

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Cover title missing/
Le titre de couverture manque

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/
Transparence

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Continuous pagination/
Pagination continue

Tight binding may cause shadows or distortion along interior margin/
La reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/
Comprend un (des) index

Title on header taken from: /
Le titre de l'en-tête provient:

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title page of issue/
Page de titre de la livraison

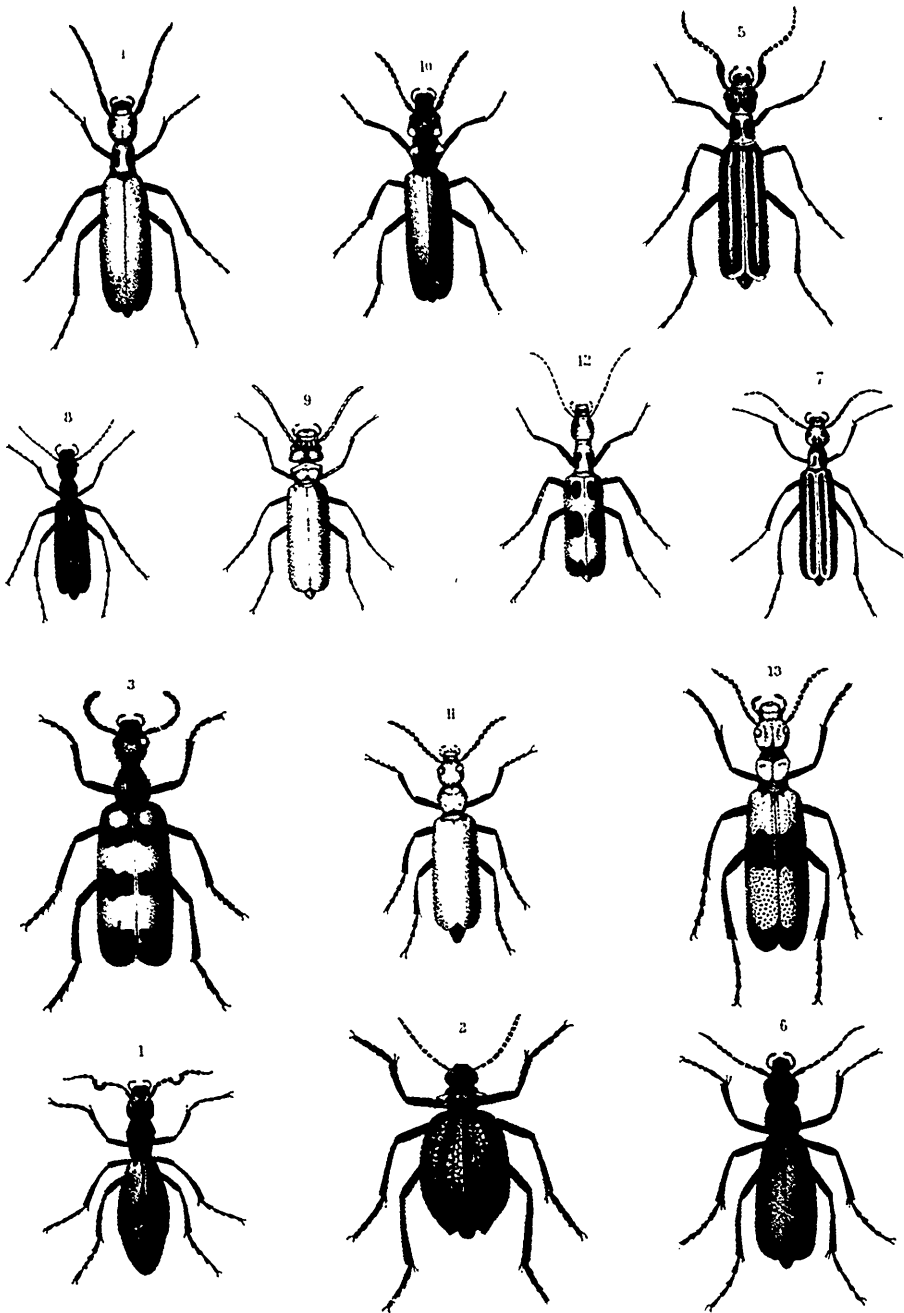
Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

Additional comments: /
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	12X	14X	16X	18X	20X	22X	24X	26X	28X	30X	32X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



1. *Meloe angusticollis* Say.
2. *Cysteodemus armatus* Lec.
3. *Mylabris cichorii* Linn.
4. *Macrobasis albida* Say.

5. *Macrobasis atrivittata* Lec.
6. " " *segmentata* Say.
7. *Epicauta vittata* Fab.
8. " " *cinerea* Forst.
13. *Tegrodera crosa* Lec.

9. *Cantharis vesicatoria* Linn.
10. " " *vulnerata* Lec.
11. " " *nuttalli* Say.
12. *Pyrota mylabrina* Chev.

THE CANADIAN
ENTOMOLOGIST.

VOLUME VIII.

Edited by William Saunders,
London, Ontario.

ASSISTED BY

Rev C J.S.BETHUNF M.A , Port Hope, Ont.; E. B. REED, Barrister-at-Law, London, Ont.,
and J. M. DENTON, London, Ont.

LONDON :

PRINTED BY THE FREE PRESS STEAM PRINTING COMPANY, RICHMOND STREET

1876

LIST OF CONTRIBUTORS TO THIS VOLUME.

