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THE CANADIAN  
ENTOMOLOGIST.

VOLUME XIV.

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# The Canadian Entomologist.

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No. 1

## ENTOMOLOGY FOR BEGINNERS.

### THE SOUTHERN CABBAGE BUTTERFLY—*Pieris protodice*.

BY THE EDITOR.

In figure 1 we have represented the male, and in figure 2 the female of the Southern Cabbage Butterfly, an insect by no means confined to the

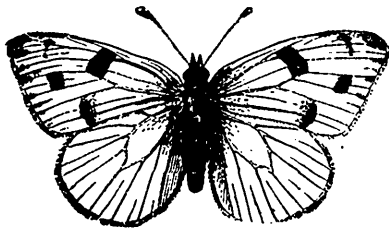


Fig. 1.

South, although much more abundant there than in the more northerly portions of America. This insect enjoys a wide geographical distribution, extending south-west as far as Texas, west to Missouri, north-west to the Red River, and along the east from Connecticut to the Southern Atlantic States. A few

years ago it was not uncommon around London, and occasionally quite plentiful about the shore of Lake Erie at Port Stanley; but of late years it has become a rare insect with us, and we have not met with a specimen on the wing for several years. The English Cabbage Butterfly, *Pieris rapae*, seems to have taken its place entirely.

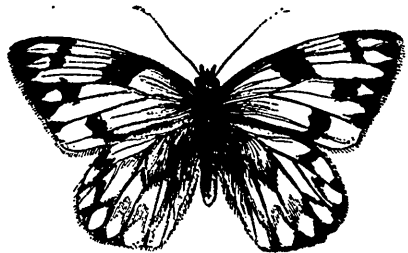


Fig. 2.

The butterfly is a very pretty one, as will be seen by the figures. The ground color in both sexes is

white, with black spots and black and dusky markings which are much more numerous in the female than in the male. Although so rare in Ontario that it has never, as far as we know, been reported as injurious, it is frequently very destructive to the south of us. According to Mr. Riley,

it is abundant in Missouri, and often proves exceedingly injurious, sometimes destroying in a single district thousands of dollars worth of cabbages.

The caterpillar, when full grown (figure 3, *a*), is about an inch and a

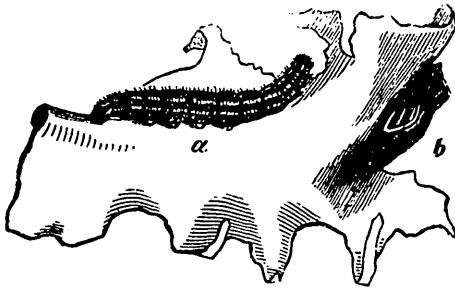


Fig. 3.

quarter long, of a bluish-green color, with four longitudinal yellow stripes and many black dots; when first hatched it is of an orange color with a black head. The chrysalis, shown at *b* in the figure; is about seven-tenths of an inch long, of a light bluish-grey color speckled with black, with the

ridges and prominences edged with buff or flesh-color, and having larger black dots.

The insect hibernates in the chrysalis state, and where common may be found on the wing during the months of July, August and September.

## DESCRIPTIONS OF TWO NEW SPECIES OF N. AMERICAN BUTTERFLIES.

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

### CHIONOBAS VARUNA.

Male.—Expands 1.6 to 1.75 inch.

Upper side brown, individuals varying from yellow to red and black-brown, but in the examples under view red predominates; costal edge of primaries dark brown, next base dusted with white; apex and hind margin edged with dark brown, which fades insensibly into the ground color; beyond the disk, one to four small black ocelli; where one only is present, it is on the upper discoidal interspace; where two, the second is on lower median interspace; where all are present, the two extreme are large and about equal in size, the interior pair minute.

Secondaries have a narrow brown border, clearly defined on inner side; all the nervures and branches edged with dark scales; the ocelli

are from nil to five, small, black ; when all are present they stand one on each interspace from subcostal to lower median ; fringes of primaries mixed light and dark brown, of secondaries mostly light.

Under side of primaries paler, the tint varying as above ; over costa, apex and over hind margin to the ocelli, sprinkled with light brown and white ; in some examples the white disappears below median nervure ; in the cell the brown lies in transverse streaks, and near the outer end are two whitish patches ; along the edge of hind margin a white dot in each interspace ; the ocelli repeated, enlarged and pupilled with white ; in one example, which has but one ocellus above, there are three below, one being on second discoidal, the other on second median interspace.

Secondaries light and dark brown and white, or almost wholly dark brown ; the basal area often dark to middle of cell, in sub-concentric curves about base, intermingled with streaks of white, but in other cases is nearly solid dark brown ; across disk a narrow dark band, the outer side well defined, the basal side not so distinctly, as the curved stripes, or the basal color, tend to coalesce with it ; but when most distinct this inner side is pretty evenly excavated ; on the outer side there is a rounded prominence opposite cell, posterior to which the outline is wavy to inner margin, and anterior there is a single curve to costa ; this band is dark brown upon both edges, and in some examples is wholly dark, in others it is lighter colored within, and with a little white ; beyond the band, the ground is either white, thickly dusted and streaked with brown, most so along the line of the ocelli ; or wholly uniform dark brown with a little dusting of white ; along the margin white dots like those of primaries ; the ocelli are five, nearly equal and pupilled white ; in one they are minute and the spot next outer angle is wanting.

