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The Canadian Entomologist.

VOL. IX. LONDON, ONT., FEBRUARY, 1877. No. 2

NEW NOCTUÆ.

BY A. R. GROTE,

Director of the Museum, Buffalo Society Natural Sciences.

Glaea carnosa, n. s.

Size moderately large; eyes naked; tibiæ unarmed; abdomen flattened, with a dorsal carina. Thorax carmine or vinous pink. Fore wings of the same hue over dull olivaceous; the stigmata indistinct, moderate, deep pink with yellow-olive powdery borders; lines obsolete; subterminal indicated and in color like the annulets to the ordinary spots; fringes clear pink. Hind wings lighter pink, with slightly obscure bases and concolorous fringes. Abdomen yellowish pink, with yellow anal hairs. Beneath marked with bright pink; no lines; traces of pink discal marks. Head deeper colored; antennæ pale; breast rich pink. *Expanse* 45 mil. Hab. Oldtown, Maine; Mr. Charles Fish.

I have previously seen a specimen of this fine species in the collection of Mrs. Bridgham, from Rhode Island, as well as the pink egg, if my memory serves me.

Fishia, n g.

The tibiæ are armed; eyes naked, with lashes. Male antennæ brush-like. Cut of the wings as in *Mamestra (i. e., subjuncta);* primaries widening outwardly. Thorax with posterior tuft, and the base of the abdomen strongly tufted. The genus thus combines features of *Mamestra* or *Hadena*, with those of *Agrotis*. The fore tibiae appear to be unarmed; the tongue weak.

Fishia enthea, n. s.

Dull coal black. Ornamentation like *Mamestra subjuncta*. Markings velvety black. A basal dash. Ordinary lines strongly dentate, approx-

imate inferiorly; claviform touching t. p. line. Stigmata large, concolorous, with incomplete narrow edging. Orbicular large, decumbent. Reniform transverse. T. p. line forming a shallower, more strongly marked and wider sinus on submedian space. Black sagittate dashes surmounted with olive powderings (which mark the s. t. line) on subterminal space between the nervules are continued on terminal space, and become obsolete inferiorly. Hind wings paler, fuscous, powdered with blackish. At the base of the concolorous fringes on primaries a pale line, including pale points at extremity of nervules. No median line on hind wings; a narrow black termi al line and pale line at base of fringes. Body concolorous; tegulae and thorax faintly lined. Beneath paler, with discal marks on secondaries. *Expanse* 43 mil. Hab. Oldtown, Maine; Mr. Chas. Fish, to whom the genus is dedicated.

Cosmia infumata.

I am indebted to Mr. Meske for the information that Dr. Speyer has compared this form (described by me under the allied genus *Orthosia*) with the European *paleacea*, and finds the two very closely allied. Also that *Mamestra dissimilis* var. *discolor* Speyer, is my previously named *Mamestra atlantica*, which may be held to represent the European species with us; *atlantica* seems to be always distinguishable. Mr. Meske has also drawn my attention to the fact that the tibiae in *Homopyralis discalis* Grote are distinctively pilose.

TINEINA FROM TEXAS.

BY V. T. CHAMBERS, COVINGTON, KY.

In a former paper I have mentioned the fact then known to me only through Dr. Packard's "Record," that Prof. Zeller had described a large number of American Tineina, some of which would no doubt prove to be identical with some described by me. Since then, by the kindness of Dr. Hagen, I have obtained Prof. Zeller's paper, and such species as I have been able to identify by means of his figures and descriptions, are mentioned below, and in addition thereto I think it probable that a few (not more than three or four) other species will be found to have been

described by both of us; but of these I am not by any means certain. I do not recognize *Xylesthia Clemenscella* Cham. in any of his descriptions, nor do I find among them anything like the two species that I have described under the generic name *Polyhymno*, while his *Gracilaria* is certainly new. From the seeming abundance of the beautiful *Gelechia elegantella* Cham., I had expected to find it among the Professor's species, but it is not there. Indeed, considering the large number of species described from the same region (North, Middle Texas) by both Prof. Zeller and myself, it is a little singular that many more have not been found common to both collections.

Gelechia quinella Zell.

This is the Texan variety of *G. cercerisella* Cham., vide ante v., pp. 230 and 231. *Cercerisella* has priority.

G. leuconota Zell.

This *may be Phœtusa plutella* Cham., and if so, *leuconota* has priority. But Prof. Zeller's figure represents a projection of the white of the dorsal margin into the dark color of the costal half before the middle, which is absent in my three specimens, or very faintly indicated, and the same may be said of the narrow oblique white streak behind the middle, and of the small black costal spot before the apex. But as none of my three specimens is now in perfect condition, this may possibly account for the difference. If the insects are not the same, they resemble each other closely, and both are allied to *Evippe prunifoliella* Cham.

