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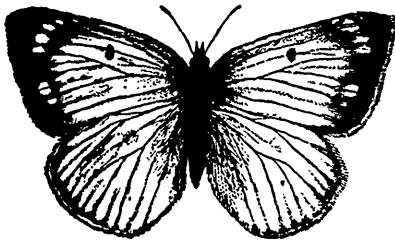
ON SOME OF OUR COMMON INSECTS.

10. *THE CLOUDED SULPHUR BUTTERFLY—*
Colias philodice, Godt.

BY THE EDITOR.

The clouded sulphur is everywhere one of our commonest butterflies, abundant in its season in fields and roadways, frequently congregating in groups on the borders of streams and springs, where, in hot weather they seem to enjoy settling on the moist ground. They are still more abundant in clover fields as the season advances.

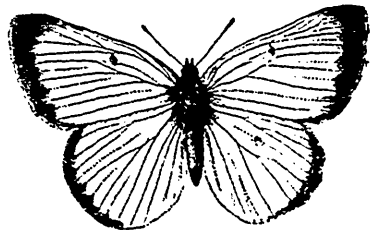
Fig. 21.



Colours, yellow and black.

reference to the figures, 21 representing the female, 22 the male. The ground colour of the wings in both sexes is bright yellow, marked on the outer edge with a dark brown or blackish border, narrower in the male than it is in the female, while in the latter it encloses on the anterior wings a broken row of irregular yellow spots. There is also a spot of black placed near the front edge of the fore wings, about half way between the base and tip, varying in form and distinctness. The hind wings in both sexes are less heavily margined, and near the middle is a dull pale orange spot. Both wings are dusky towards the base, and the fringes are pink.

Fig. 22.



Colours, yellow and black.

On the under surface the yellow colour is less bright, while the dark margins are either entirely wanting or else represented by a dusky shade margined occasionally within by a few dull brownish dots. The spot on the forewings is distinct, but paler and usually centered with a small silvery eye. That on the hind wings is much more distinct than above, being composed of a bright silvery spot in the centre defined by a dark brown line which is in turn encircled with dull orange. Immediately above and a little towards the outer edge is a much smaller spot of the same character; there is also a reddish dot on the anterior edge, about the middle of the wing. The antennæ are pink, with the knobs at their tips of a darker shade; the body is dark above, paler at the sides and underneath.

This insect appears first on the wing about the middle of May, becoming more plentiful towards the latter end of the month, but the time of its greatest abundance is later in the season, during the latter part of July and throughout August. In the second volume of the ENTOMOLOGIST, p. 8, Mr. Bethune remarks as follows: "On the 3rd of August, a lovely, bright, warm morning, after an excessively wet night, I drove about ten miles along country roads; every few yards there was a patch of mud, the effects of the heavy rain, and at every patch of mud there were from half a dozen to twenty specimens of *Colias philodice*, at least one I should think for every yard of distance I travelled. I must then have seen, at a very moderate computation, about ten thousand specimens of this butterfly."

The caterpillar of the Clouded Sulphur feeds on the cultivated pea, on clover, on the Blue Lupin, *Lupinus perennis*, and no doubt on many other plants belonging to the order *Leguminosæ*. The egg is about one twenty-third of an inch in length, tapering at each end, with twelve or fourteen raised longitudinal ribs, with smaller cross lines in the concave spaces between them. Their colour when first deposited is of a pale lemon yellow, which changes in three or four days to a pale red, then gradually to a bright red, and from that to dark brown just before the time of hatching. The duration of the egg stage is about seven days.

The young caterpillar just hatched is one-twelfth of an inch long and of a dull yellowish brown colour, but when a little older it changes to a dark green. When full grown it is about an inch long, with a dark green head and body, the latter with a yellowish white stripe on each side close

to the under surface, with an irregular streak of bright red running through its lower portion. The body also has a downy look occasioned by its being thickly clothed with very minute pale hairs.