Body black-brown ; below, thorax black, abdomen gray-brown ; legs light brown, with gray ; palpi brown with black hairs ; antennæ fuscous above, dull white below ; club orange below and at tip.

Female.—Expands 1.8 to 1.9 inch.

Closely like the male, the color varying in same manner ; the marginal borders are both distinctly cut on inner side ; the ocelli on primaries run from two to four, on secondaries are five, all usually blind, but sometimes the anterior ocellus on primaries and the second and fifth on secondaries have white pupils.

Under side as in male ; white dots along both margins as in the male.

From 6 ♂, 4 ♀, taken by Mr. Morrison on the plains of Dacotah Terr., May, 1881.

*Varuna* belongs to same sub-group with *Uhleri*, Reak.; the fore wings, especially of the male, being narrow and produced. On the under side *Uhleri* is very white. Mr. Reakirt described the hind wings as "marbled with irregular markings of white, black and brownish scales, sometimes congregated into spots; at others, disposed in transverse lines, the darkest portions nearest the base, the color decreasing outwards; the waves from the outer border of the transverse band (up to base) are so interlaced and contiguous as to preclude all possibility of tracing any inner outline to this band; this outer is more distinct, yet not nearly so well or clearly defined as in the allied species; the reticulations appear to be diffused over the whole surface."

This description was made from a single pair taken by the late Mr. James Ridings, on Pike's Peak, in 1864, and late in the year, as to my knowledge, Mr. Ridings did not begin to collect before last of August or September. The expanse of the ♂ is given as 1.75 inch, the ♀, 1.69. Since that date many examples have been brought in, and the species is not uncommon in collections. It varies greatly. I have 11 ♂, 3 ♀, in my own collection. All are larger than Mr. Reakirt's specimens seem to have been, the smallest ♂ expanding 1.7 inch, the largest 2.05. The average expanse of the 11 is 1.88 inch. The females expand 2.1, 2.15, 2.2, averaging 2.15 inch. On the other hand, my *Varuna* males run from 1.6 to 1.75, averaging 1.7 inch; and the females average 1.88. *Varuna* therefore is considerably the smaller of the two.

It is also darker colored on upper surface, being red-brown most often, less commonly yellowish, while *Uhleri* is pale yellow-brown, and sometimes decidedly whitish—though I have one which is red-brown, plainly an exceptional case, as out of many which have passed through my hands, this was saved as the only dark one.

In the ocelli, their number and shape, the two species are alike.

On the under side, *Uhleri* is white, that being the predominating color on the hind wings especially. In 6 ♂, there is no trace of a band, the brown waves, as Reakirt calls them, being distributed pretty evenly over the whole surface, sometimes much broken, or macular; in one of these the brown is almost obsolete, and the surface is white with some fine streaks and a dusting of brown. In 5 ♂, there is a concentration of the waves upon the disk and basal area so as to give an indistinct band, the

brown and white being interlaced in about equal proportions. If anything, the white predominates from the outer edge of the band to base; in 2 of the 5, while the band is thus outlined, all the rest of the wing to hind margin is white flecked with fine streaks or dusted.

The 3 ♀ are yellow above, two of them with less white below than any of the males; the other has the macular surface and no band. Of the two, one has the area from base to outer side of the band evenly reticulated brown and white, and the other is macular over the same area; so that in neither is there an inner side to the band. Wherever in both sexes there is an approach to a band, it is very unlike the dark band usually seen in this genus. In all the *Varuna*, also, there are distinct white points on both hind margins on under side, and I find nothing of this in *Uhleri*.

Mr. Morrison writes: "This *Chionobas* was taken in Dacotah Terr., on my way to Montana, in May. It was found on the plains, elevation about 1,200 feet, and in all about 100 specimens were taken. All the *Uhleri* I have taken were in mountains, never at less than 5,000 feet elevation, and from that to 11,000 feet, and only in July and August."

Mr. A. G. Butler, Cat. of Satyridæ in B. Mus. Col., 1868, gave *Chionobas* (*Oeneis*) *Tarpeia*, Esper., Eu. Schmett., pl. 83, as belonging to Arctic America. It has occurred to me that the form I call *Varuna* might be that which Mr. Butler had in view. Esper's figure represents a species shaped, colored above, and ocellated after the manner of *Uhleri*, but I should not take the under side to be that of any of the American forms. But the figures are too coarsely done to enable small differences to be distinguished. The butterfly *Tarpeia* I have not seen.

#### ANCYLOXYPHA LENA.

Male.—Expands 1.1 inch.

Upper side dark brown, glossy; primaries have three small white spots, with traces of a fourth, in an oblique bar from costa, at four fifths the distance from base to apex; a small spot in cell near outer end; and three minute spots in median and submedian interspaces, two being in the latter, these about three fifths the distance from base to hind margin. Secondaries immaculate. Fringes concolored.

Under side of primaries dark brown, grayish at base and over apical area, more particularly when seen obliquely. Secondaries gray-brown, caused by a uniform sprinkling of whitish scales over the brown surface;

without spot except a transverse abbreviated white dash on middle of disk.

Female.—Expands 1.15 inch; color of the male; the white spots conspicuous, forming a discal row quite across primaries; a large spot in cell, and a small one in submedian interspace near base. Under side of both wings as in the male, except that the three costal spots of discal row are repeated, and the spot in cell, but all are reduced.

