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The Canadian Entomologist.

VOL. IX. LONDON, ONT., OCTOBER, 1877. No. 10

ANNUAL MEETING OF THE ENTOMOLOGICAL SOCIETY OF ONTARIO.

The seventh annual meeting of the Entomological Society of Ontario was held in London, at the rooms of the Society, on Wednesday evening, September 26th,

The President, W. Saunders, in the chair.

A considerable number of members from various parts of the Province were present; also a fair representation of those resident in the city.

After calling the meeting to order, the President expressed his regret that the Society had during the year lost the valued services of one of its officers. Owing to pressing business engagements, the Secretary-Treasurer, Mr. J. H. McMechan, had found it necessary to resign. Pending the appointment of a successor, Mr. J. Williams had kindly consented to act as Secretary-Treasurer *pro tem.*, and in this capacity had rendered most valuable and timely assistance.

The report of the Treasurer showed a very satisfactory state of the finances, there being a balance to the credit of the Society at the close of the financial year of two hundred and thirty-six dollars.

REPORT OF THE COUNCIL, 1877.

In presenting the seventh annual report, the Council feel highly gratified at the success that has attended the labors of the Society during the past year.

We are happy to note the return of the Society's Centennial collection of insects, which reached London in good condition shortly after the close of the International Exhibition. This collection, which was noticed in your last annual report, is now placed in the Rooms, where it will in future be available for reference. As this beautiful collection was made

up largely from the cabinets of individual members of the Society, who generously loaned the insects for the purpose of exhibition, it was thought that if the immediate return of the loaned specimens was insisted on, the value of the series would be greatly impaired; but we are happy to state that the parties concerned have in most cases given their consent to allow the specimens to remain on deposit in the Society's Rooms; so that we still retain the Centennial Col ction of Canadian Insects almost intact, a monument to the zeal and industry of those members of the Society who were actively engaged in this work.

We may add that this collection was placed on exhibition at the Rooms on several occasions after its return, when some of the members were present to assist visitors, and from the interest manifested then by the public in the matter, we would recommend that the Rooms be thrown open occasionally to all who may desire to visit them, and that public notice be given of the same.

The CANADIAN ENTOMOLOGIST has almost completed its ninth volume, and fully maintains its reputation as a record of the latest investigations and discoveries in scientific and practical Entomology. We would return our heartiest thanks to all those who have so kindly contributed to the pages of the ENTOMOLOGIST, and request that they will continue to favor the Editor with the results of their observations and experiments. Although we have reason to feel gratified at the efforts of the Society to excite in the general public an interest in Entomology, yet we would respectfully suggest that our successors may be able in some measure to improve on the means adopted in the past to render the ENTOMOLOGIST even more useful to beginners in this interesting science, either by more frequent descriptions and illustrations of our common insects, and perhaps by referring to the insects that are likely to appear in each month of the summer, and the manner of their capture and preservation, or in any other method that may appear suitable.

We are happy to note a steady increase in the number of members. The Branch Societies, especially in London and Montreal, are progressing favorably.

The funds of the Society are in a gratifying state; by economical management we have been enabled to sustain and successfully carry out all the operations we have undertaken; for details we refer to the report of the Secretary-Treasurer.

The Library has been enriched by a number of valuable scientific works, and others of more general interest, but which bear on Entomological subjects. Among the additions we may mention the *Encyclopedia Brittanica*, as far as at present published, which will prove invaluable as a means of reference. Our stock of engravings and electrotypes has been slightly increased, but in this line we are greatly restricted by want of means, and are obliged generally to content ourselves with electrotypes of other illustrations. We believe that a much larger sum than is annually given for this purpose might be profitably expended in procuring original illustrations.

Submitted on behalf of the Council by

JOSEPH WILLIAMS, Secretary-Treasurer.

The President then proceeded to deliver his annual address.

ANNUAL ADDRESS OF PRESIDENT.

GENTLEMEN,—At the close of another year it is my duty and privilege to offer you a few remarks relating to our progress as a Society, and also to the general advancement of that department of natural science in which we all feel so deep an interest.

The progress of the Entomological Society of Ontario during the past year has been steady and continuous. Every season witnesses an infusion of new blood into our ranks, mainly from among the young, who, when entering on the pursuit of this charming study, bring with them all the enthusiasm and ardor of youth. Our membership is thus gradually increasing, and our influence and sphere of usefulness yearly extending. The importance of the study of Entomology is gradually becoming more deeply impressed upon the public mind. The Entomologist needs no longer to apologize for the trivial character of his pursuits, for small and apparently insignificant as the operations of the individual destructive insect may appear, yet when multiplied, as they usually are, by millions, their work is so disastrous and so desolating that the study of their life history, with the view of combatting more effectually their enormous increase, becomes of the most vital importance.