ANDREWS, W. V.	BROOKLYN, N. Y.
BEHRENS, JAMES.	SAN FRANCISCO, CAL.
BETHUNE, REV. C. J. S.	PORT HOPE, ONT.
BOWLES, G. J.	MONTREAL, QUE.
BRUNER, LAWRENCE.	WEST POINT, NEBRASKA.
BUNKER, ROBERT	ROCHESTER, N. Y.
CAULFEILD, F. B.	MONTREAL, QUE.
CHAMBERS, V. T.	COVINGTON, KY.
CLEMENTI, V.	PETERBORO, ONT.
DODGE, G. M.	GLENCOE, NEBRASKA.
DURY, CHARLES.	CINCINNATI, O.
EDWARDS, W. H.	COALBURGH, W. VA.
GROTE, AUG. R.,	BUFFALO, N. Y.
HAGEN, DR. H.	CAMBRIDGE, MASS.
HARVEY, LEON F.,	BUFFALO, N. Y.
HORN, DR. GEO. H.	PHILADELPHIA, PA.
LECONTE, DR. JOHN L.	PHILADELPHIA, PA.
LINTNER, J. A.	ALBANY, N. Y.
LYMAN, H. H.	MONTREAL, QUE.
MANN, B. PICKMAN	CAMBRIDGE, MASS.
MEAD, THEODORE L.	ITHACA, N. Y.
MURTFELDT, MISS M. E.	KIRKWOOD, ST. LOUIS, MO.
NORMAN, GEO.	FORRES, SCOTLAND.
PEABODY, S. H.	CHICAGO, ILL.
PECK, GEO. W.	NEW YORK.
SAUNDERS, W., The Editor	LONDON, ONT.
SCUDDER, S. H.	CAMBRIDGE, MASS.
WESTCOTT, O. S.	MAYWOOD, COOK CO., ILL.
WHITNEY, C. P.	MILFORD, N. H.
WORTHINGTON, C. E.	CHICAGO, ILL.

The Canadian Entomologist.

VOL. VIII.

LONDON, ONT., JANUARY, 1876.

No. 1

ANNUAL ADDRESS

OF THE PRESIDENT OF THE ENTOMOLOGICAL SOCIETY OF ONTARIO. 1875.

To the Members of the Entomological Society of Ontario:—

GENTLEMEN,—For the fifth year in succession I find myself called upon, as your President, to address a few words to you on the condition of our Society, and on the subject of Entomology in general.

With regard to the Society, you have already learnt from the satisfactory Reports of the parent organization and its various Branches, that it continues to go on prospering in a quiet, unostentatious way. While there has been no marked increase to our list of members during the past year, and no performance of any work of unusual importance, yet it is a matter of congratulation that we have no falling off either in numbers or resources to deplore. Much of the inactivity in Entomological matters that has been apparent in this country during the past year may no doubt be ascribed to the prevalent "hardness of the times," which has occasioned—even to those least affected by it—much anxiety of mind, conjoined very often with increased absorption in the cares of business or in the labours necessary for obtaining a livelihood. As you are well aware, we have in Canada but very few persons of assured wealth, who are able, as in older and richer countries, to devote their abundant leisure to literature, art or science. Consequently the condition of things in the world about us deprives most of our members of the leisure, if not also of the inclination, requisite for the successful pursuit of Entomology in any of its various phases. Before another winter opens upon us, however, we have reason to believe that the worst of the present financial storm will be over, and that renewed confidence and prosperity throughout the country will remove the gloom and dulness now oppressing almost every department of work among us. With a revival of business, we may assuredly look for a restoration of activity in scientific pursuits, and hope that our Society, in common with others of a kindred character, may be distinguished by large accessions to its numbers, and by increased work in all its departments.

Last year, at our annual meeting, I took the opportunity of calling your attention to many fields of Entomological labour that are now all but unexplored in this country. May I repeat that there is ample scope for the exertions of all our members, whether they care only to form collections of specimens, or prefer to devote their labours to the unfolding of the life-histories or the study of the classification of insects? There is plenty of work remaining to be done even in the favourite orders of Lepidoptera and Coleoptera, to say nothing of the others that are not so generally studied or collected. It would be a valuable contribution to our store of knowledge were lists of the Canadian species of all orders of insects to be formed, and presented to the Society for publication; and at the same time a revision made of those published some years ago.

But not only is there scientific work of this kind to be performed, which will require generations for its complete achievement; there comes before us at the present moment an extraordinary object for accomplishment during the approaching winter—I allude to the representation of the Society by means of a collection of Canadian insects at the approaching Centennial Exhibition at Philadelphia. You will all, I think, agree with us in the belief that it is a matter of great importance to the Society that it should be brought in this way before the notice of the world, and that it cannot but be of some benefit to the Dominion that its Natural History, as well as its industrial resources, should be fully exhibited. The Council of the Agricultural and Arts Association have already, on our behalf, brought the matter before the Commissioners appointed by the Government, and we understand that a sum of money will be provided to aid us in the satisfactory performance of the work. To gather together a fitting collection of insects, and to prepare them for exhibition, is a task that will strain to the utmost all the resources of the Society. We have commenced the work relying upon the co-operation of you all, and now we trust that every one will help us by the loan of specimens and any other aid that can be afforded. The Society is committed to the task; let us see to it that there be no failure!

Before turning from matters immediately affecting our Society, I may mention that our periodical, *THE CANADIAN ENTOMOLOGIST*, continues to be maintained with undiminished efficiency and interest, being largely supported and contributed to by our Entomological brethren of the United States; and that the last *ANNUAL REPORT* presented by the Society to the Legislature has been received with more than usual marks of favour by the press, scientific, agricultural and political, not only in

Canada and the neighbouring States, but also in England; we have been naturally gratified to observe that in many instances copious extracts have been made from its pages, and even a whole article reprinted in an English scientific magazine.

Having referred thus far to our Society and the things that especially concern it, let me now say a few words regarding Entomological matters in general. At the Annual Meeting of the American Association for the Advancement of Science, held in August last, at Detroit, Michigan, the general Entomological Club, organized last year at Hartford, met for the first time. Its sessions, held daily throughout the week of meeting, were remarkably interesting. They were presided over by Dr. LeConte, undoubtedly the greatest of living American Entomologists, and were attended by a great majority of the noted Entomologists of this continent. Our own Society was most efficiently represented by our able Editor, Mr. Saunders; I much regret that the pressure of business matters at home prevented me from accompanying him, as I fully intended to have done. As a complete report of the proceedings is being published in the CANADIAN ENTOMOLOGIST, I need not detain you by any account of them here. Next year the meeting is to be held at Buffalo, N. Y.—a place even more convenient of access for Canadians than Detroit. We trust that a large number of our members will avail themselves of this opportunity—which may not occur again for many years to come—of attending the sessions, and making the personal acquaintance of our American brethren. From past experience I can assure them of a hearty welcome, while no one can doubt that more valuable information can be acquired in a few days in an assemblage of this kind than can be obtained in years of solitary work.