From 1 ♂, 1 ♀, taken in Montana by Mr. Morrison, 1881. In all 4 examples were taken.

LIST OF BUTTERFLIES TAKEN BY H. K. MORRISON IN DACOTAH AND MONTANA, 1881.

Papilio Zolicaon, Bois.	Thecla Acadica, Edw.
Pieris Protodice, Bois.	“ Smilacis, Bois.
Colias Philodice, Godt.	“ Titus, Fab.
“ Eurytheme.	Chrysophanus Dione, Scud.
form Keewaydin, Edw.	“ Helioides, Bois.
Argynnis Cybele, Fab.	“ Rubidus, Edw.
“ Aphrodite, Fab.	Lycaena Saepiolus, Bois.
“ Nevadensis, Edw.	“ Lupini, Bois.
“ Edwardsii, Reak.	“ Melissa, Edw.
“ Myrina, Cram.	“ Aemon, West.-Doubl.
Euptoieta Claudia, Cram.	“ Pseudargiolus, Bois.
Melitaea Acastus, Edw.	form Violaeca, Edw.
Phyciodes Carlota, Reak.	“ Comyntas, Godt.
“ Tharos, Drury.	Ancyloxypha Lena, Edw.
Limnitis Weidemeyerii, Edw.	Thymelicus Poweschiek, Parker.
“ Disippus, Godt.	Pamphila Pawnee, Dodge.
Coenonympha Inornata, Edw.	“ Uncas, Edw.
Satyrus Nephele, v. Olympus, Edw.	“ Cernes, Bois.
“ Meadii, Edw.	“ Metacommet, Harr.
“ Charon, Edw.	“ Delaware, Edw.
“ Silvestris, Edw.	Amblyscirtes Vialis, Edw.
Chionobas Varuna, Edw.	Pyrgus Tessellata, Scud.
Thecla Humuli, Harr.	“ Scriptura, Bois.
“ Strigosa, Harr.	Thanaos Persius, Scud.



## FIELD NOTES—1881.

BY W. H. HARRINGTON, OTTAWA, ONT.

The earth covered by its first mantle of snow reminds one that the collecting season is virtually ended, and the lengthening evenings allure one to the study fireside to go carefully over note books and collections and to read the recorded labors of fellow Entomologists.

A few memoranda from my own note book may perhaps not be barren of interest to some of the less experienced readers of the ENTOMOLOGIST. I find that almost the first insect of spring was the Mud-wasp, *Polestes annulatus*, which appeared with a few flies and spiders about the 15th of March. This wasp is very abundant here, and from the pulverized macadam of the streets thousands of its mud cells are constructed every summer under the window-sills and numerous cornices of the Parliament Buildings, about which the wasps linger until the end of October. Toward the end of March a few bees and a number of small beetles, as *Amara interstitialis*, appeared. *Pieris rapæ*, the cabbage butterfly, was observed on April 1st, but from this date to the 8th of the month a severe cold spell (thermometer touching zero) reduced insect appearances to the minimum again. At its conclusion they emerged in still greater variety and number; *Vanessa antiopa* flitted about in sunny glades of the wood; *Cicindela purpurea* enlivened the fields, and its relatives, *C. vulgaris* and *C. sex-guttata*, the roads. Mosquitoes came in full force a fortnight later, and on the 24th I obtained a number of Buprestidæ upon young pines, viz., 1 ♂ and 2 ♀ *C. virginiensis*, and 14 ♂ and 13 ♀ *C. liberta*. I was somewhat surprised to find them so early in the year, yet could have taken many more. They were generally paired, in several instances copulating. Some *Pissodes* were also seen, and these were with few exceptions copulating. Great numbers of Saw-flies were also upon the pines. A few days later I captured specimens of *A. striata*, and by the beginning of May all orders of insects were well represented. On the 6th *Serica sericea* was abundant on the foliage of wild gooseberry bushes. *Chrysomela elegans* was also unusually numerous, but I could not find upon what it fed. *Platycerus quercus?* was found eating the buds of maples and other trees. The buds were often completely eaten out, and the beetles hidden from view therein. In some buds a male and female were found copulating. This beetle was new to my collection, but I found them frequently again