G. pudibundella Zell.

I am not sure that I gather a correct idea of this species from Prof. Zeller's description; but if I do, I think it will prove to be the species previously described by me as *G. rubensella*, the larva of which has been bred and described by Miss Murtfeldt. I have taken it in Kentucky and received it from Missouri and Texas.

Nothris dolabella Zell.

Has been previously described by me as *Ypsolophus cupatoriella*. If Prof. Zeller is right in referring it to *Nothris*, it is *N. cupatoriella*, which has not only priority, but tells the food plant. I have bred and captured it here, and have received it from Mr. Belfrage, collected in Texas. It is widely different from *N. griseella* Cham., also received from Texas. I

am now satisfied that *Begoe costalutella* Cham. is the same species, a little worn and with the tuft of the second palpal joint so evenly and smoothly recurved as to give us the palpi of a *Gelechia.* In some of my specimens of *eupatoriella*, both bred and captured, the blackish spot or streak over and above the fold resembles that of *Gelechia bilobella* as figured by Prof. Zeller, as much as it does that of his figure of *dolabella.*

G. serrativitella Zell.

Prior and equal? to *G. plutella* Cham. I think it is the same species, but Prof. Zeller's figure represents the dorsal margin darker than in my specimens, and the projections of the pale costal hue into the dark dorsal portion as more distinct, and the one before the middle is lacking in my specimens, which have a small whitish dot at the end of the cell not represented in the figure.

G. olympiadella Zell. has some resemblance in the white marking of the wings to *G. trifasciella* Cham., but it is clearly a very different insect.

G. glandifera Zell. has some resemblance to *G. (Sinoe) fuscopallidella* Cham., though quite distinct from it. The pattern of ornamentation is the same in both species, and in *G. obliquistrigella* Cham.

Œcophora determinatella Zell.

This is probably the same as *Œ. australisella* Cham., but if so, the figure is very imperfect, or was made from badly rubbed specimens. In *australisella* the circular yellowish spot at the end of the disc is entirely surrounded by the brownish color; is not connected with the white dorsal spot, and is preceded and followed by a narrow and faint silvery or grayish fascia. More properly, these grayish fasciæ are not composed of gray scales, but the brown scales both before and behind the fascia shine with a grayish lustre. In Prof. Zeller's figure, however, these fasciæ are not represented, and the spot instead of being completely round, passes out backward to unite with the dorsal white spot. In *australisella* this white spot is simply the dorsal end of one of the fasciæ, whiter and more distinct than the remainder. Still I have no doubt it is the same species, and *determinatella* has priority as the specific name. I have a worn specimen agreeing with Prof. Zeller's figure in all respects.

(As will be seen by refering to the June No., 1875, the description of

australisella was by some mistake not published, and believing it to be the same with *determinatella* Zell., I determined not to publish it.)

Œ. constrictella Zell.

The size and ornamentation of this species, as described and figured by Prof. Zeller, are so nearly identical with those of *Theisoa bifasciella* Cham., that I was at first convinced it was the same species, and can now, after the most careful examination, only doubt whether they are the same. *T. bifasciella* was described by me in the CAN. ENT. for 1874, and consequently, if they are the same, *constrictella* is the specific name by priority. But if they are the same, the reference of the species to *Œcophora* is certainly very wide of the mark. It is true the characters of the head and appendages of *bifasciella might* do for those of an *Œcophora;* and it was owing to these characters and the position of the insect in repose that I separated it under the generic name *Theisoa* from *Elachista*, to which it is, in my judgment, much more nearly allied than to *Œcophora.* The insect in repose sits, or rather stands, with the body elevated above the surface on which it stands, with the wings horizontal and a little separated or spread, and the head a little lower than the apex of the wings. But the wings are too narrow and ciliæ too long for *Œcophora;* and the neuration is widely different. The neuration and form of the hind wings is exactly that of *Elachista obscurella (Ins. Brit., v. 3)*, except that the subcostal vein is distinct throughout its entire course; and the fore wings only differ from it by having the median subdivided into two instead of three branches; but one of these branches is furcate; and the second branch of the apical vein (the one going to the dorsal margin) is absent in *bifasciella.* The cell is unclosed in the hind wings, and the submedian vein of the fore wings is not furcate at the base. The neuration is still nearer to that of *Elachista præmaturella* Clem. Surely such an insect as this can not with propriety be placed with *Œcophora!* Prof. Zeller says: "*Fascia ante medium cinnamonea, exterius albido-marginata*," &c., while I describe it *loc. cit.* as "basal third of primaries pale saffron slightly suffused with fuscous," and "at the basal third of the primaries a silver white fascia dark margined internally," &c. A reference to Prof. Zeller's figure shows that both descriptions mean the same thing. He defines the color perhaps more correctly than I do. The color gradually increases in density from the base backwards, and just before the fascia suddenly becomes a little darker and ends in a narrow row of brown