During the season that is now all but brought to a close, there has occurred nothing of a very startling or unexpected character. The Colorado Beetle has continued to extend his ravages throughout our country, but he has been met by such a determined and universal resistance that his work of devastation has been hardly appreciable; certainly in the central portion of this Province we have never had a finer crop of potatoes both as regards quantity and quality. The Cabbage Butterfly (*Pieris rapæ*), to which I also referred last year, has been rapidly extending to the west, and has already become a common object in the neighbourhood of London. So closely, however, does its parasite (*Pteromalus puparum*) follow in its wake, that where a year ago it was most destructive to all its food-plants, it has this season wrought but a

moderate amount of danger. The Locusts, or Grasshoppers, of the West (*Catantopus sirtus*), have continued to commit much havoc, though not by any means on the frightful scale of last year: there is every prospect that the desolation and suffering then occasioned by them will not be repeated to any very great extent this year.

While there has been upon the whole a decided diminution in the amount of loss occasioned by noxious insects during the past year, we have nevertheless to record an increase in the numbers and consequent power for evil, of several common species that are always more or less abundant; among the most notable I may mention the Army Worm (*Leucania unipuncta*), which has wrought much damage in the Maritime Provinces of the Dominion, as well as in some portions of the United States; the two species of Tent-Caterpillars (*Clisiocampa Americana* and *ylvatica*), which have been excessively abundant and destructive to fruit and forest trees in many parts of this Province; and the Pea Weevil (*Bruchus pisi*), which we much fear may soon become—unless measures are taken to prevent it—a source of great loss to our agriculturists. These I mention as having had a more than usual manifestation this year, but I need not detain you with any account of the ordinary work of our insect friends and foes, which are so familiar to every one in this country.

As I mentioned at the outset, you have done me the great honour of electing me your President for five years in succession; while I thank you most cordially for your kindness and consideration so repeatedly shown to me, I feel that it is only reasonable that I should now make way for some one else, who may be able to devote more time and energy to the interests of our Society, and be of more real use to it than I have latterly been capable of. I beg, therefore, to resign into your hands the office that you have so long honoured me with; at the same time I desire to say that I shall continue always to have the welfare of the Society at heart, and that I shall ever be ready and willing to do all that lies in my power to advance its best interests. Again offering you my respectful thanks,

I have the honour to be, gentlemen,

Your obedient servant,

CHARLES J. S. BETHUNE.

Trinity College School, Port Hope, September, 1875.

NEW TEXAN MOTHS.

BY LEON F. HARVEY, M. D., BUFFALO, N. Y.

Parasa incisa, n. s.

♂. This species has the fore wings and thorax of a soft brown. The primary is covered by a pea-green patch, which does not reach the margins and is defined outwardly by a narrow dark line running once deeply inwardly below vein 2 and slightly opposite the cell. Hind wings light yellowish. It appears to be allied to *paenulata* Clem., unknown to me, but differs by the shape of the green patch and in its not being bordered with white. The thorax in *P. chloris* is grass green. Expanse 21 m. m. Bosque Co., Texas (Belfrage, No. 554.)

Eurythra phasma, n. g. et sp.

♂. The insect is allied to *Spilosoma*, but the head is more prominent, the wings narrower and the antennae more continuously pectinate. The neuration has not been studied of this form, which is so distinctly marked as to be at once recognized, and which I do not find in authors. White. Fore wings white, crossed by a broad irregular blackish band from base to extremity of veins 3 and 4, where it retains the otherwise white fringes. From apices to middle of external margin a second band diagonally crosses the wing. A discal black spot and traces of an extra basal band. Everywhere, where the blackish color obtains the veins are bright yellow, as is the submedian fold. Body above crimson whitish at base. Thorax and head above white. Squamation about the eyes crimson. Anterior legs fuscous outwardly; palpi fuscous. Beneath, the white secondaries show a dot. Expanse 38 m. m. (May 5, Belfrage, No. 471.)

Litodonta, n. g.

Allied to *Heterocampa* of Doubleday. It differs by the antennae being pectinate in both sexes. The thorax is more brushily tufted behind; the head more appressed; the abdomen shorter.

Litodonta hydromeli, n. s.

♂ ♀. Fuscous, overspread with pale green on primaries and thorax. Basal and sub-basal spaces powdered with orange scales; subterminal line followed by orange scales. Lines distinct, widely geminate, sinuate,

sub-lunulate; space beyond the black discal streak clear fuscous. Fringes pale cut with fuscous, opposite the ends of nervules; terminal line distinct. Hind wings pale at base, smoky outwardly; beneath fuscous, with distinct terminal lines and fringes cut with fuscous. Thorax lined with black on tegulae and collar. Expanse 34 m. m. May 7, Belfrage, No. 246.

I describe the type of this genus, the only one of the species which has the orange shadings. A paper is being prepared with a plate of the species, which are difficult to separate without illustration.

Aletia hostia, n. s.

Smaller than *argillacea*. It differs by the stigmata being expressed by white dots, of which two super-posed, express the reniform. The ordinary lines are very narrowly white margined, appearing guttate. Hind wings blackish; fore wings darker than in *argillacea*. The t. p. line is at first sight more distinct than in its common ally. Easily recognized by the above characters. Belfrage, No. 535.

Caradrina conviva, n. s.

A small species of the size of *grata* (*rasilis* Morr.) Palpi black at the sides. Pale yellow brown, or fawn color. Lines dotted. T. p. line widely geminate. Subterminal line a blackish shade. Fringes blackish. T. a. line incomplete, strongly dentate. Reniform ill defined; a blackish shade above it on costa indicates the median shade; a dot indicates the orbicular. Terminal line black, interrupted. Hind wings white, glistening, immaculate, beneath stained along costal region and above here a little tinted. Thorax and head above like fore wings, abdomen pale. Expanse 21 m. m. Belfrage, No. 539.