The chrysalis is about seven-tenths of an inch long, attached at its base, and girt across the middle with a silken thread. Its colour is pale green with a yellowish tinge, with a purplish red line on each side of the head, darker lines down the middle both in front and behind, and with a yellowish stripe along the sides of the hinder segments.

During the heat of summer the chrysalis state usually lasts about ten days. A day or so before the butterfly escapes the chrysalis becomes darker and semi-transparent, the markings on the wings showing plainly through the enclosing membrane.

NOTES ON THE EARLY STAGES OF SOME OF OUR BUTTERFLIES.

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

I herewith send you some memoranda of what I have done during the past summer, largely owing to the assistance of Mr. Mead. I consider it my most successful season in the way of obtaining larvæ and eggs. One of the most interesting species we discovered was *Lycaena pseudargiolus*. Mr. Mead noticed a female hovering about flowers of *Actinomeris squarrosa*, which is a weed found hereabouts in company with *A. helianthoides*—the last being a thousand-fold most numerous—and suspecting that she was ovipositing, he made a careful examination of the plant. He found several eggs laid directly on the flowers; then capturing two or three of the females, he tied them in a muslin bag over a bunch of these flowers (growing), the result of which was that many eggs were obtained. From those in the bag a few caterpillars were hatched and finally brought to maturity. They fed on the petals of the flowers. It became difficult to obtain food for them, as no plant of *A. squarrosa* could be found in the vicinity of my house, and we tried them on the other species (*helianthoides*), and this answered equally well. Last week the caterpillars that had escaped one accident or another, formed chrysalids in the same flower heads. In summer, as no species of *Actinomeris* is in bloom, the

butterfly must deposit its eggs on some other plant, so that it is evidently much less limited in its diet than many of our caterpillars.

The egg is a beautiful object, blue-green, flattened and depressed at the top, and covered with a net work like lace ; raised on the surface.

The larvæ, when full grown, are a little over one fourth of an inch long and in shape a long oval, the head very small, black, and drawn—when at rest—within the next segment, which falls over the head like a hood. The body is green, dark dorsally, pale at the sides, and is marked dorsally by eight sagittate, tuberculated, yellow-green spots, one on each segment, pointing forwards, and truncated.

The chrysalis is dark brown, covered with minute hairs ; of a long oval shape, compressed at the middle. Length $\frac{1}{8}$ inch.

We obtained eggs of *Thecla poeas* also, but only after trying many species of plants, as the food plant of this butterfly was entirely a matter of conjecture. But several eggs were laid on Blackberry. The larvae hatched, but did not eat, and soon died.

Eggs of *Phyciodes tharos* were obtained on grass, after trying the butterfly on every plant we could think of. The eggs were laid on the leaves and stems of a clump of grass placed under a glass jar. Many were laid directly on the sides of the jar. These eggs hatched, but the caterpillars refused to eat.

We had better success with *Phyciodes nycteis* ; a female having been confined with a plant of *Actinomeris squarrosa*, she forthwith proceeded to deposit a large cluster of eggs, about 100, side by side and in regular rows, on the under side of a leaf. The larvæ hatched after a long interval, 13 or 14 days, and we at once from the cuticle of the leaf transferred them to a glass and supplied them with fresh leaves, and in due time the caterpillars reached the third moult. At this they stopped feeding, and are now in a state of hibernation. These caterpillars are dark brown, covered with pencils of short bristles of the same hue, that proceed from longitudinal rows of tubercles. When feeding they consume the whole surface of the leaf, which becomes very filthy from the excrementitious matter mixing with the juices of the leaf. But the caterpillars emerge from the mine as clean as a mole from under the ground.

I have also hibernating specimens of the larvæ of *Diana, cybele* and *aphrodite*, the eggs of which were obtained by Mr. Mead in the same manner. I consider this process of obtaining eggs, provided the food

plant is known, as infallible, and it is sufficient if the butterfly be enclosed in a bag on a limb of the plant, or if a low plant like the grasses, in a bag tied over a few stems or a single stem. I find it preferable to enclosing in a box or keg for the reason that with the latter it is impossible to avoid the spiders, which destroy eggs and larvæ terribly.