We have to note the prevalence during the past year of several insect pests. Early in June our gardens, orchards, and even our forests in the western portion of Ontario were frightfully devastated with the Forest

Tent Caterpillar, *Clisiocampa sylvatica*. There were millions upon millions of them, and so enormous were their numbers, and so persistent their attacks, that after fighting them bravely for a week or two, many gave up the contest in despair, weary of the slaughter. Many an orchard was rendered bare and leafless, and in some instances the woods were so void of foliage as to remind one of winter. This was particularly the case about London, and our orchards and gardens here were saved from destruction only by the most persistent effort. For several weeks caterpillars were swarming everywhere, so that the timid scarcely dared venture out under the shade of trees for fear of bringing them home on their clothing or persons. By the end of June they had nearly all become chrysalids, and it was interesting to observe the strange looking deformities they occasioned among ornamental shrubs and flowers by twisting the leaves into suitable forms in which to enclose their cocoons. On the trees the few fragments of leaves remaining were put to a similar purpose, and thus sewed up and hanging pendant with the weight of sometimes two or three cocoons huddled together, they looked very odd.

On examining a number of these chrysalids, a large proportion of them were found to be infested with parasites, which materially lessens the chances of their being so very numerous again next year; still we fear that enough of them passed safely through all their preparatory stages to give us some trouble another season.

The Cabbage Butterfly, *Pieris rapæ*, is still progressing westward. This year it has extended its domain as far as Chicago, where a few of the advance guard have been captured. In the neighborhood of London their lárvæ have been very destructive this summer, so disfiguring and destroying the cabbages in many instances as to render them entirely worthless. The history of the introduction of this pretty little pest forms an interesting chapter in our Entomological annals. During the time of the Trent difficulty in 1861 a quantity of fresh vegetables were sent along with other stores to Quebec for the sustenance of the gallant little army which was despatched to our shores. As the Cabbage Butterfly is said to have made its appearance shortly after this period, it is presumed that it was accidentally introduced with the stores for the troops. In 1863 specimens were sent to us from this district for determination, which was the first intimation we had of their existence in this country. By 1866 the butterfly had spread further west than Montreal, and east as far as the Saguenay River. In 1869 it was reported as common in New Jersey, and

by 1871 it had travelled east as far as Halifax, Nova Scotia, and west to the middle of the State of New York. It now embraces an area bounded by the shores of the Atlantic from the River St. Lawrence to Virginia, and has overrun the whole country westward as far as Chicago. A few days since, while on a visit to the Muskoka District, I was surprised to find them plentiful, in company with the Colorado Potato Beetle, as far north as the head of Lake Rosseau.

The wonderful manner in which this insect has adapted itself to the varying climatic characteristics embraced within this wide area, is a matter of astonishment. It seems to thrive alike in the cold north and sunny south, and in every place where it establishes itself it has multiplied so rapidly as to become in a very short time the commonest of all butterflies. The little parasite, *Pteromalus puparum*, which has also fortunately been introduced from Europe, and which is finally destined to keep this pest within reasonable bounds, is on the increase here, but is not yet sufficiently numerous to fulfil its mission as successfully as we could wish.

The Colorado Potato Beetle, as predicted, has at last found its way across the Atlantic, and founded colonies on the Continent and in the British Isles. Their arrival and settlement has caused a commotion almost as great as would the approach of a hostile army. According to newspaper accounts, large patches of ground where the enemy has been seen lurking have been saturated with benzine and fired, while in the search the whole surface has been turned over with the spade and shovel as carefully as if each specimen were a nugget of gold or a diamond. Cargoes of all sorts in which it was suspected the intruders could find a hiding place have been submitted to the most rigid examination by government officials, and various edicts were promulgated, with a view to strangle this evil in its infancy; but the beetle is heedless of enactments, however prohibitory, and we fear that no vigilance, no matter how persistent, will avail in preventing the spread of this little intruder, and that before long the potato grower in Europe will be obliged to regularly adopt measures for poisoning this pest similar to those so successfully carried out by our own people.

Since I was last privileged to address you the Congress of the United States, in view of the enormous losses yearly inflicted on agriculture by destructive insects, have appointed an Entomological Commission composed of eminent Entomologists, who shall devote their whole time for several years to a study of the habits of the various insect pests and the

thorough testing of the efficiency of such remedies as have been or may be devised for their destruction, and to report progress from time to time. A liberal appropriation to defray the expense of this work has been made, and the laborers are now actively engaged in the field.