Mamestra brachiolum, n. s.

♂ ♀. Very near the Californian *M. cuneata* Grote, differing as follows: There are no yellow shades beyond the subterminal line, which is more distinctly waved in the female; the claviform is present, absent in its ally; the thorax is purely fuscous and the whole insect darker than in the Californian species; in the male at least the orbicular is more rounded, the t. p. line is straighter, not inwardly bent below the median vein, hence the lines are inferiorly wider apart than in *cuneata*. Else the two species are very similar. Expanse 28 m. m. Belfrage, No. 102. In this species the ovipositor is concealed as in *cuneata*.

Catocala Belfragiana Harvey. Bull. B. S. N. S., 2, 281.

I learn that this species is the same as *C. joaste* of Mr. Strecker. My paper was read Feb. 5th, and printed in February. I do not think as early a date can be shown for the Number of Mr. Strecker. This species extends to Kansas (Prof. Snow); I have vainly tried to identify it with the unknown *messalina* of Gueneé.

NOTES ON BISTON URSARIA WALKER.

BY G. J. BOWLES, MONTREAL, P. Q.

This moth, which is very common in and about Montreal, is described by Walker, in a paper by W. S. d'Urban, published in Vol. 5 of the *Canadian Naturalist* (1860), entitled "A Systematic List of Lepidoptera Collected in the Vicinity of Montreal." It is also taken at Quebec, but I met with only two specimens there during several years' collecting.

The following is the description (of one sex only):

"Male. Dark cinereous, speckled with black, very robust and pilose. Antennae very broadly pectinated. Thorax with three black bands. Legs densely tufted. Fore wings with four black oblique lines, first line bent, second and third approximate, slightly undulating, diverging towards the costa, fourth diffuse. Hind wings with: first line obsolete, second and third apparent, fourth indicated by a short broad streak near the interior angle. Length of body 8—9 lines; expanse 22—24 lines."

The female is generally larger, less distinctly marked, and the wings are more transparent. Antennae filiform.

The English species (*B. histaria*) stands on our list as a native of Canada, but I have not met with it. The habits of the two species are very similar, and the caterpillars resemble each other closely; indeed, were it not for the difference in color and markings between the perfect insects, they would no doubt be considered identical. The description of the larva of *histaria* given by Newman, in his "Natural History of British Moths," would answer equally well for that of *ursaria*, and its

habits are similar to those of the latter. It sometimes occurs about London in such numbers as to strip the trees of their leaves, and the moths are taken in the squares of that city, sometimes twenty or thirty on one tree.

The Champ de Mars, Montreal, is a favorite breeding place of *ursaria*. The Lombardy Poplars growing in this locality are infested with them year after year. In some seasons the trees are partially defoliated by the larvæ, and during the last week of April and the first of May the moths are to be found in great numbers. This year they were a little later than usual. On the 5th May I first observed them, many having just emerged from the pupa, and resting on the tree trunks with unexpanded wings. On the 6th I brought home two females, and placed them in boxes to obtain the eggs. Two days afterwards each had laid about two hundred eggs of a bright green color, globular, and without markings under a low microscopic power. They were .04 in diameter, and laid (in each case) principally in the narrow opening between the lid and side of the box. The female has an ovipositor which can be extended at least a quarter inch, for the purpose, perhaps, of laying her eggs in the interstices of the bark, as they are deposited some time before the leaves expand. About the nineteenth day the eggs changed color, and became steel blue. On the 29th May they began to hatch out, just as the poplars were expanding their leaves. The larvae were very active, and from the first had the peculiar geometric habit of resting now and then with the body extended full length in the air, supported only by the claspers. I turned them out on a young plum tree, and they soon began to feed freely, and grew rapidly. Strange to say, they quickly diminished in numbers, and but few reached maturity.

New-born larva.—1.2 inch long, black, head large, with a few whitish hairs; front edge of first segment bordered with white, second and third with white spiracles; next five segments have two white spots on back, one on each side around spiracles, with another white spot below. Legs black; body beneath black.

Mature larva.—2 to 2.50 inches long, general color drab or dingy purple; head of a lighter shade, and spotted with black. First segment bordered in front with a yellow line, indented behind; fourth to eighth inclusive, each with six very small yellow tubercles, two on back, one behind and one below each spiracle. Body striped from head to tail with twelve reddish lines, each bordered on both sides by an irregular

narrow black line; six of the reddish lines are on the back and sides, one (interrupted) through the spiracles, and four on abdomen. Anal segments spotted with black, as also first, second and third segments. Mouth pinkish, legs pink, spotted with black; spiracles dark colored.

It will be seen that the larva changes but little during growth. At the end of July they descend and bury themselves in the earth, changing in a few days to pupae, without forming any case. The pupa is brown, rather stout in form, and furnished at the tail with a small spine, which is generally bifid. It much resembles that of *Amphidasys cognataria*.

NEW SPECIES OF ACRIDINI FROM NEBRASKA.

BY G. M. DODGE, GLENCOE, DODGE CO., NEBRASKA.

Pezotettix junius, n. s.

Frontal costa slightly sulcate below the ocellus in the ♂. Merely depressed at the ocellus in ♀.

Median carina of pronotum slight, cut by the last transverse incision behind the middle, the anterior part slightly arcuate. Lateral carinae distinct only on the flat posterior lobe. Pronotum with sides slightly divergent; obtuse angled behind. Elytra cover about two-thirds of the abdomen. Posterior femora as long as abdomen. Last segment in ♂ squarely produced. ♂ cerci broad, short, rounded at tip, slightly curved on upper edge. The lower edge bends upward, making an obtuse angle about the middle, from which point the cerci rapidly decrease in width.