during the summer when using a beating net. During May the curious larvæ of certain Lampyridæ were often seen in damp woods, crawling on the trunks of trees, such as cèdar, or affixed by the tail to the bark, undergoing their metamorphoses in a similar manner to the larvæ of the Cicinellidæ. Some reared at home emerged as *Photinus angulatus*. The larvæ, and to a less degree, the pupæ, emitted a strong greenish glow from two of the posterior segments; the imago being, of course, one of our common "fire flies." Some of the larvæ were thickly covered beneath with small ticks, of a bright vermilion color, which had their pointed heads plunged between the armored segments of the larvæ. They were not easily dislodged, but walked rapidly when free. By these little parasites the larvæ were so weakened as to perish before completing their transformations. • The warm weather of mid-May brought forth increased hosts of insects, and the sultry air, especially in the neighborhood of lumber yards, swarmed with Scolytidæ, etc. Toward the end of the month I took a trip, with three friends, to the Wakefield Cave, about twenty miles north of the city; and in my spare moments collected a number of insects in that vicinity. Cicindelidæ especially abounded on the sandy hill-side roads, and I captured three species which are rare, or not found about here, viz., *C. 12-guttata*, *C. longilabris* and *C. limbalis*. On my way back I took a specimen of *C. sex-guttata* having only two spots (the anterior one on each elytron). Although called Six-spotted Tiger Beetles, very many have eight spots, and specimens with ten spots are frequently taken. In a beech grove at Chelsea, *Ithycerus curculionides* was very abundant; several could be seen on nearly every tree; many pairs were copulating. Where do the larvæ live? On the 31st of May several specimens of *C. Harrisii* were taken on pine saplings, and *H. pales* and its long-snouted relatives were in full force. On June 4th, *Saperda vestita*, *Oberea amabilis*, *B. nasicus*, *C. nenuphar*, *A. quadrigibbus*, and many other weevils, elaters, etc., were noted. At an excursion of the Ottawa Field Naturalists' Club to Montebello (45 miles down the river), on 26th June, I captured 129 species of Coleoptera, a considerable percentage of which were new to me. Carabidæ were particularly abundant under drift-wood and dead leaves on the damp, shady shore, and 35 species were taken. Chrysomelidæ, Elateridæ and Curculionidæ were next in number with 15, 13 and 13 species respectively. After midsummer my opportunities for collecting were few, and my notes correspondingly scanty. I will merely mention the capture at Aylmer and Hull, on Oct. 2nd, of *Aletia*

*argentata*, the cotton moth; both specimens were in perfect order, not in the least rubbed or worn. In Oct., 1880, I took several specimens about the city, also apparently recently emerged.

## TWO NEW SPECIES OF ISOSOMA.

BY G. H. FRENCH, CARBONDALE, ILL.

### ISOSOMA ALLYNII, n. s.

Female.—Average length .10 of an inch. Color of body and antennæ uniform black, the first with a slight greenish lustre. Head about .025 of an inch wide, about two thirds as long; the antennæ a little enlarged at the ends, hairy, microscopic hairs moderately scattered over the head and thorax. Thorax, as well as head, punctured; wings hyaline, dotted over with microscopic hairs, the thorax in its widest part about the width of the head. Abdomen gradually tapering from near the base, the ovipositor slightly exerted. The color of the legs vary slightly; in five specimens the anterior and posterior legs have the femurs fuscous except at the ends; the tibiæ with basal half fuscous, the rest yellow; the terminal joint of tarsi fuscous, the rest yellow; the middle pair of legs are yellow throughout except the terminal tarsi. Two specimens have all the femurs fuscous, yellow at the ends. One specimen has all the femurs pale red, and the tibiæ fuscous, but this is probably a change from yellow by the poison bottle used in killing. One is marked like the first five, with the yellow replaced by pale red; another is like the first five, except that the middle tibiæ are a little clouded at base.

Male.—In this sex the body, wings and antennæ are colored like the females, but the antennæ are a little more slender at their ends. The head and thorax have about the same measurements, but the abdomen is a little shorter, the whole insect being from .06 to .07 of an inch. The legs have all the femurs yellow, front tibiæ yellow, middle and hind tibiæ fuscous, except at the apices, which are yellow; feet as in the females.

Larvæ.—These are found inside stalks of growing wheat in Southern Illinois, before the ripening of the grain, and in the straw and stubble during the rest of the summer. They are found mostly in the interior of the first and second internodes below the one supporting the head, usually singly, but sometimes more than one in the same internode. They pro-

duce no swelling or gall, as do the larvæ of *I. Hordei*, but feed upon the soft tissue of the interior of the stalks. They are about .15 of an inch long, rather slender, tapering slightly toward either end, footless, but when in motion seeming to have the power of pushing out the substigmatal portion of the segments, a distinct transverse head about two thirds the width of body, with a pair of brown jaws. Color yellow, approaching a pale orange.

Pupæ.—These vary from about .08 to .12 of an inch long, are black and of the usual hymenopterous form. About four fifths of the larvæ observed changed to pupæ and produced the imago, or died, the past season from July 20th, when the first imago was found, to August 20th, or perhaps better, underwent their changes between July 8th and August 20th; but I think this the effect of the dry season. Those examined the last of November were in the pupa state in the interior of the stalks down close to or in the substance of the joint, both in the fields and in my breeding jars. Those were in the larva state the last of August. It is probable they pass the winter in the pupa state under ordinary circumstances to produce the imagines in the spring, and that those hatching during July and August perish without ovipositing.

Described from 10 females and 4 males.

I take pleasure in dedicating this species to Robt. Allyn, LL.D., President of the Southern Illinois Normal University, as a slight acknowledgment of valuable aid and encouragement he has rendered me in my work.

#### ISOSOMA ELYMI, n. s.

Length .07 of an inch. A little more slender than the preceding; width of head and middle of thorax .02 of an inch. Color black without metallic lustre. Head and thorax very sparsely covered with hairs; antennæ scarcely enlarged at the ends; wings hyaline, microscopically hairy; legs rather more slender than in the preceding species, or in *I. Hordei*, all fuscous throughout, except that the joints are a little pale. Abdomen about as in the other species, the ovipositor slightly exerted.

Larvæ.—These are found on the interior of the culms of *Elymus Canadensis* in about the middle internodes of the stalks, very much as the larvæ of the preceding species are to be found on the interior of wheat culms. While, however, the wheat larvæ are generally just above the joint, these may be found in any part of the interior of an internode.