Early in the year your President was requested by the Chief of this Commission, Prof. C. V. Riley, to bring this important matter before our Government and ask their influence towards furthering the objects in view. Accordingly, at a meeting of the Council of Agriculture, held in June last, the writer introduced a resolution urging the co-operation of our Government with that of the United States in this undertaking, which was unanimously adopted by the Board and transmitted to the proper authorities. I am pleased to be able to state that the Minister of Agriculture, in his reply, assured us that this subject had already engaged their serious attention, and that every effort would be made to aid the Commission in its work. This season is being spent by these savans in especially studying the habits and breeding places of the destructive Locust of the West, and already they have made extended observations, not only in the western territories of the United States, but also in some of the adjoining portions of our Dominion.

The Entomological Club of the American Association for the Advancement of Science held its annual meeting in Nashville, Tenn., commencing on the 30th of August, when many interesting subjects were discussed. An important paper was read by A. R. Grote, Esq., of Buffalo, N. Y., on a new insect destructive to the red and white pine trees, the sources of our valuable lumber trade. From the details given of the work of this insect we fear it may prove a formidable foe to the future growth of our pine forests. Our Society has usually been represented at these annual gatherings, but on this occasion, owing to other pressing and unavoidable engagements, those of us who have usually attended were prevented from being present.

We cannot better illustrate the recent progress made in Entomological science than by referring to one department, namely, that of the study of our night-flying moths. This has been greatly stimulated by the general practice of sugaring, by which immense numbers of these insects have been attracted, and their capture in good condition made an easy matter. This practice in America was but little followed until 1874, when an English Entomologist, Mr. George Norman, visited Canada, and, after having faithfully carried on the process of sugaring for a season, he pub-

lished the results of his labors and his mode of operating in our journal. His success was so unprecedented, and so many rare or hitherto unknown species captured, that collectors everywhere were induced to imitate his example, and in the short time that has since elapsed an immense number has been added to the list of known species, and our collections have been enriched by this means with an extensive series of hitherto rare specimens.

Our monthly journal, the CANADIAN ENTOMOLOGIST, is still well sustained, its pages being regularly filled with interesting and original contributions. Did time permit, I might have occupied your attention at considerable length by referring to the many valuable points brought out in these papers. I cannot, however, refrain from adverting to the contributions of Mr. W. H. Edwards, of West Virginia, on the life history of some of our butterflies, in which it has been shown that not a few of our so-called species are merely dimorphic forms of other species, and attention drawn to the important influence of cold in modifying these forms. By exposing the chrysalids to the influence of this agency by laying them for varying periods on ice, or placing them in an ice house, some of these dimorphic forms have been produced at will, thus throwing much light on the causes of variation in species.

I would also call your attention to the many recent valuable additions to Entomological literature in America, especially to the beautifully illustrated work of Dr. A. S. Packard on the Geometrids of North America; to the continuation of Edwards' magnificent work on North American Butterflies; to the learned and elaborate treatise on the Ryncophora of America north of Mexico, by Drs. LeConte and Horn; to the excellent works of Prof. Townend Glover, of Washington, on American Diptera, Orthoptera and Hemiptera; to the valuable reports of the State Entomologist of Missouri, and many other excellent works. But I must not trespass longer on your patience. Thanking you for your kind partiality in honoring me as you have done, I have the honor to be

Yours very sincerely,

WM. SAUNDERS.

London, Ontario, September 25th, 1877.

The election of officers then took place, with the following results:

President: W. Saunders, London.

Vice-President: E. Baynes Reed, London.

Secretary-Treasurer: J. Williams, London.

Council: Wm. Couper, Montreal; Rev. C. J. S. Bethune, Port Hope; J. Pettit, Grimsby; J. M. Denton, London; Rev. R. Burnet, London; R. V. Rogers, Kingston; Jas. Fletcher, Ottawa.

Editor of CANADIAN ENTOMOLOGIST: W. Saunders, London.

Editing Committee: Rev. C. J. S. Bethune, Port Hope; E. B. Reed, London, and G. J. Bowles, Montreal.

Library Committee: The President, Vice-President, Sec'y-Treasurer and J. M. Denton.

Auditors: Chas. Chapman and A. Puddicombe, of London.

During the time allotted for miscellaneous business, Mr. D. W. Beadle, of St. Catharines, spoke of the ravages of the Cabbage Butterfly, *Pieris rapæ*, and of the great benefit that would be conferred on gardeners by the discovery of some remedy which might be safely used for this pest. He also referred at length to the great success which had attended the labors of the Entomological Society, and of the high reputation it had acquired in America and foreign countries.

Mr. P. C. Dempsey, of Alboro, stated that hot water had been successfully used in his neighborhood to destroy the *Pieris* larva; that experiment had shown that the cabbage would bear the application of water heated to 200° Fahrenheit, without injury, while water at a somewhat lower temperature than this would effectually destroy the larva. The hot water may be applied through a rose sprinkler or by the use of a dipper. He also stated that a cold infusion of Quassia in the proportion of two or three pounds to a barrel of water had been found effectual in destroying the worm, and more convenient in its application than hot water. This solution may give a slightly bitter taste to the vegetable unless thoroughly washed, but it is perfectly harmless to the human system.

