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THE CANADIAN
ENTOMOLOGIST.

VOLUME V.

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The Canadian Entomologist.

VOL. V.

LONDON, ONT., JANUARY, 1873.

No. 1

—1873.—

It has been our custom at the commencement of a new volume to offer our hearty greetings to our friends and correspondents, to all who read the CANADIAN ENTOMOLOGIST,—to all, indeed, who take a kindly interest in the success of our journal and the welfare of our Society. This year we do so most cordially, with not a little pardonable pride, when we remember that it is for the *fifth* time. Four years and a half have elapsed since we ventured to put forth our diminutive first number that consisted merely of eight pages; with our last December number we completed our fourth volume and eight-hundredth page of Entomological matter!

A complaint has once or twice reached us lately to the effect that our publication was gradually becoming too technical, and consequently of decreasing interest to a large number of our readers, who, from various causes, are unable to become deep students of the science, but who take great delight in learning all they can respecting the economy and classification of the insects of the country. We must confess that the complaint is not unfounded, and that we have almost unconsciously drifted somewhat away from the design of the periodical. It has always been our intention and desire to meet the requirements, if possible, of two classes of readers—those, on the one hand, who are leaders in the pursuit of Entomology, and who, therefore wish to have presented to them in convenient form all discoveries of new species and other valuable scientific information that may from time to time be acquired by their fellows,—and those, on the other hand, who collect and study insects to some extent, but are not yet far advanced in the pursuit; or who merely regard insects as destructive or beneficial and therefore wish to know something about them; or, again, who take pleasure in learning all they can about these creatures without either collecting or specially studying them. To meet the particular requirements of all these various descriptions of readers would, of course, be a perfect impossibility in a periodical of such limited size as ours; at the same time we think that

something may be done for all who care for insects, without filling out pages too much with technicalities, and without losing sight of all additions to our knowledge by becoming simply "popular." To steer a suitable course between the Scylla of abstruse science on the one side, and the Charybdis of mere "popularity" on the other, is no easy task, and we fear has not yet been achieved by us. We hope, however, in the forthcoming volume to do a little better in this respect, and we look forward to a continuance of friendly aid from our correspondents in various quarters to enable us to overcome the difficulty. As a first step towards improvement we propose to present to our readers a series of illustrated papers on the common Butterflies of North America—with special reference to those found in Canada. We hope that we shall thus be enabled in time to furnish beginners in Entomology with a hand book that will enable them easily to identify any common butterfly and to ascertain where and when it may be found, what its larva feeds upon, and such other useful information as may be gathered into a short space. Owing to the difficulty there is in obtaining really satisfactory wood cuts of insects, and the time that is required for their production, we shall not be able to take up the different species of Butterflies in any systematic order, but only as we are able to obtain the necessary materials. We shall be very thankful, indeed, for assistance from our readers in this department; almost every one can help us with lists of species observed in his own neighborhood, or with notes on their time of appearance and disappearance, number of broods, larval habits, etc., etc.

The "Hints to Fruit Growers" that have been afforded by one of our Editorial Staff—Mr. Saunders—will be continued with greater frequency during the coming year; we are glad to learn from various sources that those already published have proved of much value to our horticultural readers.

As a further improvement, we should be pleased to receive correspondence from our readers upon general Entomological subjects of the day; for instance, at the present moment, upon the vexed, and we may surely say vexatious, question of nomenclature.

It will be a relief, no doubt, to the majority of our readers to learn that the reprint of Kirby's *Insects of the Northern Parts of British America* is now fast approaching completion, and will cease ere long to distress them with its constant recurrence. The whole will, when finished, be made up into a separate volume and be sold at a moderate price. We have no doubt that it will prove of much value to those who are unable

to obtain the rare and expensive original. The space thus set free we propose to occupy with translations of Guenee's Descriptions of Moths, and reprints of Drury and other old authors whose works can seldom be obtained by the student of the present day.