I have succeeded with the *Papilio*'s, all that are found here, as well as with the smaller species.

DESCRIPTION OF NEW DELTOIDS.

BY AUG. R. GROTE,

Curator of Articulata, Buffalo Soc. of Natural Sciences.

Bomolocha scutellaris, Grote.

♀. Larger than *Baltimoralis* and differing at once by the parallel continuation of the transverse lines to the internal margin. The peculiar conformation of the dark median space, described by Guenée as resembling "une espèce de col" in *Baltimoralis*, is therefore wanting in *scutellaris*. Differing from *crassalis*, than which it is larger, by the inner transverse line being incepted on costa and joining internal margin without fusion with the outer transverse line. In coloration *scutellaris* is unusually bright and contrasted. The deep brown median field of the forewings shows the usual black dots. The inner transverse line is edged with white scales outwardly; it is strongly outwardly and obliquely acutely projected below median vein, running more shortly backwards, after the angulation, to internal margin. The basal field is paler brown, much washed with pale and whitish scales inferiorly. The outer transverse line is of the usual general shape, projected medially, even, very slightly notched. Beyond it the subterminal space is whitish, unusually contrasting, crossed by two faint rivulous lines, approximate to, and coincident with, the outer transverse line; the outer of these lines precedes a dusky irregular shade on costa. The subterminal line is white, more continuous than usual, enclosing the usual, but here less obvious and paler dots. The terminal space is pale, whitish above the two usual apical oblique blotches, where the costo-apical dots are marked in brown. Terminal punctiform line distinct, preceded by nervular white marks.

Fringes dark, cleanly cut with pale at the extremities of the veins. Hind wings uniformly dark fuscous, with a neat terminal line. Fringes pale, cut with dark scales; traces of a transverse line apparent on internal margin. Thorax and palpi dark; front and collar with an admixture of pale scales. Abdomen fuscous, the segments finely marked above by pale scales, the three basal segments with dorsal black minute tufts. Beneath pale ochrey fuscous; fore wings dusky within the faintly marked median transverse line, showing the discal dot; subterminal line indicated by costal dots; terminal line neatly indicated on both wings. Hind wings with discal dot and faint transverse median shade line.

Expanse 30 m. m. *Habitat* Albany (O. Meske); Quebec (F. X. Bélanger).

The six North American species of *Bomolocha* I arrange as follows. I recognize Zeller's *achatinalis* as my *madefactalis*. Guenée describes from a figure and I noted that his description did not quite correspond with my specimens, but I was unwilling to bestow a new name. It is questionable whether any of Guenée's descriptions from Abbott's figures should, with propriety, have been written. Mr. Lintner has sent me my dark var. of *Baltimoralis* as "♂ *laciniosa*,"

Bomolocha, Hubner.

Type: *Crambus crassalis*, Fabr.

scutellaris, Grote.

Baltimoralis.

Hypena Baltimoralis, Guenée.

Hypena laciniosa, Zeller.

♀ *Hypena benignalis*, Walker.

abalienalis.

Hypena abalienalis, Walker.

bijugalis.

Hypena bijugalis, Walker.

Hypena pallialis, Zeller.

manalis.

Hypena manalis, Walker.

madefactalis.

Hypena madefactalis, Guenée.

Hypena achatinalis, Zeller.

Hypena olivacea, Grote.

