bud, to the apex of which it affixes its case and proceeds to eat out this bud also, and then cuts it off, as it had done the first, and proceeds to another bud. I have known it to attach four buds together in this way, thus making a case nearly two inches long. It pupates in its case, which it attaches to a leaf, and the imago emerges in Kentucky in the latter part of June.

BRENTHIA, Clem.

B. pavonacella Clem.

Not having seen Dr. Clemens' specimens, and being unable to recognize my bred specimens in any descriptions by him or any other author within my reach, I had proposed to describe this species as new under the name of *Microcæthia amphicarpeœana*, and specimens so labelled are in the cabinets of various Entomologists. Prof. Fernald, however, on comparison with Clemens' types, recognizes my specimens as identical therewith. I have no doubt this determination is correct, though having again examined Dr. Clemens' description, it seems to me singularly incomplete.

In the "Tineina of North America" (Mr. Stainton's republication of the Clemens' papers) p. 134, Mr. Stainton, who had seen Dr. Clemens' types, writes that it is "probably a *Simaëthis*," and at p. 41, again, that he is disposed to consider the insect "not a *Tincina*, but one of the *Pyralidina* allied to *Simaëthis*"; and on p. 38, Dr. Clemens states that having "examined a specimen of *Simaëthis*, I must acknowledge that *Brenthia* seems congeneric with it"; but he thinks its proper location is among the *Tineina*, and not the *Pyralidina*. Zeller refers *pavonacella* Clem. to *Chorentis*, which is Stephens' section "A" of *Simaëthis*. The species appears to me to have some decided affinities with the *Tineina*, but upon the whole to be rather referable to the *Tortricina*.

Dr. Clemens mentions that it has the habit of "strutting about on leaves," but Mr. Stainton "has never observed this habit in any of the English species." The appearance of the insect in repose is decidedly *strutty*, and full of self-importance. A human being who would make the same effort to display his or her adornment, would subject himself to a well-founded charge of egregious vanity, but perhaps the insect is no more

chargeable with vanity than is a peacock. I have, however, never seen it strut about on a leaf, and after having bred a great many specimens, I do not believe that it can walk or run. At all events, I have never seen it do either, its modes of progression being by flight or by little jumps. It sometimes jumps more than an inch at a time, that is, about six times its own length. It is the only insect that I can now call to remembrance which has the under side of the wings of both pair as gaily ornamented as the upper side, and which manages to make a full display of its entire ornamentation of body and wings at one and the same time. It does this in the following manner: The fore wings, without being laterally extended, are elevated so as to display anteriorly the ornamentation of their upper surface, and posteriorly that of their lower surface; at the same time the hind wings pass out beneath them at the side, and fully expanded, getting a twist at the base which brings the costal margin up and the dorsal margin down, so that the ornamentation of their upper surface is displayed in front, and that of their under surface behind. The under surface of the wings are rather more gaily ornamented than the upper. This is its position always in repose, and the ornamentation of the abdomen is also thus exposed. I have bred both ♂ and ♀, and observed no difference between them either in ornamentation or position.

The larva is very pretty. It is pearly white, prettily spotted with piceous, with the integument somewhat indurated. It attains a length of more than one-third of an inch. It feeds on the under surface of leaves of *Amphicarpaea monoica*, in a slight web by which the leaf is a little curved downward, and in this web it passes the pupa state concealed in a rather dense, flattened, lozenge-shaped cocoon. The larva is very common in Kentucky in June and July, and I have also found it in September. I have never met with the imago except when I have bred it, and my specimens emerged from their cocoons in the latter part of July.

TINEINA.

STROBISIA.

S. albaciliœella, n. sp.

I describe this species from a single specimen presented to me by Mr. Chas. Dury, of Cincinnati. Tongue, palpi and face white. Antennæ and vertex brown, with a bronze lustre and paler than the thora. and fore wings, which are shining blackish brown, with greenish, violet reflections;

apical ciliæ of fore wings white. Thorax above and the anal tuft brónzy brown, with a deep purplish lustre; under surface white. Legs white tinged with fuscous on their anterior surfaces, especially so at the apex of the tibiae and on the tarsi. On the fore wings behind the middle are a very few white scales, forming an indistinct, short, transverse, white line. *Al. ex.* 5 lines. Taken at the light at Cincinnati, Ohio.

This and the three species described by Dr. Clemens are closely allied structurally and in ornamentation, and yet it is difficult to separate them structurally from the heterogenous assemblage of insects known as *Gelechia.*

ON A NEW ARCTIAN FROM FLORIDA.

BY A. R. GROTE, BUFFALO, N. Y.