During the past year we have received valued contributions to our pages from a larger number of correspondents than ever before; while we beg to offer them, for ourselves and our readers, our very hearty thanks for their favors, we venture to express the hope that they will not relax in their investigations and contributions, and that many others also will feel disposed to join their ranks. Without such assistance the CANADIAN ENTOMOLOGIST would be but a sorry production, and could not long protract its existence.

Another species of support, our worthy Treasurer reminds us, is equally necessary for the maintenance and well-being of our publication—need we say that he refers to the grosser element of dollars and cents? Our rules require the payment of all subscriptions in advance at the commencement of each year; as the amount to each individual is but a single dollar, there ought to be no difficulty or delay on his part in forwarding it; the aggregate sum thus provided is, as all must be aware, a matter of great importance to us, especially as we do not receive the Legislative grant to the Society till about midsummer. The present number of the CANADIAN ENTOMOLOGIST will be sent to all subscribers on the list for 1872, who have not signified their desire to withdraw from membership with the Society; no further number, however, will be sent, unless the amount of subscription is meanwhile received. Pay your honest dues, friendly reader, and then you will not fail to have in one respect at least, what we heartily wish you in all respects, A HAPPY NEW YEAR!

ANNUAL MEETING OF THE LONDON BRANCH.

At the recent annual meeting of the London branch of the Entomological Society of Ontario, the following officers were elected:—J. WILLIAMS, President; M. L. MORGAN, Vice-President; H. P. BOCK, Secretary-Treasurer; F. OSBORNE, Curator.

An interesting and satisfactory report was presented by the Secretary-Treasurer, showing an increase of membership, and also showing the funds of the branch to be in a prosperous condition.

ON SOME OF OUR COMMON INSECTS.

PAPER NO. I.

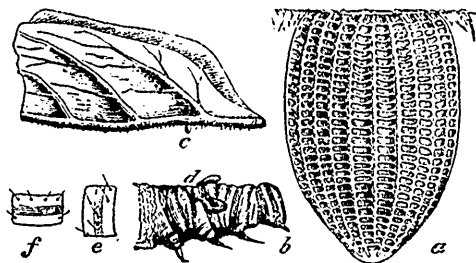
BY W. SAUNDERS, LONDON, ONTARIO.

This paper is the first of a series in which it is proposed, by members of the editorial staff alternately, to describe some of our more common insects, to illustrate them with suitable cuts, and to make the descriptions of so plain a character that the most unscientific reader may be able readily to comprehend their meaning. Since it is one of our aims in publishing the ENTOMOLOGIST to popularize our favorite science, we shall offer no apology for introducing into our journal these readable papers, in which much material may from time to time appear, which, to the scientific reader, may look stale and uninviting. In a recent letter from a correspondent who takes some interest in "bugs," but is not deeply versed in the technicalities of the science, he complains much of the depth of the learning which has been displayed in our pages during the past, and says that although he has frequently taken a plunge into the depths of the articles, one after another, that he has rarely been able to touch bottom. It will be our aim, then, while still devoting the larger portion of our pages to scientific matter, to introduce something into each future number in which subscribers of similar scientific calibre to the gentleman already referred to, may be able, not only to touch bottom, but to wander through the shallows with ease, and we hope with some degree of pleasure.

The first insect of which we propose to treat is one of our commonest butterflies, known as the *archippus* butterfly (*Danais archippus*). This insect is said to hibernate during the winter; it is seen on the wing usually as early as the middle of May, but it is not very common until later in the season. These first few individuals lay their eggs on the leaves of the common milkweed (*Asclepias cornuti*) and other species of *Asclepias*, also on the bitter root (*Apocynum androsæmifolium*), during the latter part of May or the beginning of June. The eggs, when fresh laid, are white, but in two or three days they become yellow and then dull gray just before the time of hatching. They are $\frac{1}{16}$ th of an inch long, conical in form,

flattened at the base. When viewed with a magnifying glass they appear very beautiful. See figure 1,

Fig. 1.