Color of living insect—Varies with age from gray to green. Face and sides of thorax greenish gray. A broad black stripe from eye to last transverse incision of pronotum. Occiput brown. Pronotum brown with green stripe on each side. Antennae red, tips brown. Elytra brown, sometimes yellowish, with a few black dots along the disk. Hind femora light brown, usually with two oblique whitish bands on upper half. Three black spots on upper edge. Tip black. Inner side and lower sulcus light green. Abdomen greenish gray, with a row of large black spots on each side, sometimes forming an almost continuous longi-

tudinal stripe. Abdomen sometimes mottled with black above, is greenish yellow below, with a narrow black line on the last segments below the fold. Sternum and anterior legs tinged with blue. Hind tibiae pale red with black spines. In the male the posterior segments of the abdomen are margined anteriorly with black.

Length of ♀ .90 inch; elytra, .45 inch. Length of ♂ .80; elytra .40. Appears in June at Glencoe, Dodge Co., Nebraska.

Pegotettix autumnalis, n. s.

Frontal costa prominent above, suddenly widened and sulcate at the ocellus. Head unusually large, wider than thorax, occiput very long. Foveola of vertex shallow. Median carina of pronotum slight, cut once behind the middle. Sides of pronotum nearly parallel. Elytra short, oval, pointed. Abdomen rather long and slender, extending beyond the tips of hind femora in ♀. Male cerci nearly straight, broad at base, apical half slender and pointed. Tip of abdomen pointed entire.

Color of dried (not alcoholic) specimens—Face brown, white mottled with brown below clypeus. Checks yellow and brown. Antennae rufous. A black stripe from eye to last lobe of pronotum. A yellow spot below the black stripe. Remainder of pronotum brown, hind lobe lightest. Occiput brown margined with yellow. Elytra dark brown, unspotted. Abdomen dark above. Anterior legs yellow, marked with red above. Posterior femora yellow at base, then red on both sides and below, but heavily marked on upper side of exterior face with fuscous. Posterior tibiae blue.

Length of ♀ 1.10 inch; elytra .25 inch. Length of ♂ .85 inch; elytra .203 inch. Glencoe, Nebraska, in September.

Pezotettix alba, n. s.

Form—Frontal costa sulcate, extending across clypeus in living specimens. Foveola of vertex hexagonal, shallow. Median carina of pronotum distinct, cut by last transverse impression back of the middle. Lateral carinae rounded, nearly parallel. Elytra cross third abdominal segment in ♀. Wings minute. Legs long and slender. Male cerci long and slender. Terminal segment of abdomen entire acuminate. In the male the antennae are longer than head and pronotum, and the posterior femora pass the abdomen one-fourth of their length.

Color of living insect—♂, vertex, disk of pronotum and legs bright green. Face, abdomen and under side greenish white. Elytra a little

darker. A white stripe from top of eye follows the lateral carinæ to the end of pronotum, and extends obliquely down the side to insertion of posterior femora. Below the white stripe, and running parallel with it, is a broad band of green followed by another white stripe.

Color of ♀ vertex, disk of pronotum and legs white, mottled with green. Rest like ♂, but much whiter. Antennæ light brown.

Length of ♀ .85 inch ; elytra .02 inch. Length of ♂ .65 inch.

Taken in August and September at Glencoe, Dodge Co., Nebraska.

Caloptenus lurida, n. s.

Size and form much like *C. occidentalis* Thos. Frontal costa with slight depression at ocellus, not sulcate. Foveola of vertex shallow, elongate, broadest in ♀. Median carina of pronotum slight, transverse impressions distinct. Lateral carinæ slightly divergent. Antennæ longer than head and pronotum. Posterior femora as long as the abdomen. In the male the cerci are broad and flat, considerably curved and armed posteriorly with a rather long and sharp lateral tooth, giving them about the shape of the letter Y. Last ventral segment entire. In color this species, when living, is dark bluish gray. The pronotum and upper part of the head are sometimes lighter and tinged with red. Labrum bright red ; antennæ red at base, rest fuscous. Posterior femora light gray, with a longitudinal black stripe the entire length of the disk, and three black spots on the upper edge ; the two posterior ones uniting with the black stripe and extending over upon the inner face. Tip black above, red below. Posterior tibiae blood red, with black spines.

In some specimens a light stripe on the side from base of elytra to posterior femora is apparent, but it is usually indistinct. Elytra cinereous darkest at base, with a central row of fuscous spots.

Length of ♂ .85 inch ; of ♀, 1.05 inches.

Habitat, Dodge Co., Nebraska. Time of occurrence, September.

Caloptenus regalis, n. s.

♀. Size medium. Frontal costa prominent ; not sulcate, but depressed at the ocellus. Top of the head raised slightly above the pronotum. Antennæ longer than head and thorax. Disk of pronotum gradually ascending toward median carina. Lateral carinæ rounded. Pronotum depressed and cut near the middle by the last transverse incision. Hind border obtuse angled.

Color of living insect—Face bluish white, mottled with brown. Cheeks blue, with an oblique darker patch. Eyes prominent, dark brown, hind margins dotted with black lines. Occiput with a triangular black spot, apex forward, bounded on each side by bright yellow. Sides of the thorax margined anteriorly with yellow. A black stripe behind the eye runs backward to the last transverse incision of pronotum. Below this stripe the sides are purplish blue, marked posteriorly with red. Disk of pronotum brown, margined with blue. Elytra gray, darkest at base. Disk white, containing a row of large black spots. Similar but smaller spots unequally distributed over the rest of the elytra. Apex dusky. Wings transparent, with white veins. Posterior femora externally red, with three oblique black bands. Inside and lower sulcus bright red. Upper edge bluish gray, with three broad black patches. Apex gray above, white outside, blue within, and marked with the usual black crescent-shaped patch. Hind tibiae bright blue, with a narrow white annulation near the knee. Tarsi blue above, white below. Anterior legs yellowish, mottled above with blue. Abdomen white, with the anterior part of each segment red, and a small black spot on each side. Beneath bluish white. Antennae light brown.

Length about one inch; length of elytra, .80 inch; length of hind femora, .55 inch. *Habitat* Glencoe, Nebraska. Appears in latter part of June.