The student is referred to my papers on the Bombycidæ of Cuba for remarks on a generic group closely allied to *Halisidota (Halesidota)* which I have called *Euhalisidota*, describing under it the species *luxa, fasciata, scripta* and *alternata.* Closely allied to the first of these is a species from Florida, the male of which I have from Mr. Schwarz, the female from Mr. Dury. It is hardly so large, and without the black thoracic marks, although I can make out two black points on the collar in one specimen. It seems to differ by the streak of dusky speckles about the median vein at the extremity of the cell, and the distinct subterminal series of isolated black dots. The color is dusky ochre, with the thorax darker and the inside of the fore tibiæ orange. The male antennæ are bipectinate. The secondaries are paler, with a slight apical mark in the male.

It must be remembered that my type from Cuba was a little rubbed. In comparing my figure and the present female specimen I think there is a great probability of the species being the same. The object of the present notice is to record the occurrence of the group in the United States, and to show that the West Indian fauna must be well understood before we describe, as new, species from the extremity of the Floridian peninsula.

Mr. Schwarz captured the male *Euhalisidota* at Enterprise, May 26, together with several other interesting moths, some of which I have already mentioned in this journal, and others I hope to be able to publish on a future occasion.

BOOK NOTICES.

Lepidoptera Rhopaloceres and Heteroceres, by H. Strecker.

Part 14 of Mr. Strecker's work reached us by mail on the 28th of March, and on enquiry, we find that other subscribers received it within a day or two of that date. We desire to call particular attention to this fact, as this part of the work, in which a number of species are described as new, bears the date of 1877. In Dr. Hayden's last report Mr. S. H. Scudder describes a *Satyrus* larger than *Ridingsii*, and like it, from Utah, as *dionysius*, which seems to be identical with Mr. Strecker's *ashtaroth*. Mr. Strecker's *M. imitata* is also doubtless a synonym of *ulrica* Edwards, C. E., v. 9, p. 189, his *M. larunda* the same as *dymas* Edwards, C. E., v. 9, p. 190, his *Pamphila similis* Edwards' *Amblyscirtes nysa*, C. E., v. 9, p. 191, and his *Charis Guadeloupe* identical with *C. australis* Edwards, *Field and Forest*, Nov., 1877.

It is somewhat singular that Mr. Strecker, who in his work so often expresses his abhorrence of the practice of creating synonyms, and who has not hesitated to heap abuse on the heads of those whom he considers to have fallen into such errors, that he should himself so grievously err in this respect. The dating of a work of this sort 1877, which does not appear until March, 1878, can scarcely be called honest, especially if it be done with the view of establishing a claim for priority in the descriptions of species. We would also here take the opportunity of expressing our regret that Mr. Strecker's work, which in some respects has much to commend it, should be marred by such gross personal abuse as he so frequently indulges in. Such low and ungentlemanly language is entirely unworthy of any one aspiring to the humblest position in the scientific world, and can only result in injury to himself.

ENTOMOLOGICAL COLLECTING TOUR.—Mr. Wm. Couper, of Montreal, purposes visiting again the Lower St. Lawrence on a collecting tour this summer. He leaves on the 10th of May, and expects to return about the end of July. Parties wishing to correspond with him while absent will address their letters to Godbout River, Province Quebec, *via* Rimouski. This will be Mr. Couper's fourth collecting tour along the coast and among the islands of the St. Lawrence.

CORRESPONDENCE.

ONE WORD MORE ON L. PSEUDARGIOLUS.

DEAR SIR,—

It occurred to me to examine the genital organs of a black *violacea*, one day last week, and to my surprise, the individual was a male. Since then I have taken eight other blacks, and all are males. As it has been taken for granted that the black examples of *Lycaena* were in all cases female (at any rate where there is a blue male) I thought it best to send one of these so taken by me to Dr. Hagen for examination. And he replies :— "This morning I have carefully examined the abdomen of *L. violacea*. It is without any doubt a male. The organs are so fairly protruded that no section is needed." Now I have doubts whether there is any black female to this species. In a paper on Sexual Dimorphism in Butterflies, 1877, Mr. Scudder states that "wherever partial dimorphism is confined to one sex, it is always to the female ; there seems to be no exception to the rule."

I have thought it possible that the female of *violacea* deposited its eggs on Dogwood flowers, as there seemed to be no other flower in bloom here at this season long enough to allow the maturing of the larvae, which, so far as is known, live wholly on flowers, and three days ago I tied a female in a gauze bag over the end of a branch of Dogwood, enclosing three of the flower heads. Next day I found about forty eggs had been laid, some on each of the flower heads, and among the flowerets, which are still in bud only, and search among the Dogwoods subsequently made led to the discovery of several eggs. We therefore have the food plants of the three broods, *Cornus* in spring, *Cimicifuga* in June and *Actinomeris* in fall.

W. H. EDWARDS.

Coalburgh, W. Va., April 16th, 1878.

ERRATA.—In the description of *Tricholita fistula*, published in the March number, read : Orbicular spot concolorous, oval, black margined ; reniform pipe-shaped, bowl turned to the base of the wing, white, broken. —LEON F. HARVEY, Buffalo, N. Y.