Both feed upon the soft tissue of the interior of the stalk, and do not produce any enlargement; the only noticeable effect from the outside is that internodes containing larvae are usually shorter than others. The larvae are footless, about .10 of an inch long when still, and .04. wide in the widest part, tapering to the extremities; the head transverse, about two thirds as wide as the body in its widest part, with two brown jaws. Color very pale yellow. Like the preceding, there appear to be slight projections from the sides of the body at times.

Pupa.—At the time of writing this, December 12th, all the specimens I have are in the larva state. A few went through with their transformations during the summer, but a much smaller number than of the preceding species. August 30th, two specimens of the imago were obtained from culms, having gnawed their holes of egress nearly large enough to emerge, but one was so injured in cutting open the stalk that it was not preserved. The form and color of pupa can only be guessed from the empty cases of those found in the culms.

Described from one female specimen found hatched in a stalk of *Elymus Canadensis*, August 30th, 1881.

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## THE OLDEST FIGURES OF NORTH AMERICAN INSECTS.

BY DR. H. A. HAGEN, CAMBRIDGE, MASS.

The *Gazophylacium* of Jacob Petiver, Apothecary in London (died 1715) is a very rare book, as the plates and the catalogues were printed and published at different times between 1695 and 1715. They were collected later and published by Mr. Empson, an officer of the British Museum and a natural son of Sir Hans Sloane, in 1764, in London, with the title, "Jacobi Petiveri Opera, etc., or *Gazophylacium*, 2 vol. fol." A small volume in 8vo contains the original sheets published by Petiver between 1695 and 1706. The library of the Museum of Comp. Zool. at Cambridge possesses a copy presented, June 1765 by Emanuel Mendez da Costa, Librarian of the Royal Society, to Thomas Knowlton. The collection of J. Petiver, at least the Lepidoptera, is still preserved in the British Museum, and was seen by me in 1857. Every butterfly is placed between two thin plates of mica, fastened with a small

band of paper around the margin, and glued with one flying slip to the pages of a book in quarto, so that every species can be examined above and beneath.

Perhaps it is of some interest to know the names of the insects represented in the Gazophylacium, the more as many of them are quoted by Linnaeus. Some are well represented, many of the others recognizable.

Plate 2, figure	2.	<i>Buprestis rufipes</i> ?	Maryland.
" 3, "	3.	<i>Neonympha eurytris</i> .	Maryland.
" 3, "	2.	<i>Deiopeia bella</i> .	Carolina.
" 6, "	6.	Perhaps a <i>Tenthredo</i> .	Carolina.
" 6, "	12.	<i>Limenitis spec.</i> ?	Carolina.
" 7, "	6.	Basket from <i>Oiketicus</i> .	Carolina.
" 7, "	10.	<i>Colias caesonina</i> .	Carol.
" 10, "	4.	<i>Alaus oculus</i> .	Virginia.
" 13, "	10.	<i>Mutilla spec.</i>	Virginia.
" 14, "	5.	<i>Actias luna</i> .	Maryland.
" 15, "	1 & 2.	<i>Libellula trimaculata</i> , mas. fem.	Maryl.
" "	9.	<i>Limenitis disippus</i> .	Carol.
" 17, "	2.	<i>Tortrix spec.</i>	Maryl.
" "	7.	<i>Callimorpha militaris</i> var. <i>contigua</i> .	Maryl.
" "	8.	<i>Callimorpha interrupto-marginata</i> .	Maryl.
" "	11.	<i>Disonycha glabrata</i> .	Maryl.
" "	12.	<i>Thyris lugubris</i> .	Maryl.
" 24, "	10.	<i>Strategus antaeus</i> .	Maryl.
" 25, "	11.	Cerambycid ?	Carol.
" 26, "	11.	Coleopteron ?	Maryl.
" 27, "	3.	<i>Clytus Robiniae</i> .	Maryl.
" "	7.	<i>Passalus interruptus</i> .	Maryl.
" "	8.	<i>Phanaeus carnifex</i> .	Maryl.
" 32, "	5.	<i>Eudamus Lycidas</i> .	Carol.
" "	7.	<i>Haemaris thisbe</i> .	Carol.
" 33, "	3.	<i>Epilachna borealis</i> .	Maryl.
" "	5.	<i>Vanessa Huntera</i> .	Maryl.
" "	11.	<i>Erebia Portlandia</i> .	Carol.
" "	9.	<i>Cicindela purpurea</i> .	
" 71, "	3.	<i>Lebia spec.</i>	Carol.
" "	4.	<i>Cassida spec.</i>	Carol.

The second volume contains the *Pterigraphia Americana* on 20 plates (Ferns, Mushrooms, etc.), published perhaps 1708. There are many insects, mostly from the Antilles. But there are also a number of undoubtedly N. American insects among them.

Pl. 11, fig. 10. *Pyrgota undata*? 11. Dipteron. 12. *Tabanus*. 13. *Musca*. 14, 15. *Mutilla*.

Pl. 12, 11-15. *Diptera*.

Pl. 13, 1. *Thalessa lunator*. 2. *Ophion*. 3. *Sirex*. 4. *Hymenopt.*

Pl. 14, 8 & 10. *Chauliodes serricornis*. 9. *Polystoechotes sticticus*.

Pl. 15, 7. *Chauliodes pectinicornis*. 8 & 9. *Diptera*.