♂. Closely allied to *H. humuli* and *H. evanidalis*, and with the same pattern of ornamentation. The general color is dusky olivaceous, not dusky blackish brown, as in *humuli*, or light rusty brown, as in *evanidalis*, and without the median costal darker shade or apical streak, evenly colored. Four raised median black discal scale dots. Two (the reni-

form) approximate, superposed, situate at the extremity of the discal cell, set in a ground of pale scales, surrounded by the here acute outward projection of the transverse posterior line. Two others (the orbicular) further apart, obliquely placed, the lower and outer below the median vein. Both the transverse lines distinct, irregularly zigzag, continued, relieved against pale accompanying shades. Subterminal line apparent by the paler terminal, contrasting with the darker subterminal space, even, a little bent. Terminal dots: the dark fringes marked by paler shades opposite the dots; these paler shades extending on the terminal space before the dots as longitudinal streaks. Hind wings wide, pale fuscous, concolorous, without markings except a very faint relieving of the veins; fringes paler. Beneath obscurely shaded, with a discal dot on secondaries. Head and appendages dusky olivaceous; abdomen like secondaries.

Expanse 28 m. m. *Habitat* Albany (Lintner).

Apparently a smaller form than *H. humuli*, with narrower primaries, and of a peculiarly smooth concolorous dusky olivaceous tint.

SISYRHYPENA, n. g.

Ocelli; eyes naked, without lashes. Labial palpi with the second joint exceeding the front by half its length; third joint long, recurved, about one-third the length of the second joint, slender, more or less pointed, especially in ♀; the palpi are closely scaled. Antennæ (♂) strongly bipectinate; the pectinations are for the most part twice the length of the joints and they are furnished with long terminal spinules and thickly scattered setal hairs. At basal third there is a very slight tuft of scales on the inside, and here the pectinations are reduced in length to the base of the antennus, where they become obsolete, while they are lengthy on the outside. In the female the antennæ are simple. The legs are unarmed. The species is slight; the primaries are narrow, crambiform, drab-colored or brownish with a silky gloss, with inconspicuous and inelegant streaky and punctiform ornamentation.

A low Deltoid genus, perhaps nearest allied to *Tetanolita*.

Sisyrrhypena pupillaris,* Grote.

* Spec. sub No. 10, ad cel. Zeller misi.

♂. Concolorous, silky drab, veins tending to be paler marked. Primaries with diffuse darker terminal shading, and a discal narrow outwardly extended streak. An exceedingly fine and faint outer transverse line, rounded opposite the discal cell. A subterminal oblique punctiform line from apices to internal margin within the angle. Costal margin dark shaded. The discal dots are perceivable against the longitudinal discal streak. Hind wings a little paler with a very faint transverse shade line. An interrupted fine dotted line before the silky fringes on both wings. Beneath darker; the hind wings much clouded with dark brownish, with a distinct discal spot and a continued transverse guttiform or cuneiform subterminal line, analagous to the subterminal line of the forewings above; faint traces of an inner transverse line. Forewings without markings except an incomplete reproduction of the subterminal shaded apices. Body parts concolorous; abdomen like hind, thorax like forewings.

♀. The labial palpi are held as in the ♂, but the third article is more pointed. Slighter than the ♂, with simple antennæ and with almost wholly blackish brown primaries; the ♂ exhibits two transverse lines, while both female specimens have entirely glossy brown forewings without apparent marks except the inconspicuous discal points. Hind wings pale drab with faint darker terminal shading. Beneath the secondaries have the double lines more equally defined. Thorax and head dark, concolorous with primaries.

Expanse, ♂ 21 to 23 m. m. ♀ 21 m. m. *Habitat*, Philadelphia, one ♂; Texas, one ♂, two ♀'s. The types are in the collection of the Buffalo Society of Natural Sciences. The Texan male has the primaries darker, more streaked with brownish. This and the slightly smaller size caused me at first to suspect a distinct species in the Texan specimens. The darker greasy tinting of the primaries will probably prove variable in disposition.

SYNONYMICAL NOTE.

Adelocephala albotineata, Grote & Robinson.

Proc. Ent. Soc. Phil., plate i, fig. 7, ♂, vol. 6, p. 7, 1866, has been re-described as follows:

Adelocephala vaspa, Boisduval.

Ann. Soc. Ent. Belg., Tome xv, plate iii, fig. 1, ♀, p. 93, 1872.