SUGARING FOR MOTHS.

BY O. S. WESTCOTT, MAYWOOD, COOK CO., ILL.

The various preparations which have been recommended by different writers seem to be successful enough in attracting nocturnal Lepidoptera, while the poisons employed for quieting them seem to fail in one or more essential particulars. Cyanide of Potassium, whether alone or prepared with Plaster of Paris, does not act with sufficient readiness to prevent strong-bodied moths from fluttering so long as in a great measure to spoil the beauty of their vestiture, while the application of chloroform at night is attended with considerable inconvenience. I have found a plan like the following to work best in practice.

Have not less than four wide-mouthed bottles, two of them of sufficient size to be placed over any *Catocala* without rubbing him. Have each of these last provided with a large, well-fitting cork, to the bottom of which firmly tack a small piece of sponge. This sponge is to be moderately supplied with chloroform. The other bottles are to be filled for one-fourth of their depth with small fragments of Cyanide of Potassium, thoroughly covered with plaster of Paris in the usual way.

A hunting-coat which is provided with numerous pockets will be found a great convenience, the chloroform bottles occupying the side pockets, and the Cyanide bottles the hip pockets. For the completest success a dark lantern is almost indispensable. This should depend from a strap passed around the waist, so that both hands may be left free for purposes of manipulation. The moths are with no difficulty covered by the chloroform bottle, the effect of the chloroform being almost immediately apparent. Then the moths thus temporarily anaesthetized are transferred to the Cyanide bottles, whose contents complete the work so well begun. The two Cyanide bottles are a great convenience in keeping apart the large and the small specimens, and these being kept constantly in an upright position, the danger of injury from rubbing is reduced nearly to a minimum. The two chloroform bottles are to be used alternately as occasion seems to require.

The collector will soon find that while many of the moths will bear a brilliant light, many others will start as soon as light enough is thrown upon them to make them fairly visible. He must therefore be exceedingly wary of starting these timid ones, even though his present quest be among those which bear the greater amount of light, for oftentimes the fluttering of two or three will start from the tree nearly every individual, and hundreds will be in the air on the shortest notice. I have never succeeded with ale, stale beer or rum, in so intoxicating any species of *Catocala* that it would bear light or noise without indicating dissatisfaction. This leads me to remark that one will invariably meet with the best success when he works alone. Conversation will surely start the moths from any enticements of sugar that can be devised. I have even been much annoyed by a cat which would persistently precede me from tree to tree, and in her anxiety to get food (for she devoured the moths greedily), would thus startle the very ones which I was particularly anxious to capture. On one occasion a chipmunk visited one of my trees and kept it completely cleared of the bait with which I had supplied it, becoming at

length so indifferent to other surroundings that I had little difficulty in giving him a sound rap over the head with a hickory switch, which sent him some ten feet away, and though he scrambled hastily up a neighboring tree, I found him on my next round, a few minutes afterward, demurely licking my sugar again as though nothing had happened.

Notwithstanding the season just closed has been somewhat noticeable for the scarcity of Lepidoptera, a fact doubtless to a great extent due to the severity of the previous winter, the subjoined table will show that the material collectible at sugar is at least reasonably abundant. It will be seen that for the four weeks beginning on Aug. 17th, I was at my post five nights each week. Subsequent to that period other duties prevented my continuing the work regularly. It should be observed also that whereas I made a somewhat exhaustive examination of the trees from Aug. 17th to Sept. 11th inclusive, I after that time made no memorandum of the more common species which still continued to throng for their accustomed food. In connection with a few of the species enumerated no dates are designated, as my memoranda failed to indicate the precise time of their capture. Earlier in the season (June) I had taken at sugar *Thyreus Abbottii*, *Anisopteryx verneta*, *Catocala fratercula*, *C. ilia*, etc., etc., which, except the last named, did not occur after Sept. 17th. Where but a single date of capture appears, usually but a single specimen was taken. Of *Pachypolia atricornis*, however, several fresh specimens were taken Oct. 6th, and one or two on a subsequent date, indicating for this species a very late apparition. Of *Scoliopteryx libatrix*, also, several specimens were taken, and, though not taken, it was observed a night or two previous to Sept. 10th.

- Agrotis Normaniana* Gr., August 18, 24, 26, 27, 28, 31; September 2, 3, 4, 7, 8, 9, 10, 11.
- “ *baja* S. V., August 18, 20, 24, 25, 26, 27, 28, 31; September 1, 2, 3, 4, 7, 8, 9, 10, 11.
- “ *badinodis* Gr., September 10, 15.
- “ *c-nigrum* Linn., August 17, 18, 19, 20, 24, 25, 26, 27, 28, 31; September 1, 2, 3, 4, 7, 8, 9, 10, 11.
- “ *bicarnea* Guen., August 18, 24, 25, 26, 27, 28, 31; September 1, 2, 3, 4, 7, 8, 9, 10, 11.
- “ *herilis* Gr., August 24, 25, 26, 27, 28, 31; September 1.
- “ *triosa* Lintn., August 24, 25, 26, 27, 28, 31.
- “ *subgothica* Haw., August 18, 19, 20, 21, 24, 25, 26, 27, 28, 31; September 1, 2, 3, 4, 7, 8, 9, 10, 11.