Mr. Chas. Arnold, of Paris, referred to the increasing ravages of the Codling Worm (*Carpocapsa pomonella*), and stated that he had scarcely a sound apple in his orchard this year. This was doubtless partially due to the small crop, and he hoped that the scarcity of apples this season would so far starve out this insect that we might enjoy some immunity from its attacks for a year or two.

Rev. Dr. Burnet, President of the Fruit Growers' Association, expressed his pleasure at being present, and his high appreciation of the labors of the active members of the Society, and referred to the great benefits which

fruit growers had derived from the publication of the results of their investigations on noxious insects injurious to fruits.

Prof. Buckland, of the Department of Agriculture, Toronto, spoke of the great utility of the work carried on by the Society in diffusing information in reference to the various insect pests which afflict the farmer and fruit grower, and of the flattering notices he had seen in foreign journals concerning the CANADIAN ENTOMOLOGIST. He believed the Society well deserved the cordial support of all those interested in agriculture.

DESCRIPTIONS OF NEW SPECIES OF BUTTERFLIES BELONGING TO THE N. AMERICAN FAUNA.

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

Melitaea ulrica.

Male—Expands .85 inch.

Upper side black, marked and spotted with deep red fulvous, much as in *P. vesta;* both wings have a submarginal series of small crescents, the one on middle of primaries considerably larger than any other ; on primaries this series is preceded by a sinuous row of small spots, and next by a bent row of larger ones ; a fourth row curves round the end of the cell, and there are some spots in and below cell. Secondaries have two rows of irregular small spots across the extra discal area, and across the disk a broad band ; some spots in cell and on basal area ; fringes fuscous alternating with white.

Under side of primaries black over the outer fourth ; next the margin a narrow band made up of confluent fulvous spots, and immediately beyond this is a series of small white spots, corresponding with the submarginal series on upper side, the middle one long, lanceolate, and a similar one at apex, but somewhat smaller ; the second row of upper side is repeated, but beyond this to base the ground is mostly fulvous, representing the spots of upper side, but now enlarged and mostly confluent ; secondaries have a marginal band like that of primaries, followed by a complete series of large white spots, crenated, or the middle ones almost

lanceolate; above these the area is black, and in this is a row of small rounded fulvous spots stopping a little before the costal margin; across the disk a row of white points and a continuous white band; beyond to base fulvous on black ground, but with a white spot in cell, and a band near base, and one directly at base.

Body above black, with fulvous hairs; beneath cinereous; legs cinereous, fulvous in front; palpi yellow-fulvous in front, white at base; antennæ black annulated with white; club black, fulvous at tip.

Female—Expands .9 inch. Scarcely differs except that the fulvous is paler.

From 4 ♂, 2 ♀, taken by Mr. Z. Boll, at San Antonio, Texas. On the under side this small species much resembles *Mel. Gabbii* in general appearance; the wings are narrow, and primaries much produced. It belongs to Group II of my Catalogue.

Melitaea dymas.

Male—Expands .95 inch.

Upper side brownish-black, marked and spotted with orange-fulvous; primaries have a submarginal row of rounded spots, obsolete on apical half; both wings crossed on the extra discal areas by a common band of separated spots, mostly sub-quadrate, bent opposite the cell of each wing and almost at a right angle on secondaries; primaries have five spots on cell, filling it, except as they are separated by black lines; and several small spots at end of and below cell; secondaries have the basal area nearly all fulvous, leaving a broad belt of black between this area and the extra discal band; in the cell a subovate black spot with fulvous stripe in middle; on the black belt in the several interspaces are a few fulvous scales; fringes of primaries fuscous, with a little white at intervals, and the apex wholly white; of secondaries fuscous only.

Under side of primaries has the margin bordered by a confluent band of crenated spots, and before this is a row of narrow dull white lunate spots, or in part lanceolate, stopping at second branch of median; these stand upon a narrow black belt; beyond to base the ground is orange fulvous, with four transverse black lines in cell, a curved row of rounded black spots outside cell, and an indistinct black line across the disk. Secondaries have the marginal series dull white on black ground, and next preceding an orange-fulvous band, and then a broad dull white band cut

beyond the middle by a black stripe from outer to inner margin; the basal area, including the cell, orange, except a triangular white spot in cell, edged with black, and a white transverse band similarly edged; along the inner margin this band is joined to the discal white band.

Body above color of wings, beneath gray-white and black; legs black and white, fulvous in front; palpi fulvous with black hairs, white at base; antennæ fuscous annulated with white; club black.