scales; in some specimens this sudden darkening does not take place; it is gradual up to the line of dark scales. It is unimportant whether we say a cinnamon fascia margined behind with white, with Prof. Zeller; or a white fascia dark margined before, as I have it. This fascia is sometimes in *bifasciella* much curved, as Prof. Zeller has it, while in other specimens it is almost exactly straight. The white fascia of Prof. Zeller is more distinctly defined behind than I have ever found it in *bifasciella*, where it gradually passes into the pale cinnamon yellow which increases in intensity to what I have called the second fascia; this second fascia sometimes crosses the wing as in Prof. Zeller's figure, but is never so wide or so distinctly outlined behind, but perhaps more frequently it is widely interrupted in the middle so as to make a costal and opposite dorsal white streak, as I have elsewhere mentioned, and in a specimen now before me it crosses one wing, while in the other wing it is simply represented by a costal streak hardly reaching the middle: the dark costal triangular spot of Prof. Zeller is distinct in every specimen that I have examined, but I have never found in any specimen the opposite elongate, narrow, somewhat paler dorsal triangle which in the figure extends to the apex of the costal triangle. The small discal dot of the middle of the wing is sometimes present, and sometimes absent in *bifasciella*. I think the wing behind the first fascia is more correctly described as pale saffron somewhat suffused and dusted with brownish, than as cinnamon; but some specimens are much paler than others. In *bifasciella* the costal margin behind the second white fascia is fuscous (but little paler than the costal triangular spot before it), and much darker than the remainder of the apical part of the wing, and forms a definite spot much darker than it is represented by Prof. Zeller; and he represents a narrow whitish line extending along the base of the dorsal ciliae, widest at the apex of the wing and narrowing to a point at the beginning of the dorsal ciliae, which I do not find indicated in any of my specimens of *bifasciella;* and the hind wings of this species are pale silvery yellowish, or perhaps as properly, pale luteous.

If my specimens do not belong to Prof. Zeller's species, the resemblance in coloration is astonishing, and if they do belong to it, then the form and neuration of the wings place it among the *Elachistidæ*, and not in *Œcophora.*

(To be Continued.)

NOTES ON A COLLECTION OF CANADIAN MOTHS MADE BY WM. S. M. D'URBAN, AND NAMED BY F. WALKER.

BY A. R. GROTE,

Director of the Museum, Buffalo Society Natural Sciences.

The collection which forms the subject of this paper was kindly presented to the Ent. Soc. Ont. by Mr. D'Urban, and the specimens are kept for reference in the form in which they were given, because they were determined by Mr. Walker, the labels all being in his handwriting and many of the insects being types of his species. Many of the species were collected in the valley of the River Rouge, and some of them are mentioned in two papers in the *Canadian Naturalist and Geologist*, vol. 5, pages 91–6, and vol. 6, pages 36–41.

"Pyralis n. sp.?" v., 95. The specimen here described is *Asopia devialis* Grote.

"Dasychira clandestina," vi., 36. This ♂ specimen seems to be a distinct species belonging to the genus *Gluphisia.*

"Audela acronyctoides," vi., 37. The species and genus in this instance appear to be good, and not otherwise known in collections. The specimen is in poor condition, but its ornamentation being marked, the species is quite recognizable; there are no antennæ remaining. Mr. Walker gives them as "slightly pectinated, branches sub-clavate." The species is slenderer, but distantly recalls *Platycerura furcilla.*

"Bryophila? spectans," vi., 38. Is *Microcœlia fragilis* of Gueneé.

"Microcœlia? retardata," vi., 38. Is *Acronycta dissecta* G. & R.

"Cleora limitaria," vi., 39. The specimen so named approaches very closely to *Lobophora vernata* Packard.

Two new species of *Cleora* and five of *Boarmia* are then cited by name, without description. Good specimens labeled with these names are contained in the collection.

"Acidalia junctaria," vi., 39. The specimen so labeled seems to be *Corycia vestaliata* of Guenee.

"Macaria? subapiciaria," vi., 40. The specimen so labeled is a true *Macaria*, and is the same species as *Boarmia inordinaria* Walker, cited merely by name on the previous page.

"Melanippa propriaria," vi., 40. The specimen is *Baptria albovittata* Guenee.

"Coremia? palparia," vi., 40. The specimen so labeled is a species of *Bomolocha (Hypena)*, and evidently owes its specific name to its long palpi, so characteristic of *Hypena*.