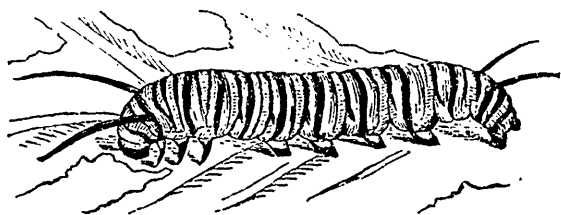


where *a* represents the egg much enlarged, while at *c* it is shown of natural size and in its usual position on the underside of the leaf. On this egg there are about twenty-five raised longitudinal lines, and about the same number of cross lines between each, so that the whole appears covered with a regular and beautiful net work, as shown in the figure, which has been drawn from nature, as those also have which are to follow, by our esteemed friend, Prof. C. V. Riley, of St. Louis, Mo.

In about six or seven days the egg matures, producing a minute caterpillar one tenth of an inch long, with a large black head, and yellowish-white body, with a few black hairs on each segment, as shown at *e* and *f*, fig. 1. This larva grows very rapidly, and soon finds that its skin will bear no further stretching, when it conveniently disrobes itself and appears in garb gay and new by crawling out of its skin through a rent down the back, which takes place just at the proper time, which process is repeated three times during its growth. At *b*, fig. 1, the head and anterior segments of the larva just before its last moult is figured for the purpose of showing how the long fleshy horns with which the mature caterpillar is furnished are conveniently coiled up when buried beneath the old skin.

The full grown larva, fig. 2, is about one and three quarter inches long.

Fig. 2.



Its head is yellowish with a triangular black stripe in front below, and another of a similar shape above.

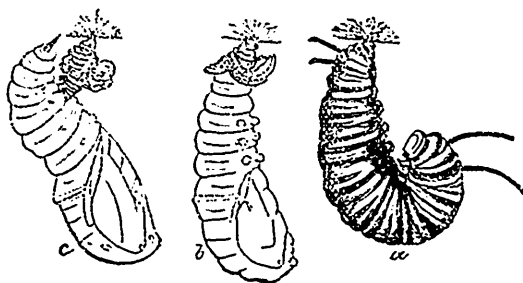
The upper surface of the body is beautifully ornamented with transverse stripes of black, yellow and white, the white covering the greater part of each segment, and having a wide black

stripe down its centre, while the yellow occupies the spaces between. On the third segment (reckoning the head as first) are two long black fleshy horns, and on the twelfth two others of a similar character, but shorter and not quite so stout.

The under side is black with a greenish flesh color between most of the segments.

The next change which comes over this caterpillar is that which transforms it to a pupa or chrysalis, a most astonishing transformation, when the voracious larva becomes for a time torpid, senseless, and almost motionless while preparing for that change when it is to appear in brilliant plumage, and gracefully float and flutter through the air, enjoying the summer's sunshine and sipping the nectar of flowers. Fig. 3 shows the

FIG. 3.

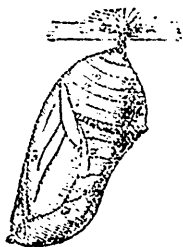


larva as it appears at different periods during its transition to the state of chrysalis. At *a* it hangs suspended from a silken web, in which its hind legs are entangled and which has been previously attached by the caterpillar to the

underside of a leaf, or fence rail or some other secure place of retreat, and here while hanging for about a day the larva contracts its length, and increases its bulk, especially on the anterior segments. By and by a rent takes place in the skin down the back, and the chrysalis begins to appear, and after long and persevering efforts and much wriggling the skin is worked nearly up to the hinder extremity, as shown at *b*. Now a difficulty presents itself, and a feat is to be performed to imitate which would puzzle the most daring acrobat, for without hands or feet to hold on by it has to withdraw itself from the remnants of its larva skin, and hang itself up by a black protuberance covered with a bunch of hooks, with which the chrysalis is furnished. Perilous as this undertaking seems to be, it is very seldom indeed that a failure occurs in its accomplishment. A ready explanation of the means by which this is done is given at *c*, fig. 3. The joints of the abdomen being freely movable, are first stretched against a portion of the larva skin, when, by a sudden jerk backwards, the skin is grasped and firmly held while the terminal segments are withdrawn, and

the process of suspension completed. Soon after this the chrysalis begins a series of wriggling and jerking movements to dislodge the empty larva skin, after the removal of which it remains motionless, unless disturbed, and becomes gradually harder and more contracted until it assumes the appearance represented by fig. 4.