Female—Expands .95 to 1 inch.

Upper side uniform yellow-fulvous; a white patch on edge of costa of primaries two-thirds the distance from base is limited by the subcostal; hind margins of both wings edged with black, broadest at apex of primaries and along the middle of secondaries; on this rests a common series of spots, color of the ground, mostly crenated, and bordered above by a crenated black stripe; the disks are crossed by two black stripes, the outermost on primaries being nearly parallel to hind margin and not distinct, the other bent round end of cell; on secondaries these are obsolete; in cell of primaries four transverse, rather wavy lines, and a slight mark near base; two similar lines below cell; secondaries have in and below cell very similar lines, but more or less obsolete.

Under side nearly as in male, the only difference being in the paleness of the ground and the obsoleteness of the black markings on primaries.

From 1 ♂, 3 ♀, also sent me by Mr. Boll, and taken at San Antonio, Texas. I sent one example of each of these species to Mr. A. G. Butler, British Museum, to ask if they had been described as Mexican. Mr. Butler regards them as hitherto undescribed. The wings of *dymas* are narrow, primaries much produced. There is a remarkable difference between the sexes on upper side, but below the markings are almost identical. It is the opinion of Mr. Boll that these constitute but one species. This species belongs to Group III of my Catalogue.

Amblyscirtes nysa.

Female—Expands 1.1 inch.

Upper side glossy dark brown; primaries have three small transparent spots forming a curve, on costal margin, at three-fourths the distance from base, and a point on the disk; fringes long, fuscous next the margins, but anterior mixed with white.

Under side of primaries a little paler, the spots repeated, the discal spot more distinct; secondaries brown clouded with blackish, a dark illy-defined band following the hind margin, a patch on disk and another on costal margin; also dark at base; some gray scales forming patches border the darker portions near outer angle, and there are others on the median interspaces. Body dark brown; below, thorax yellow-white and cinereous, the abdomen gray-brown; palpi yellow-white; antennæ fuscous above, annulated with gray-white, gray-white below; club black. From two examples, sent me by Mr. Boll, the other by Mr. Belfrage, and taken in Texas.

Pholisora nessus.

Male—Expands 1.1 inch.

Upper side light brown; a black band crosses the extra discal area of both wings, formed by short longitudinal stripes, one on each interspace; and a narrower band, more confluent, crosses the disk of primaries and basal area of secondaries; along the hind margins is a dash of gray in each interspace, not distinct; primaries have three transparent spots on costal margin at end of the fold, and three others half way beyond to apex; and on middle of disk are two marks forming a V-shaped spot, not quite joined at the angle; secondaries have a similar small spot near outer angle and two on the disk; fringes long, fuscous, with a few gray hairs.

Under side lighter brown, clouded much as above; the spots repeated. Body dark brown; palpi white; antennæ fuscous annulated with gray white; club black.

Female—Expands 1 inch.

Similarly marked, the colors lighter, especially on under side.

From 2 ♂, 1 ♀, received from Mr. Boll, taken at San Antonio, Texas. Mr. Meske also has this species from Bastrop, Texas.

ON THE BLACK-WING GROUP OF THE GENUS CATOCALA.

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

The "species" of the black-winged group (*Mormonia* of Hübner) comprised in the genus *Catocala* have been largely augmented as the

collections are increased throughout the country. Without doubt, when we shall be thoroughly conversant with the immature stages, our knowledge of the species will be more perfect. Our collections containing only the perfect stages, the forms are clearly recognizable. Mr. Grote has recently arranged the species of this group in the Collection of the Buffalo Society of Natural Sciences as follows, and a species named for the first time is contained therein. The following classification contains our North American species, one of which *(sappho)* is unknown to me.

Gen. Catocala Schrank.

Group I, Mormonia Hübner.

Sub-group I (fringe of secondaries white).

1. C. epione *Drury.*
2. C. lacrymosa *Guen.*
3. C. sappho *Strecker.*
4. C. subviridis *Harvey.*
5. C. agrippina *Strecker.*
6. C. viduata *Guen.*
7. C. desperata *Guen.*
8. C. retecta *Grote.*
9. C. flebilis *Grote.*
10. C. ulalume *Strecker.*
11. C. Robinsonii *Grote.*
12. C. obscura *Strecker.*
13. C. simulatilis *Grote.*

Sub-group II (fringe of secondaries blackish).

14. C. Levettei *Grote.*
    Syn. *C. judith* Strecker.
15. C. Angusi *Grote.*
16. C. residua *Grote.*
17. C. insolabilis *Guen.*
18. C. tristis *W. H. Edw.*

It would seem best to follow this arrangement of the species. In the second sub-group the apices of secondaries are not touched with white or scarcely so in *Levettei.* In *tristis* the white apical patch is quite evident.