MICRO - LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KENTUCKY.

Continued from Page 176.

ERRATA.—For *Eidothoa*, p. 186, read *Eidothea*.

Since the preceding accounts of the genera *Evippe*, *Eidothea* and *Helice* were sent to the publishers, I have taken a single specimen of the species described below. Its small size, general appearance and the tufts of raised scales at first inclined me to place it near *Laruna*; but a closer examination shows it to belong to the *Gelechidæ*, and to the same group (or subsection of *Gelechia*) with *Evippe*, &c. and *Gelechia difficilisella*. I am not altogether satisfied that I am right in separating these species from *Gelechia*, in the present heterogeneous condition of the group called by that name. But that group is already so large, and contains such a mixed assemblage of small moths, that the existence of such a group is rather a hindrance than an assistance to the student of the *Tineina*, unless, indeed, he is content to use it as a mere limbo to which may be consigned anything allied to the *Gelechidæ* which cannot be satisfactorily located elsewhere.

Neither am I entirely satisfied that I am right in separating these genera, *Sinoe*, *Agnippe*, *Evippe*, *Eidothea*, *Helice* and *Taygete* (*vid. post*) from each other, so nearly are they related, yet the process of division once begun I have not found it practicable to separate them otherwise than as above indicated.

The species described below resembles *Gelechia difficilisella* and *Helice pallidochrella*, and even *Gelechia obliqui-strigella* in the pattern of coloration. From the latter, however, it is distinct as to the neuriation, whilst in this respect it closely resembles the two former, as it does also as to the palpi, whilst it differs from them decidedly by the absence of the tongue. In the hind wings the apical branch of the subcostal is delivered below the tip in this species, instead of at it as in *Gelechia difficilisella*, and in this respect only do the hind wings differ; and the only difference in the fore wings is the wider angle between the first and second branches

of the median in this species than in *difficilisella*. I should certainly have considered them congeneric, but for the absence of the tongue in this species, which likewise has raised tufts upon the fore wings. So close is the resemblance otherwise, and so rare the occurrence of a species allied to *Gelechia* without a tongue, that I suspected it might have been broken off; but I could discern no vestige of it, and the adjacent parts were uninjured. Both in this species and in *G. difficilisella* the terminal joint of the palpi is decidedly shorter than the second, which is scarcely thickened towards the apex. The characters of *G. difficilisella* as given *ante v. 4, p. 192*, will answer for those of this genus, with the changes above suggested. The form of the wings and neuration of *Evippe* are the same, except that the subcostal vein of the hind wings attains the costal margin *before* the apex, instead of attaining the apex as in *difficilisella*, or the dorsal margin as in this genus, and does not send off a branch to the costal margin as in both of the others. In the fore wings *difficilisella* and this genus send two branches from the discal vein to the posterior margin; in *Evippe* there is a single furcate branch which, like the two separate branches in *difficilisella*, arises about the middle of the discal vein, whilst in this genus they arise close together and to the the median vein. The palpi in *Evippe* are more elongate and slender, with the scales more appressed, and the terminal joint is if anything a little longer than the second. *Eidothea* scarcely differs from *Evippe* as to the palpi and resembles it in ornamentation, but the posterior wings are more excised beneath the tip, and have no discal branch vein, and the discal branch vein of the fore wings is simple and nearer to the median vein. The neuration of *Helice* is that of *Eidothea*, except that the costal vein in the hind wings goes to the tip instead of attaining the margin before it, and the wing is even more excised beneath the tip, and in the fore wings there is no discal branch vein, but the apical branch of the median is furcate. The palpi, however, resemble those of *G. difficilisella* more than those of *Eidothea*. *Agnippe* is more distinct, though the neuration of the fore wings only differs from that of *Evippe* in having only two instead of three subcosto-marginal branches before the end of the cell. It resembles the species described below in the presence of raised tufts on the fore wings, but the position in repose (resting upon the face with the apex of the body elevated) is nearer to that of *Argyresthia* than *Gelechia*, and the length of the third joint of the palpi, relative to that of the second joint, is rather greater than in *difficilisella*, though less than in *Evippe*, and the form is more robust than that of either of the other sub-genera.