FIG. 4.



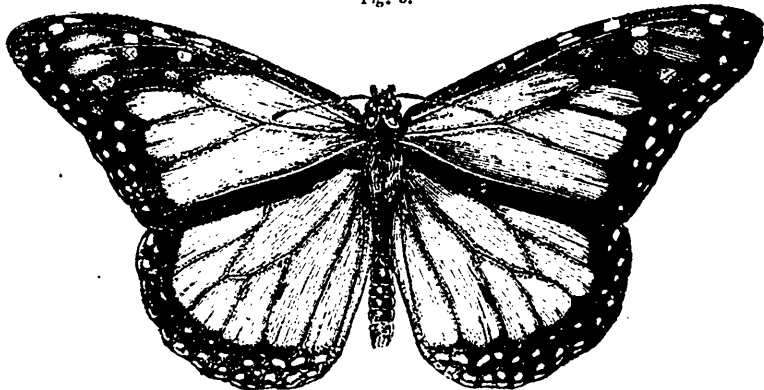
The chrysalis is about an inch long, and of a beautiful bright green colour dotted with gold, and with a band of golden dots extending more than half way round the body above the middle; this band is shaded with black. There is a patch of black also around the base of the black protuberance by which it is suspended, and several dots of the same on other portions of the surface.

The insect seldom remains in chrysalis more than ten or twelve days, and towards the latter end of this period, the handsome green and gold colours begin to fade, the chrysalis growing gradually darker until the diminutive wings of the future butterfly show plainly through the semi-transparent enclosure. The escape of the imprisoned insect, now nearly ready for flight, is usually made quite early in the morning. We have several times watched for their deliverance, and have usually found it to take place soon after daybreak. A sudden crackling and slight tearing sound is heard, which arises from a splitting of the chrysalis case part way down the back, the fore legs, head and antennae are first withdrawn, and in a few moments the entire insect is liberated. At first the wings are very small, and the new born butterfly seeks at once some suitable spot where the wings may be held so as to hang down and thus facilitate the rapid growth which follows. This growth is truly amazing; we have seen the wings double their size within three minutes, and seldom more than fifteen or twenty minutes pass before they have attained their full dimensions, and, ere the sun is high in the heavens, the soft, flabby wings have dried and the butterfly is ready for flight.

The *archifans* butterfly, fig. 5, is so well known that it needs but little description, especially when so good a figure is given. The ground colour of the wings, when fresh, is a beautifully bright orange red, the veins are heavy and black, and the margins are spotted with white, the latter being more or less covered or encroached upon by the general colour. Near the middle of the hind wings there appears in the figure on one of the veins

an enlarged black streak or blotch ; this, when closely examined, is found

Fig. 5.



to be a small excrescence ; it is found only in the male, and by this peculiarity the sexes may be readily distinguished.

We have frequently seen this butterfly in great numbers on pine trees which have been infested by *aphis*, attracted there no doubt by the sweet exudations which flow from the bodies of the *aphis*, thus interfering with the rights and privileges which have always been accorded to the industrious ant. They also have the fashion of congregating at times, late in the season, in prodigious swarms consisting of tens of thousands or hundreds of thousands of individuals. In September, 1871, we met with a swarm of this character on the shore of Lake Erie. They hung in clusters everywhere on a group of trees which they completely covered ; as many as thirty-two individuals were counted on a space of the size of ones' two hands, and their total numbers we thought might safely be estimated by millions. No satisfactory reason has yet been assigned for such gatherings.

SOME REMARKS ON CHANGES IN NAMES OF CERTAIN BUTTERFLIES.