C. subviridis, n. s.

♂. Allied to *agrippina.* Differing by the fore wings being shaded with dark silky green. Lines black, evident, accompanied by white scales, evident on internal margin. The brown shades of *agrippina* are wanting. Sub-reniform, detached, small; subterminal line white and rather evident. Beneath like *agrippina*, but the white bands are narrower.

Expanse 3⅛ inch. Habitat, Dallas Co., Texas, Boll Coll. One specimen. Possibly figured as a var. of *agrippina* by Strecker.

C. residua, var.

♂. A remarkable aberration of this species is represented in the Collection by a specimen which has the left hind wing smaller and beneath hoary at base without the band. Fore wings with the t. p. line thrown out of position, back towards base of wing and aberrant in its course. Thorax rusty. Habitat, New York.

TINEINA.

BY V. T. CHAMBERS, COVINGTON, KY.

GRACILARIA.

G. fasciella Cham.

G. 5-notella Cham.

With ten specimens of *fasciella* and two of *5-notella* before me, with scarcely a trace of variation in the ten, but with the two differing from each other somewhat and both differing very decidedly from the ten, I had no doubt as to the distinctness of the two species. A larger series, however, induces the belief that they belong to the same species. The difference between them may be thus stated: In *fasciella* the base and apex of the fore wings are brownish-gray, and between these portions are three brownish-gray and four white fasciæ, all very distinct and well defined. In *5-notella* the whole dorsal half of the wing is white, there is a small brown spot on the base of the costal margin, another further back, and still further back another which in the middle of the wing is produced backwards to the gray-brown apical part of the wing, which encloses two small white costal streaks. A larger series, however, shows that the two forms vary into each other and induce the suspicion that Dr. Clemens described his *G. fulgidella* from a form like *5-notella*. The tuft on the second joint of the palpi is minute, and in all of my specimens but two it has been removed in pinning.

G. Packardella Cham.

In this species there is great range in the intensity of the purplish tinge. Some specimens might be described as having it so strongly developed as to ally them to *purpuriella*, *stigmatella*, &c., while in others

it is very faint and delicate, the ground color of lemon yellow not being at all obscured by it. It is, however, allied to *superbifrontella* and *Severdercllа*, &c., more closely than to any other known species.

G. inornatella Cham.

This must be dropped from the list, as I am satisfied that it was described from worn specimens of *G. Packardella* and *superbifrontella.*

G. purpuriella Cham.

Since the last notice of this species was written I have bred it from larvæ feeding on the silver-leaf poplar; but I have never met with it on the weeping willow, though it is common enough on many of our native willows. It may prove to be the European *G. stigmatella*, which feeds on sallows. It is certainly very near that species.

ANTISPILA.

A. ampelopsiella Cham.

In Vol. 6 I have given this name to a mine and larva found in leaves of *Ampelopsis quinquefolia*, the imago being then unknown. I have also *loc. cit.* described a species bred from grape leaves, without naming it, because I thought it probable that it would prove to be *ampelopsiella.* Since then I have bred it both from *Ampelopsis* and from wild grape leaves *(Vitis cordifolia)*, and it proves to be the same species described in Vol. 6. The description, however, is imperfect, having been prepared from a single slightly worn specimen.

A. hydrangeaella Cham.

This species was also named from the larva and mine only. I have since bred it. It is a little larger than *ampelopsiella*, though scarcely so large as *isabella* or *viticordifoliella*, and is perhaps the prettiest species of the genus. The palpi and tips of the antennæ (last five joints), and the under side of a few of the basal joints snowy white. Head, thorax, abdomen, inner surface of legs, hind femora and tibial spurs of hind legs like burnished steel; tarsi of anterior and middle legs and tips of hind tarsi yellowish white, posterior tibia on outer surface and tarsi, except the tips, purplish, with metallic reflections. Anterior wings and a spot on each side of the thorax bronzy brown, without greenish reflections; ciliæ

purple, tipped with silvery gray. The fascia, costal and dorsal streaks and apical spot are brilliant silvery; the fascia is not constricted on the fold and the streaks are placed as in the other species; the costal spot is small and the dorsal large and almost an exact triangle, being, however, a little wider on the base and the margins very faintly concave. Hind wings and ciliæ pale purplish fuscous.