SINOE, *gen. nov.*

Generic characters as above and *ante v. 4, p. 192*. It is perhaps necessary here to advise some correspondents that specimens which they formerly received from me labelled *Sinoe ambroseaiella*—the name formerly attached to them in my cabinet before they were carefully examined—belong to a somewhat aberrant species of *Butalis* (*B. matutella*, Clem.) and are not congeneric with the species described below.

S. fusco-palidella. *N. sp.*

Pale sordid fuscous; third joint of the palpi white, with two wide dark brown annulations. Face with faint purplish reflections. On the fore wings, just within the basal fourth, is a dark interrupted dorsal streak of raised scales, pointing obliquely backwards towards the middle of the wing; behind this streak and just within the dorsal margin, is a minute tuft of dark brown raised scales, margined behind by a few whitish scales: nearly opposite to this minute spot, but a little behind it, is a somewhat larger one similarly margined; further back, just within the dorsal ciliae, is a rather large dark brown patch of raised scales, which is internally margined by a dark brown streak of scales not raised, which passes back through the middle of the apical part of the wing but does not go to the apex; just beyond this streak is a small oblique costo-apical dark brown streak which attains the costal margin close to the apex; there is a row of dark brown spots around the apical margin, and there are three indistinct pale brown oblique costal streaks, one before the middle, one about the middle, and one just before the ciliae. In some lights these three costal streaks or stains are invisible. There is also a small brown spot about the middle of the base of the fore wings, and there are also some small ones on top of the thorax, two of which are on the posterior margins just before the apex. *Al. ex.* $\frac{3}{8}$ inch. Kentucky.

TAYGETE, *gen. nov.*

I erect this genus for the species which, as the name indicates, I have found it difficult to locate, the species referred to above as *G. difficilisella*. Recognizing its differences from the true *Gelechia*, I at first (*ante v. 4, p.*

65) placed it in *Evagora*, to which it makes an approach in some respects, but as it could not with strictness be placed in that genus, I removed it (v. 4, p. 192) to *Gelechia*. But unless *Gelechia* is to remain a miscellaneous waste box, it cannot properly be placed there, and I therefore erect this genus for it. See v. 4, pp. 65 & 192 for the generic and specific characters.

REMARKS ON LIMENITIS PROSERPINA AND ARTHEMIS.

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

It seems probable to me that *Limenitis proserpina* will be found related to *L. arthemis*, the two being forms of one species, as in *Grapta comma* and *dryas*, and I desire to call the attention of Lepidopterists who live where these species or forms are found, that they may observe them from this point of view. They are alike in size and shape, and so far as my experience and that of Mr. Mead goes (confined in both cases to the Catskill Mountains), they are always associated. I notice in a late paper by Mr. Grote that among a number of *artemis* taken in western New York, was a certain proportion of *proserpina*. The under side of these two forms, excluding the white band, is essentially the same thing. I should like to know the Northern range of *proserpina*, and whether up to the limit of such range it is found wherever *artemis* is found; and whether it is anywhere found where *artemis* is not; and whether it is known anywhere to associate with what is undoubtedly *ursula*.

I formerly received large numbers of *artemis* from high up in British America, Slave Lake to Fort Simpson, and with them were no specimens of *proserpina*. Like the black female of *turnus*, the last may have a limit beyond which it does not pass. On the other hand, the range of *artemis* is limited to the south, and I am not aware of *proserpina* having been found apart from *artemis*, while *ursula* swarms throughout the low lands of the Middle States, and throughout the South. If *proserpina* is found nowhere but with *artemis*, this fact and the several points of resemblance between the two forms, makes the dimorphism probable. But it still remains to be proved beyond question by breeding, that these forms

are species from eggs laid by captive females of one or either, and this can easily be done, in the way I have elsewhere indicated, by any one taking the trouble to attend to the matter on the spot. A strong point in favor of the identity of these forms would be a great similarity between the larvæ that produce them. The young larva of *arthemis* I know, and it is essentially different from that of *ursula*. I expect the larva of *proserpina* to exhibit the form of *arthemis*, and not of *ursula*. It would not be difficult to establish the facts one way or other next spring, to some of your readers.