BY W. H. EDWARDS, COALEURGH, W. VA.

PAPILIO ASTERIAS. Now sought to be changed to *Polyxenes*, although from the time of Fabricius to the publication of Kirby's Catalogue (1871), no other name than *asterias* has been in use. The species has been repeatedly figured as *asterias* in these hundred years, and under this name is well known to everyone who takes the least interest in these things.

What is gained by re-naming it, I am unable to see. The first mention of *polyxenes* was in Fab. Syst. Ent., page 444, No. 10, 1775, the male being described. Fabricius in 1787, in Mant. Ins., gives the same species under the name of *asterias*, referring to Drury, vol. i, plate ii, for the type, and quoting his own *polyxenes* as synonymous.

PAPILIO GLAUCUS. Under this name Linnæus described the black female of *turnus*, and it is only within the last ten years that it has been generally known that *glaucus* was related to *turnus*. When *glaucus* is now spoken of, it at once brings to mind this striking variety, and *turnus* var. *glaucus* is a sufficient designation and answers every proper requirement. It is eminently convenient that this variety should have its own designation, and by it, it is treated of in Wallace, Walsh, Darwin, Harris, and other authors. I hope our lepidopterists will not be deluded into changing these names by any supposed obligatory rule, for the simple fact is, there is no obligatory rule in the case.

DANAIS ARCHIPPUS. Mr. Kirby (1871) gives the name of this butterfly as *erippus* Cramer. Scudder (1872) gives it as *plexippus* Linn. Scudder in 1863 gave it as *erippus* Doubleday (But. N. England.) Mr. Scudder also read a paper by the late Dr. Harris before the Boston Soc. Nat. Hist. (1859) showing that these and other names were remarkably confounded, for example: "The *berenicæ* of Cramer is the *erippus* of Fabricius, but not of Cramer, and it is the *gillippus* of Smith, but not of Cramer and Fabricius; the *erippus* of Cramer is the *archippus* of Fabricius and of Smith; it is also the same as the *plexippus* of Cramer, but not of Linnæus and Fabricius: the *misippus* of Fabricius is the *archippus* of Cramer, but not of Fabricius and Smith: the *erippus* of Cramer is not the *erippus* of Fabricius, and the *misippus* of Fabricius is not the *misippus* of Linnæus." And he gives a table "by which it will be seen that the nomenclature of the three North American species has become confounded with five others." In preparing the Synopsis of Butterflies of N. Am., I had at hand all the above quoted works, and could make little of this tangle; and as our northern species of *Danais* has been generally known and written of and figured as *archippus*, I deemed it advisable to adhere to that name as one resting place in a foggy sea. It is so figured in Abbot & Smith, Boisduval & Leconte, and so called in Harris' Ins. Mass. 2nd Edition, which work I believe had the assistance of Mr. Scudder in preparing for the press.

LIMENITIS URSULA. Changed to *astyanax* by Butler, 1869, and followed by Kirby and Scudder. Fabricius' Syst. Ent., 1775, named the species *astyanax*. In Ent. Syst., 1793, he re-named it *ursula* for the following reason: It then stood in the genus *Papilio*, in which also stood another *astyanax*. He therefore changed the name of the first to *ursula*, and by this latter the species has come down to this day. It is so figured by Abbott & Smith, and by Boisduval & Leconte. That Fabricius was right in so changing the name to avoid a duplicate in the same genus, is undoubted, and although the species which still retains the name *astyanax* has since been found to be the female of something else, and hence loses its original name, there seems no good reason for disturbing *ursula*. Fabricius was right in making the change, and once right always right in such a matter. Of course I do not allow or believe that *proserpina* is a variety of *ursula*; it is as near *arthemis* as *ursula* in some respects.

ON THE LARVA OF PLUSIA BALLUCA.

BY W. SAUNDERS, LONDON, ONT.