- Agrotis tessellata* Harr., August 18, 26, 27, 28, 31; September 1, 3, 4.
 " *clandestina* Harr.
 " *alternata* Gr., September 23.
 " *cupida* Gr., September 15.
 " *saucia* Hübn., August 17, 18, 24, 25, 26, 27, 28, 31; September 1, 3, 4, 7, 8, 9, 10, 11.
 " *velleripennis* Gr., August 28.
 " *messoria* Harr., August 17, 18, 19, 21, 25, 26, 27, 28, 31; September 1, 3, 4, 7, 8, 9, 10, 11, 23.
 " *suffusa* S. V., August 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 31; September 1, 2, 3, 4, 7, 8, 9, 10, 11.
- Eurois occulta* Hübn., August 27.
 " *herbida* W. V., August 25.
- Mamestra subjuncta* G. & R., August 17; September 10.
 " *laudabilis* Guen., September 8.
- Dianthoecia meditata* Gr., August 18, 19, 20, 21.
- Pachypolia atricornis* Gr., October 6.
- Hadena arctica* Bois., August 17, 18, 19, 20, 24, 25, 26, 27, 28; September 11.
 " *devastator* Brace., August 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 31; September 1, 2, 3, 4, 7, 8, 9, 10, 11.
 " *adjuncta* Bois., August 28.
 " *sputator* Gr., August 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 31; September 1, 4, 7, 8, 9, 10, 11.
 " *modica* Guen., August 24.
 " *renigera* Steph., August 18, 19, 20, 24, 25, 26, 27, 28, 31; September 1, 2, 3, 4, 7, 8, 9, 10, 11.
- Perigea xanthioides* Guen.
- Dipterygia pinastri* Linn., August 17, 18, 19, 26, 27, 28, 31; September 1.
- Hyppa xylinoides* Guen., August 17, 18, 26, 31; September 1, 2, 3, 4, 7, 8, 9, 10, 11.
- Prodenia commelinæ* Abb. & Sm., August 17, 19, 25, 28; September 1.
- Helotropha reniformis* Gr., August 18, 19, 21, 25; September 3, 4, 8, 22.
 " *atra* Gr., September 10.
- Hydroecia nictitans* Linn., August 17, 26, 27.
 " *sera* Gr. & R., August 18.
- Gortyna immanis* Guen., August 26; September 3, 4, 10, 11, 22, 23.
 " *rutila* Guen., September 2, 3.
 " *nebris* Guen., September 15.

- Platysenta atriciliata* Gr., August 18.
Heliophila pallens Linn., August 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 31; September 1, 2, 4, 7, 8, 9, 10, 11.
 " *phragmitidicola* Guen., August 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 31; September 1, 2, 3, 4, 7, 8, 9, 10, 11.
 " *Harveyi*, Gr.
 " *renipuncta* Haw., August 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 31; September 1, 2, 3, 4, 7, 8, 9, 10, 11.
 " *pseudargyria* Guen.
Laphygma frugiperda Abb. & Sm., September 2.
Pyrophila pyramidoides Guen., August 17, 18, 19, 20, 24, 25.
Taeniocampa oviduca Guen.
Atethmia pampina Guen., September 23.
Orthosia inulta Gr., September 22, 23; October 2.
Xanthia ferruginoides Guen., September 3, 4, 10, 15, 22, 23, 29.
Scoliopteryx libatrix Linn., September 10.
Lithophane cinerea Riley, August 18, 26.
Calocampa nupera Lintn., September 23.
Crambodes talidiformis Guen.
Plusiodonta compressipalpis Guen., September 4.
Telesilla cinereola Guen., August 26, 27; September 1, 2, 3.
Lygranthoecia brevis Gr., September 10.
Pyrrhia exprimens Walk., August 28.
Eustrotia carneola Guen., August 17, 19, 24, 25, 26, 27, 28, 31; September 1, 2, 3, 4.
 " *nigritula* Guen.
Drasteria erichtea Cram., August 17, 18, 19, 24, 25, 26, 27, 28, 31; September 1, 2, 3, 4, 7, 8, 9, 10, 11.
 " *erichto* Guen., September 11.
Catocala insolabilis Guen., September 2.
 " *unijuga* Walk., September 7, 11, 15.
 " *Briseis* Ed., September 11.
 " *parta* Guen., September 2, 23; October 2, 3.
 " *concombens* Walk., August 17, 24, 25, 26, 27, 28, 31; September 1, 8, 10, 11, 23.
 " *amatrix*, Hüb., August 31; September 1, 7, 11, 22, 23; October 2, 3.
 " *cara* Guen., August 17, 18, 31; September 2, 3, 7, 8, 9, 11, 15, 22, 23, 29; October 2, 3.

- Catocala ilia* Cram., August 19; September 23.
 " *cerogama* Guen., August 31.
 " *neogama* Guen., August 31.
 " *piatrix* Gr.
 " *habilis* Gr., October 23.
 " *consors*, Abb. & Sm., September 7.
Homoptera lunata Drury, August 18, 24, 25, 26, 27, 28, 31; September
 1, 2, 3, 4, 7, 8, 9, 10, 11, 22, 23.
 " *Saundersii* Beth., September 1, 2, 3, 4, 7, 8, 9, 10.
 " *edusa* Drury, September 1, 2, 3, 4, 7, 8, 9, 10, 11, 22, 23.
Pseudaglossa lubricalis Geyer, August 17, 19, 24, 25, 26, 27, 28, 31; Sep-
 tember 1, 2, 3, 4, 7, 8, 9, 10.
Epizeuxis americana Guen., September 10.
Zanclognatha cruralis Guen., August 28.
Orthosia helva Gr., August 18, 21, 28; September 3, 4.
Homopyralis tactus Gr., August 28.
Campogramma gemmata Hübn., September 2, 3.
Phaecariophora niveiguttata Gr.
Ochyria latirupta Walk., October 2.
Eupethecia miserulata Gr., September 23.
Asopia costalis, September 3.
Tortrix coruscana Clem., September 3.
Darapsa choerilus Walk., August 26.

ON CHOEPHORA AND ALLIED GENERA.

BY A. R. GROTE,

Director of the Museum, Buffalo Society Natural Sciences.

The discovery of fresh specimens has induced me to modify my proposed fusion of the genera *Choephora* and *Pseudorthosia* (Bull. B. S. N. S., 3, p. 86). For the present I would arrange the species as follows:

- ♂ Antennæ bipectinate, setose; eyes naked; all the tibiæ spinose; abdomen cylindrical. . . *Choephora* *G. & R.* (Sp. 2: *C. fungorum* *G. & R.*, *C. pectinata* *Grote.*)

♂ Antennæ brush-like; eyes naked, lashed; all the tibiæ spinose; abdomen cylindrical; habitus of *Orthosia*. . . *Pseudorthosia Grote* (Sp. 1: *P. variabilis Grote*).