It thus differs from *ampelopsiella* in having the tips of the antennæ white and in other minute particulars. The case in which it pupates is elongate and narrow, a long elipse; that of *ampelopsiella* is a short and wider elipse, that of *viticordifoliella* is nearly oval, that of *isabella* a very wide oval, almost circular, and that of *cornifoliella* is smaller than that of *isabella*, though resembling it more in shape than that of *viticordifoliella*, which is nearer to it in size. That of *nyssæfoliella* I have not seen. It requires careful observation to distinguish the species. They are more readily distinguished by their cases than by the markings of the imago. *Hydrangeæella* and *ampelopsiella* may be distinguished at once from the others by the possession of the apical spot, but they require close observation to distinguish them from each other. So likewise do *isabella*, *nyssæfoliella*, *cornifoliella* and *viticordifoliella*. *Cornifoliella* and *isabella* are, however, of a duller, darker brown than the other two, and *viticordifoliella* likewise has white annulations towards the tips of the antennæ.

I have not seen any of the European species, but comparing our species with the figures of *Pfeifferella* and *Treitschkiella* in Nat. His. Tin., vii., the latter are much paler or lighter in color than our species.

NOTES ON NOCTUIDÆ.

BY A. R. GROTE,

Director of the Museum, Buffalo Society Natural Sciences.

Chytonix palliatricula.

This species has the thoracic vestiture mixed with hair-like scales, and it agrees in all respects with *C. iaspis* as to structure and pattern of ornamentation. It differs from *Bryophila lepidula* in these respects and in that the abdomen is more strongly tufted. I have taken all these species in June and July in the vicinity of Buffalo.

Hadena quaesita.

Prof. Lintner's remarks in letters on the variability of *lignicolor* and his doubt, after seeing my type, of the validity of *quaesita*, induced me to take a large number of specimens this season; and though I have not taken one exactly like *quaesita*, I have a series which approach it so closely that I think it now only a pronounced example of that form of *lignicolor* which has the ground color of primaries very pale. The reddish tint is decidedly absent and the dark shades on terminal space and elsewhere contrast more strongly. The slight differences in the lines and stigmata are, I am satisfied, only varietal. The name *quaesita* applies then to the dark brown and pale form of *lignicolor*.

Hadena delicata.

I have taken a few fresh specimens of this species near Buffalo in June and July. The deep green shading is very beautiful and distinct on the thorax, base of the wing and to the subterminal line. I have since referred *H. interna* to this species, the type exhibiting the principal features of *delicata*, especially the inferior sinus of the subterminal line, but showing no green shades whatever, though comparatively fresh.

Mamestra vicina.

I have taken several specimens of this species near Buffalo, in July. I cannot separate satisfactorily from this species certain Texan specimens which I suppose to be the *teligera* of Mr. Morrison. The ovipositor is extended in one Texan ♀, in another not visible. I do not see it externally in *vicina*. Its visibility does not seem to me a satisfactory generic character, and in the series of *grandis*, *subjuncta*, *atlantica*, *vicina*, I would include the Californian *Mamestra pensilis*, formerly referred by me to *Dianthoccia*, but apparently representing *vicina* in the western district.

Pallachira, n. g.

♂. Antennæ scaled on their upper surface with long setose pectinations outwardly; on the inside the processes are short, and from base to basal third much reduced; at this point the inner series is interrupted by a stouter claw-like process. Ocelli present; eyes naked; squamation scaly and thin. Legs slender, closely scaled, unarmed; hind tibiæ with two pair of spurs. Fore feet long and with the terminal joints tufted. Body slender; wings ample; abdomen exceeding secondaries.

I refer this genus to the Deltoids near *Herminia*. My single specimen in good condition has the fore feet so tufted that I cannot make out satisfactorily the form of the tibiæ and tarsi; they seem to be aborted.

Pallachira bivittata, n. s.

Entirely pale ochrey, powdered with fuscous. A broad fuscous stripe below median vein from base to external margin. A second shorter stripe from the extremity of the cell outwardly. Else the entire insect is concolorous. *Expanse* 25 mil. Buffalo, July, coll. auct. The fore wings recall in color those of *Arsilonche Henrici.*

Agrotis trabalis, n. s.

♀. Fore tibiæ unarmed; middle and hind pair spinose. Eyes naked. Thorax with a small tuft behind the collar; behind with a divided tuftlet. Abdomen a little flattened, carinated, with a tuft on basal segment. Wings ample; form rather stout. Whitish gray with large stigmata and bright brown contrasting subterminal space. A basal black dash, a second above it on the cell, before the orbicular, which latter is near the t. a. line, inaugurated above it on costa by two black lines rather wide apart, with white included space. Below the t. a. line is twice waved to internal margin. Basal space whitish; basal line indicated. Sub-basal space dark gray. Stigmata concolorous, ringed with black, very large. Claviform incomplete; orbicular a little flattened, ovate; reniform moderately excavate. T. p. line narrow, geminate, regularly and slightly scalloped, with a deeper incision opposite the cell. Subterminal space rather wide, bright brown; s. t. line faint, pale; terminal space rather narrow, dark gray. A dentate black continuous terminal line. Hind wings pale gray fuscous, with pale fringes touched with blackish at extremity of veins; a black terminal line. Beneath pale, powdered with dark scales; an indistinct common outer line; discal lunule filled in and prominent on hind wings, empty on primaries. Abdomen pale; thorax gray, darker shaded on tegulæ. Second palpal joint outwardly black. Front white inferiorly below a frontal black line. The collar has no transverse black line, but is tipped with a darker shade. *Expanse* 42 mil. Mass. (Roland Thaxter).