In the second volume (1863,) of the Proceedings of the Entomological Society of Philadelphia, I published a paper on some of our Lepidopterous larvæ, and among other descriptions there appeared one purporting to be that of *Plusia balluca*. By some unfortunate mishap a description of the larva of *V. interrogationis* was sent in place of the intended one of *balluca*, and the mistake was not discovered until after the number had been issued, while all trace of the original description of the larva of *balluca* was lost. I did not again meet with this larva until the summer of 1871, when a fresh description was taken on the 15th of June, as follows:—

Length, 1.20 in. ; body thickest on middle and posterior segments, tapering towards the front; the body is arched or looped along the middle segments when in motion.

Head rather small, bilobed, of a shining green color, with a few whitish hairs.

Body, above, yellowish-green, streaked and spotted with white, intermixed all through with green, thus dividing the white into a series of streaks, dots and broken lines; there is also a line of greenish-white on each side, close to the undersurface. Each segment has a few tubercles of a green color, striped with white; these are small on the second, third and fourth segments, but much larger from fifth to twelfth, inclusive, and entirely wanting on the terminal segment. On each of the hinder segments, with the exception of the last three, are ten or twelve of these tubercles, which almost cover the whole surface, and from each of the tubercles throughout there arises a single whitish hair.

The under surface is of a deeper green than the upper, with a few short whitish hairs, chiefly on 5th, 6th, 7th, 8th, 11th and 12th segments. Feet green, prolegs, of which there are three pairs, green also.

This larva became a chrysalis on the 18th of June, and produced the moth on the 13th of July.

In the caterpillar state, the insect feeds on the hop, consuming the leaves, but we have never known it to occur in sufficient numbers to do much damage. The moth, (see fig. 6,) measures, when expanded, about $1\frac{3}{4}$ inches. A large portion of the upper surface of the fore-wings is covered with brilliant, metallic green scales, which are



Fig. 6.

darker on the lower portion of the middle and on the tips of the wings, and much paler towards the inner angle. The wings are covered by two oblique, irregular brown lines, and parts of the upper and outer portions are tinged with purplish. The hind wings are of a brownish dusky grey, without markings. The anterior portion of the body is pale brown, marked with buff and curiously crested above, the hinder portions of the body are paler. The under surface of both front and hind wings is dull, varying in shade from pale buff to brown, one of the brown lines on the upper surface of fore-wings being reproduced and extended across the hind wings.

This moth has been found in various parts of Canada, but in no instance have we heard of its being met with in any considerable numbers.

MICRO - LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KENTUCKY.

Continued from Vol. 4, Page 226.

ERRATA ET CORRIGENDA.—Ante vol. 4, p. 148, for *Hermonella* read *Hermanella*; p. 149, for *Alexandriacella* read *Alexandriacella*; p. 173, line 11, for "there" read "then;" p. 195, line 5, for "all the veins are united near the end of the cell," which is an unaccountable blunder, read "all the veins given off from the cell arise near its end."

ANESYCHIA.

A. trifurcella, n. sp.

White; palpi annulate and tipped with dark brown or black; a longitudinal median blackish stripe on the thorax, and a spot of the same hue on each side of it; primaries white with a median wide blackish longitudinal streak beginning on the costa at the base, gradually widening to the apex, where two small white streaks or spots divide it into three short branches. Sometimes these white spots completely separate the outer branches from the median one. A row of small dark brown dots around the apex; a small spot near the dorsal margin about the basal fourth, and a larger one about the apical third of the wing. Antennae dark brown. *Alar ex.* $\frac{1}{8}$ inch. Kentucky, in July.

HYPONOMEUTA.

H. orbimaculella. Ante p. 88. Vol. 4.

This was described by me, ante p. 42, as *H. evonymella*, and the name changed because of its resemblance to the name of a European species, *H. evonymella*. I had not then seen the European species, nor any figure or description of it. Since then, however, I have seen the figure in Wood's *Index Entomologicus*, and think it most probable that this species is identical with it. The arrangement of the spots is identical, but in the figure of *evonymella* the fore wing is shaded with a smoky or brownish hue, while in all my specimens it is pure snow white; and the color of the hind wings in the figure is darker, and of a different shade from any of my specimens, in which the shade varies from snow white to lead color. I

incline to think that the maturity of the imago at the time of its death has something to do with the color of the hind wings, specimens killed very soon after emergence having them more slaty or lead colored than older ones.