NOTE ON CATOCALA WALSHII, EDWARDS.

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

I have received, through the kindness of Mr. C. V. Riley, a specimen of this fine species which has been heretofore unknown to me. It is, perhaps, a little larger than *unijuga* and very different in character (also, therefore, distinct from *junctura*, from my recollection of that species in the British Museum); it resembles the European *elocata* in the appearance of the forewings: these are evenly intensely powdered with dark scales on a grey ground color which becomes yellowish brown over the median spots and subterminal space. The species thus differs strongly from *Meskei*, in which the forewings are pale grey and resemble in color more distantly those of the European *electa*, or perhaps our American *parta*. There is a more prominent discal tooth on the t. p. line in *Walshii*, wanting in *elocata*. On the hind wings the median band is much as in *Arizonae*, narrower than in *Meskei* or *unijuga* (in which it is broadest) and not continued below vein 1, whereas in *elocata* it attains the internal margin. Beneath, the band is narrower than in *elocata*, and also non-continuous. The median spots on the fore wings above are more like *elocata* than *unijuga*. On the hind wings the inner edge of the marginal band is much as in *Arizonae*, even, not ragged as in *elocata*; the antepostical sinus is *cleanly cut*. Beneath, the white bands on the primaries are broader than in *elocata*, and even than in *unijuga*, and the space between the median band on the hind wings and the marginal band is wider on either surface in *Walshii* than in either of its allies. The red of

the hind wings is more pinkish, like *Arizonae* (a species totally distinct in the color and markings of the primaries), and brighter than in *elocata*, not like *unijuga*, where it is less pinkish and more like *parta*. My specimen of *Walshii* expands 82 m. m.; *elocata* averages about 78 m. m. The band in the European *nupta* on the hind wings is abbreviate, discontinued, broad and angulated or elbowed, hence very different from our American *Arizonae*, *Meskei* and *Walshii*, in which, though discontinued, it is not angulated, but is narrower, hardly constricted and straighter and longer. Although, judging by the fore wings alone, we should set down *Walshii* as "representing" *elocata* in America, the very different hind wings separate the two species very clearly. Perhaps *unijuga* is more like *elocata* in the hind wings, and *Walshii* in the appearance of the primaries; hence the European *elocata* seems a compound of both of our species.

BOOK NOTICES.

Fifth Annual Report on the Noxious, Beneficial and other Insects of the State of Missouri. By C. V. RILEY, State Entomologist.

This valuable report, consisting of 160 pages, 8vo., is full of interest to the agriculturist as well as the entomologist, detailing as it does the habits and history of many of the foes which the farmer and fruit-grower is obliged to fight. It opens with a chapter on collecting, studying and preserving insects, which is followed by one on noxious insects—notes of the year. In this latter, among other interesting matters, a discovery is announced which will probably prove to be a very important one, that of the finding of two parasitic insects which attack the worm of the Codling Moth. One of these *Pimpla annulipes* is said to have been common in the West during last year, Mr. Riley having obtained 21 parasites from 162 cocoons of the Codling Moth.