Fore tarsi with prominent spines at the extremity of the joints; fore tibiæ not spinose, middle and hind tibiæ spinose; abdomen a little flattened; habitus of Glæa. . . *Pseudoglæa n. g.* (Sp. 2: *P. blanda Grote, P. taedata n. s.*)

Pseudoglæa taedata n. s.

♀. The males are not known of this genus, which differs from the *Ammoconia* group of *Agrotis*, by the want of a mesial thoracic crest, unarmed fore tibiæ and the spines on the fore tarsi. *P. taedata* is of a faded olive fuscous, with a dusting of darker scales; hind wings and under surface tinged with ruddy. Stigmata darker than the wing, blackish; orbicular rounded; reniform upright, squarish. T. p. line black, even, nearly straight, slightly bent; s. t. line irregular. Hind wings with faint mesial line and spot, more visible beneath, where in the primaries the discal mark forms an annulus. *Expanse* 44 m. m. Texas (G. W. Belfrage, No. 584, Nov. 15).

In the specimen the t. a. line is not indicated. The large species would be taken for a *Glæa* at first sight. It is paler, more dusty colored than *P. blanda*, with larger stigmata. There is a faint terminal festooned line on the wings, beyond which the concolorous fringes are paler, a little yellowish, at their base.

MICRO-LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KENTUCKY.

GRACILARIA.

G. negundella. N. sp.

Basal joints of fore legs ochreous red; femora and tibia dark brown, obscurely marked with white; tarsi white dusted and annulate with brown. Intermediate legs like the first pair, except that the basal joints are brown; hind legs and the under surface of the abdomen white dusted with dark brown, the tarsi tinged with yellowish and the upper surface of

the abdomen brownish. Palpi dark brown, with whitish scales intermixed on the under surface; antennae with alternate annulations of white and dark brown; head, thorax and fore wings ochreous, dusted with white and with some small dark brown spots along the costal and dorsal margins (these spots are sometimes indistinct), and the apex sometimes sparsely dusted with dark brown scales; the triangle is *very faintly* indicated, being a little paler than the rest of the wing; ciliae pale grayish fuscous, with the apex and a "hinder marginal" line about the middle dark brown. *Al.* *ov.* 7 lines. The larvae were found in abundance at Drura, Colorado, in September (alt. 5,300 ft.) rolling downward from the tip of the leaves of the Box Alder (*Negundo*). Though this tree is abundant in Kentucky, I have never met with any larvae of this genus feeding on it.

In the last number of the *Cincinnati Quarterly Journal of Science* (Vol. 2, p. 289) I have published descriptions of other species of *Tineina* from Colorado, but that paper abounds in typographical errors, some of which it is necessary to correct to prevent confusion; and as that journal is no longer published, I avail myself of this opportunity to correct them. Such mistakes as "*Tencina*" instead of *Tineina* are palpable and scarcely need correction, but there are others that do. P. 290, for "*rosasuffusella*" read *roseosuffusella*; for "*Taygate*" read *Tayzete*. P. 291, for "*gallaesolidaginis*" read *gallaesolidaginis*. P. 292, for "*cruciferuum*" read *cruciferarum*. P. 294, for "*gædastella*" read *gædartella*, and for "*sparsipulrella*" read *sparsipulvella*. P. 295 and elsewhere, for "*Phyllætis*" read *Phyllocnistis*. P. 300, for "*lespedegofoliella*" read *lespedezæfoliella*. P. 301, for "*pruinrosella*" read *prunionella*, and p. 304, for "*Thuiva*" read *Theisoa*.

I take this opportunity also to correct a few errors of a similar character which, thanks to the P. D. or bad chirography, have crept into some recent numbers of the *CAN. ENT.* Ante p. 124, for "*bodicella*" read *badiella*. The position in which the names *Solenobia Walshella* Clem. and *Tinea auropulvella* Chamb. are placed on p. 125, might possibly convey the impression that they are considered as synonyms for the same species, but such was not my intention, as the insects are very distinct and have but little resemblance to each other. *Walshella* is *loc. cit.* only catalogued as found in Canada.

NOTES ON ARCTIA AMERICANA.

BY H. H. LYMAN, MONTREAL, P. Q.

As I have reared the above named moth from the egg, I can add an interesting fact or two to the account of its preparatory stages, published by Mr. Bunker on p. 149, vol. vii, of this periodical.

From a batch of eggs laid about August 6th, I obtained a number of larvæ, eight or ten of which passed through their last moult but one on September 23rd, and one accomplished its last moult on October 5th, after which it rapidly increased in size, attaining its full growth in a day or two, and then spun itself up into a cocoon, which was kept in the house. The imago emerged on November 28th. All the others died during hybernation.

CORRESPONDENCE.

I am able to add the names of two more species of butterflies to Mr. Caulfield's "List of Diurnal Lepidoptera of the Island of Montreal," published on pages 86-90, of vol. vii, namely: *Lycæna violacea* Edw., very rare; I took one ♀ specimen on our mountain, on June 10th, 1874. *Amblyscirtes vialis* Edw., very rare; one example taken on our mountain on June 8th, 1875. I am indebted to Mr. Scudder for the determination of these species. There is one error in Mr. Caulfield's List which requires correction; the name *Euphyes metacoma* Harris should be substituted for *Hedone orono* Scudder, as the latter does not occur here as far as known.

H. H. LYMAN, Montreal, P. Q.

WEEVIL COCOONS.--W. H. G. writes in *Science Gossip*, No. 133, Jan'y 1, 1876, that he obtained the Weevil (*Cionus scrophularia*) from cocoons made by the larvæ on the Water Betony (*Scrophularia aquatica*).

WM. COUPER, Montreal, P. Q.

VANESSA MILBERTI.- This insect has lately come from its winter retirement in some numbers. The weather has been delightful.

W. L. MEAD, Ithaca, N. Y.