ARGIOPE, *gen. nov.*

A. dorsimaculella.

Heribea? incertella ante p. 44. Vol. 4.

In my former notice of this species I placed it, provisionally and with great doubt, in Stephens' genus *Heribea*. I find, however, that either *Heribea* Stephens is very different from the *Heribea* of more modern English authors (which includes such small genera as *Philocnistis*, *Lyonetia*, &c.,) or I have mistaken the characters of Stephens' genus from his brief diagnosis. I had supposed it (from the characters given by Stephens and its location among his genera) to be allied closely to *Yponomeuta*. At any rate, as I cannot satisfactorily locate this species in any genus known to me, I think it best to erect a new one for it with the diagnosis given at p. 43—Vol. 4.

It differs from *Yponomeuta* in the colors and patterns of coloration; in having the terminal joint of the labial palpi a little larger in proportion to the others; in having the head entirely smooth; in having the primaries a little falcate beneath the apex, though the neuration is not materially different; in having the costal margin of the secondaries a little excised before the tip, which is pointed, and in having only a single branch (the superior furcate one) given off from the discal vein (while *Yponomeuta* has an inferior simple branch also), and in having the median furcate from the end of the cell, whilst in *Yponomeuta* it is simple.

GRACILLARIA.

G. blandella? Clem. *Proc. Ent. Soc. Phila.*, 1863, p. 9.

Although Dr. Clemens' description is not strictly accurate, or rather, is not altogether intelligible, where applied to the insects now before me; and I have not seen his specimens, yet notwithstanding the close resemblance which sometimes exists between different species of this genus, I have very little doubt that my specimens belong to this species. Should it, however, prove otherwise, then I suggest for these specimens the name *G. juglandivorella* and annex the following description:

Face pale lemon yellow (or yellowish stramineous), palpi of the same hue, each joint of the maxillary palpi tipped with dark purple, the labial palpi thickly dusted with dark purple and with a wide dark purple annulus close to the tip. Vertex dark purple, with pale lemon yellow intermixed; antennae pale lemon yellow, faintly annulate with purple at the base, towards the apex purple, faintly annulate with pale lemon yellow. Thorax dark purple, with a narrow pale lemon yellow median longitudinal stripe, and a wider and more distinct one on each side above the wings, and a dark purple spot before the wings. Primaries pale lemon yellow and dark purple; the dorsal margin is dark purple from the base to near the ciliae, where the purple widens over the apical portion of the wing, except a small lemon yellow spot on the edge of the costal ciliae before the apex; costal margin from the base to the basal fourth dark purple; from the basal fourth of the costa a rather wide fascia passes obliquely backwards from the costal purple to the dorsal purple, uniting them, and thus enclosing on the base of the disc an oblong pale lemon yellow spot. Immediately behind the oblique purple fascia, the dorsal purple is excavated, and the wing is pale lemon yellow to the costa and as far back as the ciliae, with a little purple dusting or row of small purple spots along the extreme costa before the ciliae. Sometimes there is a faint golden or stramineous patch in the purple at the extreme apex, and sometimes the apex is a little dusted with golden or stramineous. Ciliae golden or stramineous, with three wide dark purple hinder marginal lines, one at the base, one in the middle, and one at the tip. (Perhaps they might be better described as dark purple, with two shining stramineous hinder marginal lines, one before their middle and one before their tip.) Posterior wings and ciliae dark purplish fuscous. Anterior and middle legs yellowish mixed with purple behind, dark purple in front except the tarsi, which are silvery white with each joint tipped with purple. Posterior legs yellowish except the apical half of the outer surface of the femora, the tips of the tibiae behind, and the tip of each tarsal joint. Thorax and upper surface of the abdomen dark purple; venter pale lemon yellow. In some lights what I have called dark purple appears violaceous or iridescent, and the stramineous portions appear golden or sulphur yellow. *Al. ex.* $\frac{3}{4}$ in. Kentucky.