A second specimen in poor condition, from Montreal (Couper), has the wings more obscure, the brown subterminal space improminent. In the type there is merely a black line inferiorly connecting the stigmata along the median vein. In the Canadian specimen the orbicular and reni-

form are connected also superiorly with a black line. The lunate discal mark beneath on hind wings is blackish, distinct and large; on the primaries empty in both specimens. The common exterior shade line on the primaries is even, on hind wings irregular.

Somewhat resembles the description of *A. fernaldi*, Morrison, but the fore tibiæ are unarmed. Mr. Thaxter describes the type as from a "cocoon found under pine bark in April, when the larva had not yet become pupa. The cocoon was tough, not unlike that of *cerura*. Larva dull white with blackish markings."

Dryobota stigmata Grote.

♂. Larger than *mactata*, which it resembles in ornamentation. Eyes naked, tibiæ unarmed, abdomen tufted along the dorsum. Antennæ bipectinate, the pectinations gradually decreasing to the tips. Blackish brown tinged with olivaceous, especially on the subterminal space, and bright brown on the median space below the median vein. Lines black, narrow. Sub-basal space wide. T. a. line arcuate. Orbicular large, concolorous. Reniform large, white, with a green stain. Median lines approximate below the middle and connected on the submedian interspace by a black dash. The reddish brown stain extends between the stigmata and colors the linear irregular median shade. T. p. line dentate superiorly, below vein 3 inwardly arcuate, and here touched outwardly with white. The light green subterminal shading stretches to apices, leaving the costal region of s. t. space dark with white dots. S. t. line faint. A terminal series of cuneate black marks. Hind wings fuscous with mesial line and pale transverse shades, reflecting the large filled dark lunate discal mark from beneath. Beneath pale fuscous, veins darker marked; on primaries the discal mark empty; three costo-apical white dots. Abdomen at the sides with reddish tuftings. Collar with a black line. Pectus purplish. Head and thorax somewhat olivaceous, the latter dark behind. Abdominal tufts blackish. *Expanse* 38 mil. Hab. Mass. (Thaxter).

The type has but little of the olive tints of this specimen, but it is not fresh; the markings are similar and I have no doubt it is the same species.

Caradrina bilunata, n. s.

♂. Wings ample. Eyes naked, body untufted. Body and fore wings pale mouse gray with distinct black lunate spot; other stigmata obsolete. Lines faint, wide apart, blackish, approximate at internal margin. Sub-

terminal space a little darker; s. t. line indistinct. Hind wings white, a little soiled exteriorly. Beneath with distinct black dots on both wings. *Expanse* 30 mil. Hab. Newtonville, Mass., August (Thaxter).

This species is almost unicolorous pale mouse gray, with white hind wings and distinct black discal marks.

CORRESPONDENCE.

DEAR SIR,—

What is the nature and cause of the seeming growth on the eye of *P. philenor* and perhaps other butterflies? I have noticed in examining about 100 specimens of *philenor* that fully one third of the number have on the eye near the proboscis a cluster of yellow tubes, varying from 3 to 40, and from one-twentieth to one-fourth of an inch in length. They are slender, about the diameter of a small insect pin, and are terminated by a mouth or cup-shaped appendage. I have found them in a few cases on *P. glaucus*, but never on any others. If you can not answer, I would be glad if one of your many subscribers would do so, and also give me the name of any work that may mention the peculiarity.

During a trip this summer I succeeded in obtaining several fine *Argynnis diana* females and a few males. For some reason the male was exceedingly scarce, though I saw quite a number of females, which had not as yet laid their eggs. In crossing the mountains (the line between N. Carolina and Tennessee) I noticed that *Neonympha areolatus* was quite abundant in the valleys along the creeks, while *N. gemma* was found in any numbers above an altitude of 1,000 to 1,500 feet.

Lycaena comyntas with us lays its eggs on Rag-weed, the common garden nuisance. I found one doing so about six weeks ago; there was white clover within five inches of where she was.

EUGENE M. AARON.

Maryville, East Tennessee, Sept. 12th, 1877.

[Can any of our readers throw any light on the question propounded by our correspondent regarding *P. philenor*?—ED. C. E.]