"Cidaria lactispargaria," vi., 41. This insect is a brown species of *Cymatophora (Boarmia)*, with a white flecking on the transverse posterior line of the primaries.

"Botys magniferalis," vi., 41. This specimen is *Botis illabilis* Hüb.

The above species are all that are described in these two papers. The entire collection contains 193 specimens labeled as belonging to 149 species by Mr. Walker. A large proportion of the names given accord with names now accepted for the species. The following are exceptions, and it may be found here that in some instances Mr. Walker's specific names have priority.

"Leucania insueta." The specimens so labeled belong to *Heliophila commoides* (Guenee).

"Hydroecia lorea." This is not Guenee's species, but is *sera* of G. & R.

"Hydroecia ligata." This is *Hydroecia lorea* Guenee.

"Nonagria? intractabilis." This is *Eustrotia albidula* (Guenee).

"Mamestra ordinaria." This is *Hadena devastatrix* (Brace).

"Mamestra unicolor." The specimen is *Agrotis clandestina* (Harris).

"Apamea finitima." One of the specimens so labeled is not Guenee's species, but is *Mamestra lilacina* Harvey.

"Apamea glaucovaria." This specimen is *Mamestra albifusa* (Walker) of Grote's List (the same as *chenopodii* var. Speyer).

"Homoptera contracta" is *Homopyralis tactus* Grote.

"Homoptera herminioides." The specimen is in poor condition, but is clearly referable to *Epizeuxis*.

"Plusia aerea." This specimen is not Hübner's species, but is *P. aereoides* Grote.

"Nephelodes signata." The specimen is *Hydroecia semiaperta* Morr., and belongs to *Tricholita*.

"Agrotis jaculifera" is not Guenee's species, but is *herilis* Grote.

"Calocampa vetusta" is *Calocampa nupera* Lintner.

"Agrotis spissa" is *Agrotis messoria* Harris.

"Agrotis illata" is the species determined as *Hadena suffusca* Morr.

"Herminia concisa" is *Epizeuxis aemula* Hübn.

"Herminia cloniusalis" is *Bleptina caradrinalis* Guen.

"Herminia clitosalis" is a specimen of the same species without the black stigmata.

"Herminia n. s.?" is *Zanclognatha laevigata* Grote.

"Herminia cruralis" is not Guenee's species, but *laevigata*.

"Bleptina surrectalis" is *Pseudoglossa lubricalis* (Geyer).

"Hormisa effusalis" is *Epizeuxis aemula* Hübn.

"Pellonia successaria" is *Haematopis grataria* Fab.

"Balsa obliquifera" is *Nolaphana melana* (Fitch).

"Hypena cacalis" is *Scoparia centuriella*.

These determinations may prove of value in settling some of Mr. Walker's unrecognized descriptions of North American moths.

DESCRIPTION OF A NEW SPECIES OF PAMPHILA FROM COLORADO.

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

Pamphila Snowi.

Male—expands 1.1 inch.; size and shape of *Leonardus*, the hind wings somewhat less prolonged anteriorly.

Upper side of both wings light glossy brown; primaries have five translucent spots, namely, one sub-apical, oblong, narrow, cut into three equal parts by the subcostal nervules; three discal, the first being at the top of the upper median interspace, small, semi-oval; the next large, irregularly quadrate, crossing the next lower interspace, and the third on sub-median interspace, less transparent, more yellow, in one example clearly defined, sub-triangular, in the other diffuse; these three spots forming an oblique line back of and below the cell; the fifth spot is at

the outer end of the cell, a narrow transverse bar; the stigma long, narrow, a little sinuous on the middle, black, edged in the middle by rough dark brown scales on either side.

Secondaries have an abbreviated discal row of indistinct, small yellow spots, placed nearly parallel to the hind margin, and restricted to the discoidal and median interspaces, or very nearly so; in the middle of the cell a small yellowish spot, almost obsolete; fringes cinereous, those of secondaries lighter than the others.

Under side of both wings brown with a russet tint; primaries somewhat fuscous near base, in and below cell, and pale yellow in the submedian interspace; the spots repeated except the lower of the three, which is lost in the color of the interspace just mentioned; secondaries have the discal spots more distinct, yellowish, and there appear faint traces of obsolete spots which would complete the series to costal margin; the cellular spot small, distinct, rounded.