Pl. 20, 14. Longicorn beetle.

The much later work of Catesby figures only 17 insects from North America.

#### NOTES ON APHIDIDÆ.

BY JOSEPH MONELL, E. M., ST. LOUIS, MO.

*APHIS LONICERÆ* Monell. Riley & Monell, Notes on the Aphididæ, U. S. Geol. and Geogr. Survey, Vol. v., Jan., 1879, p. 6.

This species is the one mentioned by Prof. Thomas in the eighth Ill. Ent. Rept., p. 104, under the name of *Chaitophorus loniceræ* Mon'1 Mss.

*PHORODON MAHALEK* Fonsc. This European species has been very abundant at the Missouri Botanical Gardens, St. Louis. I believe that it has not before been definitely reported as occurring in the United States.

*CHAITOPHORUS SMITHIÆ* Monell, l. c. p. 32.

*Chaitophorus salicicola* Thos. l. c.

*CALLIPTERUS* Koch.

Continued study of this genus has confirmed me in the opinion that the subdivision proposed by Passerini is impracticable. In this I am confirmed by Prof. Buckton in his valuable work on the British Aphides.

*C. ULMIFOLII* Monell, l. c. p. 29.

*C. ulmicola* Thos. l. c. p. 111.

*C. (MYZOCALLIS) HYPERICI* Thos.

This species was previously described by me as *APHIS HYPERICI* l. c.

p. 25. This insect is a typical Aphis and lives in clusters. So far as I know, all Callipterus are sporadic in habit.

*C. TRIFOLII* n. sp.

Apterous individuals : Tuberculate ; with capitate hairs.

Winged individuals : Dorsum without conspicuous tubercles. Third joint of antennæ twice as long as the fourth ; fourth and fifth joints sub-equal ; sixth and seventh joints sub-equal.

Wings : Marginal cell hyaline. Veins bordered with brown. Basal half of stigmal vein sub-obsolete and not thickened and dusky at base.

Length of body .04-.05, of wing .07, of antennæ .06 in. Clover leaves. June.

This species can be easily distinguished by the naked eye from *C. punctata*, by having the veins more robust, and shaded not only at tip but for their entire length.

The American species may be distinguished as follows. With regard to the species described by Fitch, see Riley & Monell, l. c. p. 28.

A. Dorsum of winged individuals with spine-like tubercles... *C. ulmifolii*

AA. Dorsum without spine-like tubercles.

a. Marginal cell dusky.

b. Middle tibiæ pale yellow. Femora pale yellow..... *C. Walshii*

bb. Tibiæ black. Apical portion of femora black..... *C. bella*

aa. Marginal cell hyaline.

b. Wings with transverse, shaded bands.

c. Abdomen with conspicuous dusky spots..... *C. discolor*

cc. Abdomen yellow, concolorous, or with very faint transverse bands.. *C. asclepiadis*

bb. Wings sub-hyaline.

c. Nectaries distinct.

d. Wings not hyaline.

e. Sixth joint of antennæ half as long as seventh.. *C. punctata*

ee. Sixth and seventh joints sub-equal..... *C. trifolii*

dd. Wings hyaline.

e. Apical joint of antennæ a little longer than the sixth, veins whitish.. *C. hyalinus*

ee. Apical joint of antennæ three times as long as the sixth.

First and second discoidals black... *C. betulaecolens*

cc. Nectaries not perceptible.



- d. Wings hyaline.....*C. caryae*  
 dd. Veins bordered with brown.....*C. quercicola*

COLOPHA COMPRESSA (Koch.)

*Schizoneura compressa* Koch. Pflz. 1854.

*Byrsocrypta ulmicola* Fitch. Fourth N. Y. Rep't, 1858 §. 347.

*Thelaxes ulmicola* Walsh. Gen. Am. Aph. Proc. Phil. Ent. Soc.  
 1, 1862, p. 305.

American Entomologist, I, 1869, p. 224.

*Colopha ulmicola* Monell. C. E. ix, 1877, p. 102.

*Glyphina ulmicola* Thomas l. c. p. 142, 1879

*Colopha compressa* Lichtenstein. Les pucerons des ormeaux.  
 Feuille des Jeunes Naturalistes, 1880.

American Entomologist, iii, p. 76, 1880.

This insect has been referred to six different genera. The synonymy of this species up to 1877 has been discussed in the C. E., ix., 102.

The genus *Glyphina* was insufficiently characterized by Koch. The species upon which it was founded, *G. Betulae*, is referred to the genus *Vacuna* by Passerini (1863), Walker (1870) and Kaltenbach (1874) under the name of *V. alni* Schrank.

Some doubts existed as to whether intermediate forms would not be found connecting *Vacuna* and *Colopha*, as it has been found that the number of joints in the antennæ sometimes vary (see Lichtenstein, Entom. Monthly Mag., March, 1880), but Prof. Riley, who has investigated this subject with his usual ability, has succeeded from biological evidence in establishing the right of *Colopha* to rank as a separate genus.

According to Mr. Lichtenstein, of Montpellier, the true female of *Vacuna* has a rostrum and lives about a month sucking at the leaves. In *Colopha*, on the other hand, the true female has a rudimentary mouth and dies with the egg in the body. Judging by analogy with *Tetraneura*, it is probable that the true female lives but for a few days. The validity of the genus *Colopha* is acknowledged by Lichtenstein, Kessler, Loew and Fr. Thomas, but all of these gentlemen concur in considering the European *S. compressa* Koch identical with the American *B. ulmicola* Fitch.