A large space is devoted to the Grape Phylloxera, an insect whose ravages, especially in Europe, appear to be exciting increased comment; it is one also to which Mr. Riley has paid special attention. Further observations on the Oyster Shell Bark Louse are recorded, also on the Pine Leaf Scale Insect. Following these are chapters on "Eggs in and on Canes and Twigs," "Stinging Larvæ," "The Goat-weed Butterfly,"

and the Yucca Moth. The work throughout is admirably illustrated with seventy-five wood cuts, most of which have been drawn from nature by Mr. Riley himself. We heartily commend this excellent report to all those interested in Entomology, and we feel assured that the valuable series of reports which have from time to time been issued by this painstaking observer, have done very much in the way of instructing the readers in this important branch of natural history, while the practical remedies suggested for the various insect pests have no doubt been the means of greatly lessening the yearly loss occasioned by them.

Third Annual Report on the Noxious Insects of the State of Illinois.

By WM. LE BARON, M. D., State Entomologist.

Dr. Le Baron is doing good work also in Illinois. His third report contains 76 pages 8vo., and is illustrated with occasional wood-cuts. It is divided into two parts; the first part treats of insects injurious to the Apple and the Cotton Wood, to which is appended a chapter on the transportation of useful insect parasites. Among apple insects the history of the codling worm is minutely detailed and interesting tabular statements given of the results of using bandages on the trees as traps for the worms. The second part is devoted to "Outlines of Entomology," in which reference is made to the structure of insects both internal and external—their metamorphoses, instincts, their classification and division into orders. The extensive circulation of such yearly reports as these two we have referred to cannot fail to increase the interest already felt in Entomology among a large class of intelligent agriculturists.

Bulletin of the Buffalo Society of Natural Sciences—Nos. 2 and 3.—No. 2 opens with an excellent paper on new species of Fungi, by Charles H. Peck, in which appear descriptions of 132 new species, a most valuable contribution to our knowledge in this department of natural history. From the fertile pen of our esteemed friend, Aug. R. Grote, there follow: "Contributions to a Knowledge of North American Moths," and "A Study of North American Noctuidæ." In the former paper the author makes some suggestions in reference to classification, and in both are contained many descriptions of new species, which are illustrated by two lithographic plates; full catalogues are also given of the species in many families, with recent corrections as to names. In these papers are evidences of much and careful study; Mr. Grote well deserves the hearty thanks of all American Lepidopterists for his zealous labours.

Part 3 contains a paper on the distribution of North American Lichens, by Henry Willey, and *seven* papers by Mr. Grote, on our Lepidoptera. In one of these, "Descriptions of Noctuidæ principally from California," there are descriptions of twenty-five new species, besides numerous interesting notes on many previously described. We trust that this excellent publication will meet with that cordial support from Entomologists which it deserves.

Synopsis of the Histeridæ of the United States. By GEORGE H. HORN, M. D., Philadelphia, 8vo., p.p. 87, with one plate.

We are indebted to the author for a copy of this synopsis, a most valuable contribution to our knowledge of the Histeridæ. We sincerely hope that this elaborate publication may do much towards clearing up the obscurity which has so long attached to many of the species composing this difficult family of Coleoptera. †

INTIMATION.—A letter from Mr. J. Behrens, San Francisco, California, with several interesting papers received from other esteemed contributors, are unavoidably deferred until next month for want of space.

BOOKS RECEIVED.

- Synopsis of the Histeridæ of the United States*, by George H. Horn, M. D., 8vo., pp. 87, with one plate.
- Lepidoptera, Rhopaloceres and Heteroceres, No. 6, by Hermann Strecker, Reading, Pa.
- Synopsis of the Thysanura of Essex County, Mass.*, by A. S. Packard, jr., 8vo., pp. 29.
- Description of New American Phalaenidæ*, by A. S. Packard, jr., 8vo., pp. 29.
- Notes on North American Moths of the families of Phalaenidæ and Pyralidæ in the British Museum*, by A. S. Packard, jr., 8vo., pp. 15.
- Bulletin of the Buffalo Society of Natural Sciences*, vol. 1, No. 2.
- Prairie Farmer, Chicago.
- Indiana Farmer, Indianapolis.
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- Rural New Yorker, New York.
- Monthly Journal of Education, November, Toronto.
- American Agriculturist, November, 1873.
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