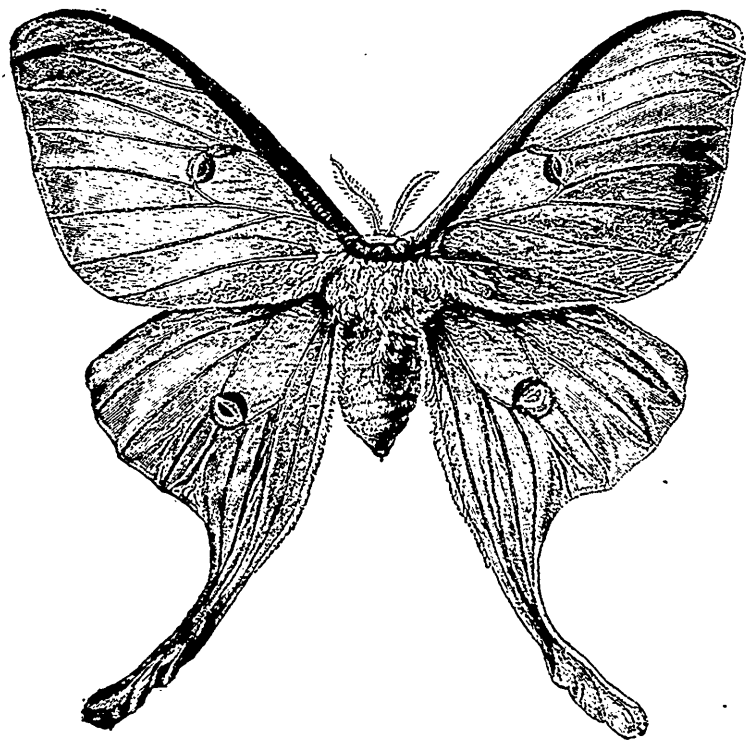
Body above brown, below the thorax gray-brown, about the collar yellow tipped; abdomen yellow-gray; legs brown; palpi sordid white, gray at tips; antennae fuscous above, grayish below; club fuscous for a narrow space on upper side, elsewhere russet.

From 2 ♂, sent me by Prof. F. H. Snow, and taken by him in Colorado, at Ute Pass, while in charge of the Kansas University Scientific Expedition, 1876. No others were taken, as I am informed.

The species is near *Leonardus*, from which it differs in not having the basal area of primaries fulvous, in not having two spots near hind margin in the discoidal interspace, in having the spots translucent instead of fulvous, and in having a distinct spot at end of cell; the stigma of *Leonardus* differs considerably also, being heavier, somewhat curved, and especially broken in on the lower median nervule, of which the posterior part is thrown back of the line of the remainder; the spots on disk of secondaries in *Leonardus* are placed as in the present species, but are larger, and either quite distinct or largely diffuse, examples varying. The under side of *Leonardus* is more red (cinnamon-brown), and the series of spots on secondaries is complete and distinct, as is also the cellular spot. In these wings the resemblance between the two species is closer than elsewhere. They form a very interesting group.

ERRATA.—On p. 6, vol. 9, second line from top, for 40° read 4°, and on p. 8, second line from bottom, for *distance* read *distinct*.

Fig. 1.



THE LUNA MOTH.

Actias luna Linn.

THE LUNA MOTH--*Actias luna* Linn.

BY THE EDITOR.

In No. 8, Vol. 7 of our journal, there is an interesting article on this beautiful insect by Mr. R. V. Rogers, of Kingston, Ontario. When that appeared we were unable to supply an illustration of the moth, but lately we have succeeded in obtaining a very beautiful one drawn and engraved expressly for our pages.

This moth (Fig 1) measures when its wings are spread from 4¾ to 5½ inches. The wings are of a delicate green color, thickly covered with pale hairs as they approach the body. There is a purplish brown stripe along the front margin of the fore wings, which stretches also across the thorax, while a small branch of the same is extended to the eye spot near the middle of the wing. The eye spots are transparent in the middle and margined with rings of white, yellow, blue and black. The hinder edges of the wings are bordered with purplish brown.

The head is white, while the beautifully pectinated antennæ are of a brownish tinge. The thorax and abdomen are whitish or greenish white, thickly clothed with a woolly down, the former crossed by the purplish brown stripe already mentioned. The legs are purplish brown.

This lovely creature is not at all common in the neighborhood of London; indeed it can scarcely be called common anywhere in Ontario, although it is very widely and generally distributed. Seldom a season passes without some being captured in our midst, and occasionally we have had them fly in at the windows at night, attracted apparently by the light.

The larva, which is of a bluish green color, feeds on Hickory, Walnut, Butternut, and sometimes on Beech and Oak, and closely resembles that of *polyphemus*, from which it may be distinguished by its having a pale yellow lateral stripe, bands of the same between the segments, and a brown V-shaped mark on the terminal segment.

For fuller details we refer our readers to Mr. Rogers' excellent paper.

SUPPLEMENTARY NOTES UPON ARGYNNIS MYRINA, WITH MENTION OF THE SPECIES BELLONA, ATLANTIS AND CYBELE.