TETRANEURA Hartig.

*Byrsocrypta* Hal (in part), nec Walsh.

Antennæ short, six-jointed.

Wings deflexed. Fore wings with four simple oblique veins. Hind wings with one oblique vein.

This genus has not been previously found in America. The only species known are *T. ulmi* Geoffr., *T. alba* Ratzb. and *T. rubra* Licht.

I have succeeded in raising *T. ulmi* at St. Louis from eggs sent to me by Mr. Kessler, of Cassel. They seemed to thrive the first season, but did not appear again the next year.

#### T. GRAMINIS n. sp.

Head and thorax dusky, abdomen dusky or sometimes of a greenish or yellowish tinge. Antennæ dusky, the third joint as long as the three following taken together; joints four and five equal; apical joint a little over half as long as the preceding. Wings hyaline. Subcostal of the hind wing comparatively straight.

Length of body .08, to tip of wings .12 in.

On leaves of *Aira caespitosa* and *Agrostis plumosa*, enveloped in a thick cotton-like secretion.

Sept.—Oct. St. Louis, Mo. Springfield, Mo. Neosho City, Mo.

#### PEMPHIGUS ACERIS n. sp.

Winged female: Head and thorax dusky, abdomen dusky, but appearing white from the abundant pulverulent matter. Antennæ long, slender; the apex of the fourth joint reaching the wing insertions; joints sub-cylindric, scarcely contracted at base, apical unguis not perceptible; fourth and fifth joints sub-equal, fourth joint not clavate, third joint less than the two preceding taken together.

Wings sub-hyaline, subcostal and oblique veins brownish black. Stigmal vein arising behind the middle of the stigma. Venation closely resembling that of *P. acerifolii*, except that the base of the first discoidal is usually more remote from that of the second discoidal. Length 0.12—0.15, to tip of wings 0.20—0.22 in. On the under side of limbs of Hard Maple, enveloped in woolly matter. Peoria, Ill. June (Miss E. A. Smith). A comparison of about fifty species, each, of *P. aceris* and *P. acerifolii*, shows that the antennal differences between the two are quite constant.

## ENTOMOLOGICAL NOTES FOR THE SUMMER OF 1881.

BY PROF. E. W. CLAYPOLE, YELLOW SPRINGS, O.

I came only last year on the premises where I am now residing, and though I had a small crop of cherries, they were so badly infested with the weevil (*Conotrachelus nenuphar*) that only a few quarts could be found free from the grub and fit for canning. This year a fair crop was promised, the spring was late and the danger of frost little. I proposed therefore to make war upon the enemy, and as soon as the blossom was over prepared a large sheet of cheese-cloth, and for about three weeks jarred the trees before breakfast almost every morning. As the result, I have now nearly 2,000 weevils peacefully reposing in a bottle, after a composing draught of benzine. Only about 10 per cent. of my cherries this year were unfit for use. I carried the war into the orchard, and simply by way of experiment, jarred some of the early apple trees and captured a great many of my enemies. I am more than repaid for my labors both on the cherry and apple trees by the quality of the apples, when last year, with a larger crop, I only obtained knotty, gnarly fruit. I have this year round, smooth, well-shaped apples. I have never heard that anything has been done, at least in this neighborhood, to trap the weevils on the apple trees. Those who live in the north have no idea of the mischief wrought here by the weevil in the orchards.

A word for the mole. In digging potatoes this year I observed the runs of a mole in all directions through the ground. It was a piece of old sod and very much infested with white worms, the larvæ of the Cockchafer (*Lachnosterna fusca*). Many of the potatoes had been partly eaten by these worms, but I observed that wherever a mole-run traversed a hill of potatoes no white worm could be found, even though the half-eaten potatoes were proof of his former presence. The inference is fair that the mole had found him first and eaten him, and very likely the mole's object in so thickly tunnelling this piece of ground was to find these grubs.

Now it would be very easy to trump up a charge against the mole on the evidence of these facts. There was the "run" which nothing but a mole could make, and there were the gnawed potatoes; put the two together and kill the mole. Many a man has been punished on less conclusive circumstantial evidence. But it is perfectly easy to distinguish the work of a mole from that of a white worm, if one will only take the pains.

I have many times found the latter coiled up in the potato he was eating, but I have never seen the mark of teeth such as the mole possesses on a potato. Nor do I believe the mole ever meddles with potatoes, or corn.

Abundance of Certain Insects.—The Southern Cabbage Butterfly (*P. protodice*) is exceedingly abundant here this summer. I have been able to count scores on the wing at one time.

The potato worm, or larva of *S. 5-maculata*, is troublesome on the late potatoes this month (September) and soon strips a plant of its leaves. However, he is easily dealt with, as he is at once betrayed by the castings on the ground, and a little "poison-dust," such as I use for the beetle, soon makes an end of him. I have tried "Buhach" on this insect, but find the former much easier of application and more effective. The latter diluted with ten parts of flour had little effect on the worms, but when used neat it stopped their feeding and killed two of them in a couple of days. But there is the trouble of looking up the creature (green on a green ground) in order to put the powder "where it will do the most good," whereas one need only shake the powder-tin over the plant and pass on, leaving the worm to poison itself.