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

I was again in the Catskills, 18th August, this season, and remained there till October. On 20th August I found *myrina* abundant, and easily obtained eggs, laid 21st. These hatched 29th. The larvæ passed 1st moult 6th Sept., 2nd moult 11th, and by 20th had become lethargic, gathering in small clusters on the leaves which I gave them. A second brood hatched 22nd Sept., from eggs laid on 8th. Time 14 days, or nearly double that of the other brood. These larvæ also reached 2nd moult and became lethargic. Still another brood I obtained a week later, and when I left the mountains these had not reached the 2nd moult, but lingered after the first. The weather was cold, and though the larvæ fed, their periods were greatly retarded. I was endeavoring to see if the latest broods of the year might not perhaps hybernate immediately after the egg, as those of *cybele* do. But I discovered nothing to lead me to conclude that such was ever the habit of this species. These last larvæ were not living when I again reached Coalburgh.

The latest female *myrina* which I saw on the wing was on 16th Sept., but not having a net with me, I was unable to take her.

Argynnis bellona was less abundant, and at first seemed extinct, but I discovered that it frequented certain spots, especially where a particular species of *Solidago* grew, showing a great partiality for the flowers; and by often visiting these places, I obtained several females. These laid about fifty eggs on violet. First eggs 23rd Aug., and they hatched 31st. The larvae passed 1st moult 6th Sept., 2nd 11th, and some of them passed the 3rd moult 20th Sept. A few days after, both those which had passed the 3rd, and the others which had stopped at the 2nd moult, became lethargic. But I had sent some larvae of same lot, in their first stage, to Miss Peart, at Philadelphia, and all of them went on to chrysalis and imago.

A second brood of *bellona* from eggs laid 31st Aug., went on to 2nd moult, and all these became lethargic; and these, as well as the others, and the larvae of *myrina*, I have here at Coalburgh.

Bellona, in all its preparatory stages, is closely like *myrina*. The egg is of the same pattern, but rather longer, and the sides are less rounded; the larvae in first stages can scarcely be distinguished; in the last the spines of second segment are not lengthened as in *myrina*.

Atlantis was abundant, but the females set on violet laid no eggs, and I found on dissection that their eggs were yet immature. On 24th Aug. I took a pair of *atlantis* in copulation. It was in the forest, five miles from home, and I tied the pair in my net and suspended it on a tree. The next day, on returning, I found the pair separated, and brought the female home and set on violet. Two days after, 28th, there appeared to be but a single egg laid. The next day I discovered another, and by the 31st she had laid about a dozen, and I compassionated her endeavors and let her fly away. I kept all these butterflies alive on sugar and apple. The eggs hatched in 17 or 18 days. At the same time, I obtained a large number of eggs from other *atlantis*, which duly hatched. All the larvae forthwith began their sleep, as do those of *cybele* and *aphrodite*, *diana* and *idalia*, and that on empty stomachs, for as a rule they eat nothing.

And inasmuch as *atlantis* deposited eggs but a few days after copulation, and *myrina* does almost immediately after, we get light on an early brood of *cybele*, &c. For Mr. C. G. Siewers, of Newport, Kentucky, wrote me last summer that he had taken two pairs of *cybele* in copulation, in July. I think it probable, therefore, that these large species are digoneutic in West Va. and the Ohio Valley. The early brood of *cybele* (butterflies) appears in great force here by 1st June, on the clover blossoms, first the males, and in a few days the females. After the 15th to 20th June, they disappear, and in July I scarcely ever see an example. By 15th August fresh males appear again, and soon after fresh females, and I can always obtain eggs between 1st and 20th Sept. Just so with *aphrodite*. I should not have doubted there being two broods were it not for the fact that the several stages of the larvae which feed in spring are so remarkably prolonged that it seemed unlikely that between 15th June and 15th Aug. the several stages of egg, larva and chrysalis could be passed; and furthermore, that I had repeatedly dissected females of *cybele* in June, and when I could obtain them, in July and first half of August, and never yet found the least appearance of a formed egg. Nothing but fatty masses to represent them. But suddenly, about the middle of August, the eggs begin to take shape, and in a week or ten days are ready to be laid. But the hot weather of July and August, the mercury constantly running

between 80° and 95° in this region, and the nights (in which these larvae principally feed) being warm, may accelerate all the preparatory stages. While the evidence from dissection is but negative, Mr. Siewer's evidence, on the contrary, is positive, and if copulation takes place, we may be pretty sure that eggs follow.

BOOK NOTICES.

The Rhyncophora of America north of Mexico, by John L. LeConte, assisted by George H. Horn. From the Proceedings of the American Philosophical Society, Vol. 15.