The same is true of the Cabbage Butterfly (*P. rapæ*) in the early stages of growth of the cabbage. I have used Buhach, and a friend of mine is now using it on a plot of 3,000 heads of cabbage, but the time spent in finding the green worm on the green leaf is a serious drawback, and while the plant is very young I prefer using the "poison dust." I can sprinkle a whole bed while I am finding the worm on a dozen cabbage heads in order "to put salt on his tail." The "poison dust" to which I refer is made by mixing one part of London Purple and sixty parts of ashes and passing the mixture several times through a fine sieve. I may add that I find this a very efficient remedy for the turnip fly.

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## NEW MOTHS, CHIEFLY FROM ARIZONA.

BY A. R. GROTE.

(Continued from Vol. xiii., p. 229.)

### HADENA IDONEA, n. s.

♂ ♀. This species is similar in size to *verbascoides* and *cariosa*; it is very like the latter only instead of reddish brown the color is of an ochrey brown, rather pale, the stigmata concolorous, rather wide, ill-

defined, separated by the dark median shade. The claviform spot is open, and stretches across the median field nearly touching the even t. p. line. Lines geminate, marked on costa. A slight, irregular basal streak and one below it on internal margin. Terminal field dark shaded, obtaining twice, opposite cell and at internal angle. Fringes dark cut with pale. Hind wings very dark, with paler fringes, concolorous, an indication of discal mark; beneath with faint double extra-mesial lines; the narrow terminal space paler on both wings. The costa of fore wings is more or less pale. Abdomen tufted. This species is more ochrey than *vulgaris*. Texas, Kansas, Wisconsin.

HADENA AUREA, Grote.

This species may be known from all the other forms of *Pseudanarta* by the white discal (reniform) spot and the orange hind wings. A specimen from Arizona is a little larger than my type and the fore wings show indications of the t. p. and s. t. lines shaded with whitish and give the outer third of the wing a little the appearance of *flava*. The white discal spot of fore wings is repeated beneath and is probably a quick character of the species. The hind wings are bright orange above and below, without discal mark and with a moderate, even, black marginal band. My type from Texas has the fore wings a little rubbed. The Arizona specimen expands 21 mil. Coll. B. Neumoegen.

ONCOCNEMIS GRISEICOLLIS, n. s.

Allied to *atricollaris* but smaller, the collar entirely whitish gray, head blackish. Eyes naked; the short fore tibiae with a terminal claw. Gray, of a whitish tone. Under the glass the surface of primaries is whitish sparsely mixed with black scales. The markings hardly visible to naked eye. Under the glass the black, perpendicular, thread-like t. a. line is seen and attached to it a sub-rounded enclosed concolorous spot, the claviform. Similarly the concolorous orbicular and reniform may be seen ringed with fine black circles, the stigmata subequal, orbicular round, reniform upright, hour-glass shaped. Median space narrow; t. p. line indicated. A black dash from the reniform outward tapering to external margin. Similar fine interspaceal shades give the terminal space a slightly rayed appearance. Hind wings whitish, sub-pellucid. Beneath pale. *Expanse* 25 mil. Arizona, coll. B. Neumoegen.

This makes the twenty-first species of this genus discovered in North America. The species is interesting as affording an ally to *atricollaris*.

## PYGARTIA ABDOMINALIS.

This species described by me many years ago, from a specimen taken by me in Alabama, is, I now believe, wrongly placed. The type has been broken; only a pair of wings remain. I believe it to be a *Euchaetes*, not since taken. The fore wings are of the same dark color as *egle* and *Spraguei*, but there is a distinct dark yellow costal vitta. The species will easily be recognised from the description, with its reference to *Euchaetes*. The median vein of secondaries is 4-branched, 3, 4, 5 being thrown off near together from the extremity of the vein. The type was a female, as may yet be verified by the divided frenulum.

## CAPIS CURVATA, n. g. et sp.

A Deltoid form with the outline of *Lisyrhynena*, but the wings broader and shorter. Antennæ simple. Ocelli. Labial palpi moderately projected, third article short, a little depending. Fore wings broad, glistening deep brown, with a curved even s. t. line, outside of which the exterior margin is washed with white. Hind wings concolorous fuscous. Beneath paler fuscous, without markings. This species I have seen in Prof. Lintner's collection. One specimen in my own expands 20 mil. New York.

## SOME PECULIARITIES OF ARGYNNIS IDALIA.

The males are very plentiful throughout the summer, flying about feeding on the flowers of the clover and milk-weed; but the females are exceedingly rare, and I never saw one feeding but once. I collected a whole summer and did not succeed in finding one. I never have seen the female on the wing, unless I had scared it from its hiding place. Of course the females must feed, but I cannot imagine when they do so. In trying to discover where the females were, I found that they remained hidden in the long grass of the fields near the ground, and they would not take wing unless you nearly stepped on them, when they would get up as quickly as a partridge. Their flight is exceedingly rapid and generally in a straight line for about 100 ft., and then they do not alight on a flower or bush or flutter about like the male, but suddenly drop like lead in the long grass. It would be almost impossible to tell the exact spot where they alight, as they drop so suddenly, but on approach near it they are off like a shot again. I was thus able to distinguish the males from the females by the peculiarities in their flight alone.

HARRY SKINNER, Philadelphia, Penn.