This work, which fills a volume of 455 pages, is probably the most important contribution which has been made to the Entomology of America for many years. Its production must have been attended with immense labor and long and careful study. In addition to the work of classifying this numerous and difficult group of insects, a very large number of new species are described. We tender our sincere thanks to the authors for their kindness in sending us a copy of this useful and long needed memoir.

Manuscript Notes from my Journal, or Illustrations of Insects Native and Foreign; Order Hemiptera, sub-order Heteroptera. By Townend Glover, Washington, D. C.

In the 12th No. of Vol. vi., we called the attention of our readers to the issue of a valuable work by the same author on Diptera. The volume now at hand on the Hemiptera is published in similar form and style, quarto on heavy paper, printed on one side only, and the text a fac-simile of the author's handwriting. In this volume there are ten excellent plates, nine of which are devoted to the illustration of the species to which the notes refer, and one to the figuring of those portions of the insects on which their classification is based. There are figures of 238 species, many of the smaller ones in duplicate, one showing the insect magnified, the other of the natural size. In addition to the plates and their explanatory matter, there are 134 pages of text, 2 explanatory, 17 devoted to the classification of the Hemiptera, and the remainder to notes on the insects

themselves, their habits, the animal and vegetable substances they injure, the remedies used for destroying them, &c., all being referred to in alphabetical order.

This work is another evidence of the indomitable perseverance of this energetic Entomologist, and will be a valuable aid to those who desire to study this hitherto much neglected order. The author has again placed us under deep obligation for his kind remembrance of us.

Report on Insects Introduced by means of the International Exhibition, by Dr. J. L. LeConte, Dr. Geo. H. Horn, and Prof. J. Leidy. From the Proceedings of the Academy of Natural Sciences, Philadelphia, pp. 5.

We are glad to learn from the report of this committee that the insect pests observed among the grains, seeds, &c., exhibited, are chiefly such as are already known among us, and that there is not much likelihood of any great injury resulting to any agricultural product from the introduction of new enemies from this source.

The Rocky Mountain Locust; being report of proceedings of a conference of the Governors of several western States and Territories, together with several other gentlemen, held at Omaha, Oct., 1876, 8vo., pp. 58.

We are indebted to our esteemed friend, C. V. Riley, for a copy of the above pamphlet, which contains much valuable information on the habits of this destructive pest, as well as a summary of the best means yet known for counteracting its ravages.

Life Histories of the Birds of Eastern Pennsylvania, by Thomas G. Gentry, Vol. 1.

This is an octavo volume of 394 pages, published by the author, who resides in Germantown, Philadelphia. It is a thoroughly practical work, dealing largely with the habits of the various species of birds as observed by the author, who describes their nests and eggs, gives very full and explicit information in reference to the character of their food, the results of careful and repeated observation in the fields and woods. It is this feature that lends a special charm to this interesting little book, which is written in a very pleasing style and supplies a want long felt. We heartily commend it to all our readers who are in any way interested in Ornithology. The 2nd volume, which will complete the work, will be issued shortly, and may be obtained from the Nautralists' Agency, Salem, Mass.

CORRESPONDENCE.

DEAR SIR,—

Mr. Behrens *(p. 200, Vol. 8)* writes: "Mr. V. T. Chambers is satisfied to get Tineidæ dead and dry, and even untouched by a pin." "Satisfied" in this connection is almost too strong a word, and may be misleading. So a distinguished Lepidopterist of Europe has made an objection to my work on the ground that I only keep specimens packed in cotton, and that, unpacking them, I place them under a microscope and prepare my descriptions from the appearances thus presented. This statement, like the preceding by Mr. Behrens, comes from a misapprehension of the facts. I prefer always to have some of my specimens on pins and some of them with the wings spread. It is best to study them pinned and not pinned, spread and not spread. When the opportunity offers, I prefer in the first place to observe them closely alive, before I take them, and when the quantity of material suffices, I also examine them both spread and not spread after they are dead, with the eye, a simple lens, or a compound microscope, according to circumstances. Indeed, in by far the greater number of new species described by me, the insects have been examined not only in the conditions above mentioned, but have also been dissected; as is evident not only from the published accounts of the neuration of the wings, but much more by the multitude of drawings of the neuration now in my possession. All of my Tineina from Texas and from Canada, and nearly all that I have received from Miss Murtfeldt, from St. Louis, have come pinned and spread. Mr. Behrens wrote to me that he preferred not to undertake the task of pinning these little things, and besides he had not time, and I replied that I would be glad to get them packed in cotton without pinning; and all of his specimens have been sent in this way. I have also received a few specimens from one or two other Entomological friends in the same condition. This mode, however, does not answer for sending Tineina for any considerable distance. The antennæ, palpi and tufts of scales on the wings or elsewhere are almost invariably rubbed off, and the insect is otherwise worn and denuded, so that I have not attempted to describe one specimen in ten that has been received in this condition. This plan, or rather a modification of it, answers better for preserving Micros taken at home, and which do not have to be shipped. Of the greater number of my Tineina I have not attempted the preservation of many specimens at a time. Making but few exchanges, I have kept but very few for that pur-

pose, and for my own use, after using a sufficient number and in various conditions for generic and specific diagnosis, I have contented myself with keeping a few, not *packed* in cotton, but simply laid on a loose tuft of cotton, in a pill box, which being set away in the cabinet, the insect remains as perfect as when first placed there. Such specimens, if needed for future observation, I take by the legs in the stage forceps of the microscope, and they are in good condition for observation either under the microscope or without it, as they may by means of the forceps be conveniently turned and handled without danger of breaking them, and every part of the insect may be well observed unless—as sometimes happens—the wings are so perfectly closed as to conceal the upper surface of the abdomen. But these are simply specimens preserved for future reference. A few specimens of *very* rare species I have not attempted to pin and set because of the danger of injury to such rare species. A few others of the smallest species (as e. g., some *Nepticulæ*) I have treated in the same way, because of the certainty of injury, if not of absolute destruction, in the attempt to pin them. But in other cases my descriptions have been prepared from observations of numerous specimens in various conditions as to preparation. I have found the species which I have described from this locality very numerous, so that a morning's ramble any day from May 1st to November 1st will supply me with specimens of fifty species, and half a bushel of mined leaves. I have, therefore, not felt the necessity of preserving pinned specimens of such species. Indeed, some years ago I seldom took the trouble to pin and spread common species at all. In a series of specimens the wings of some would be found in one position, some in another, or more frequently I would separate the wings entirely from the body. But a few years ago I began to make a collection to be preserved as types of all my species. These were all pinned and spread. Unfortunately, during my absence in Colorado, the greater part of this collection was destroyed. One or more specimens of the greater number of species were fortunately preserved, and most of the other species can be supplied. This collection is now in the Cambridge Museum. It contains types—pinned and spread—of something over 200 species.

There are, however, serious objections to pinning and spreading many Tineina. Very few persons are able to make a good "mount" of the small species; it is well nigh impossible to do it without *some* denudation, and an amount of it which could not be appreciated in a larger moth, is ruinous in one of these little things. Many species are characterized by

tufts of raised scales, which are very likely to be removed in the attempt to mount them; and frequently the distinguishing specific characters are to be found either on the extreme margins of the wings, or in the apical ciliæ, just where they are most likely to be removed or injured in pinning; the thorax, of course, is destroyed in small species. It is therefore best to make very careful observations before attempting to pin a "Micro." If a species is very rare, so that I desire to keep the specimen, I should want it pinned and spread; but if it was unique and small I should not run the risk. And when one keeps a cabinet of pretty curiosities, of course they are best pinned and spread. But for the purpose alone of scientific study or description, I would prefer the untouched insect, and except for the preservation of types, would deem pinning unnecessary.

V. T. CHAMBERS, Covington, Ky.

NOTES ON HYBERNATING BUTTERFLIES.

In No. 4, Vol. 7, of *Psyche*, Mr. Scudder gives some notes on early spring butterflies at the White Mountains, noticed during June 2nd to 5th. Speaking of *Vanessa J-album*, he says: "One or two specimens only were seen on the 4th, apparently just out of winter quarters; they appear later I believe than other hybernating Praefecti, and those seen were on the sunny side of a barn which had probably served as their winter refuge."

In this locality, as elsewhere, *V. antiopa* is the first butterfly seen in spring, but as far as my experience goes, *J-album* appears as early as *milberti* and the *Graptas;* I am not sure about *P. cardui* and *huntera*. Referring to my note book, I find the following dates for *J-album:* April 18th, 1874, one specimen observed; April 26th, 1874, a pair taken in *coitu;* May 14th, 1876—cold, late spring—a specimen taken at willow blossoms. *Antiopa* makes its appearance here as soon as the snow has melted off sheltered spots on the south-western slopes of Montreal Mountain. The earliest record I have of its appearance is April 4th, 1875; on that date I saw a specimen on the wing and found two others under a stone. *Antiopa* can be found under stones, on dry sunny slopes with scattered trees, every spring, but I never met with any other species in its winter quarters. Do they hybernate in places less exposed to the influence of the early spring sunshine? If so, may not this account for their appearing a week or two later than *antiopa?*

F. B. CAULFIELD, Montreal, P. Q.