Dr. Clemens received his specimen from Virginia. I have bred it from the leaves of the Black Walnut (*Juglans nigra*). It mines the upper surface, and, when first taken, was supposed to be the mine of a *Philocnistis*, containing a pupa. It was something more than an inch long, a little crooked, very narrow, and resembled a small snail's track.

Not far from one end the mine was widened a little and the cuticle puckered, forming a small nidus like that of a *Philocnistis* pupa. Within this nidus a small larva was visible. It was white, with the head pointed before, but widened behind, and with the thoracic segments much swollen and tapering rapidly from thence to the tail. (There is a good deal of resemblance between the very young larvae of *Gracillaria*, *Philocnistis* and *Lithocolletis* of the cylindrical group.) In a day or two it changed its form, becoming cylindrical and pale yellowish white, and it left the mine and went to the *under* side of the leaf, where it turned down the edge over it, and, after eating out the parenchyma, turned it down in another place, repeating this operation two or three times until it finally became a pupa under the edge last turned down. Sometimes (at least in the breeding jar) it leaves the leaf and pupates under a sheet or coverlet of white silk like *G. salicifoliella* and many other species. Which mode it follows in a state of nature I am unable to say, having never found it in the pupa state. *G. juglandiella mihi* mines the *under* surface of the leaves, but the mine is larger and more blotch like, and when it leaves the mine it goes to the *upper* side of the leaf which it curls *upwards* over itself and there passes the pupa state. I do not mean to say that this habit of going to the side of the leaf opposite the mine is universal in either species, but only so far as I have observed it in some ten specimens of each. *G. blandella* is a very handsome species.

A BALLOON SPIDER.

BY WILLIAM COUPER, MONTREAL.

"The American Naturalist" for May, 1871, contains an interesting article on "Flying Spiders," by J. H. Emerton. The species noticed by him are, no doubt, allied to the gossamer of Europe, and the phenomenon occurs early in autumn on the Islands of the St. Lawrence.

During the month of July, 1871, while trout-fishing on a large lake near the Upper Assumption, about one hundred miles north of Montreal, my attention was drawn to an inflated transparent substance of an oblong cocoon shape, passing about fifty yards over my head. To this miniature balloon, a thread was attached, and, on tracing it downward, its architect was seen struggling on the surface of the lake. Taking up the

paddle and forcing the canoe in order to secure this curious spider, imagine my disappointment, just as I was within a yard of it, to see it swallowed by a trout. The day was fine, with just sufficient wind to waft a delicate body of this nature across the lake. My curiosity being aroused, I kept a good look out for another specimen, but no more were seen that day.

On another lake further north, and during similar weather, I was pleased to witness a number of these in their aeronautic excursions, and on a rock in the centre of the lake was fortunate in capturing a specimen of the spider. In size it is as large as the house spider. The body and legs are densely covered with stiff hair; its mandibles are long and sharp. It was extremely active, and lived about three weeks in a box after its capture. I am at a loss to account for the mode in which this spider produces the structure with the extraordinary length of attached thread, which it manages to send off in the air. The woods near the lakes are principally pines, which are moss-covered and rugged, and yet, these curious balloons are evidently constructed on trees on the margin of the lakes.

ON THE GEOGRAPHICAL DISTRIBUTION OF SOME GENERA OF CANADIAN INSECTS.

BY FRANCIS WALKER, LONDON, ENGLAND.

The following communication includes two genera of *Chalcidæ*, *Perilampus*, and *Callimome*. *Perilampus* is known in America from Canada to Mexico. *P. hyalinus* Say, inhabits Canada; *P. cyaneus* Brulle, and *P. Entellus* Walk. are synonyms of it. Say has described two other species, *P. platigaster* and *P. triangularis*; the latter is distinguished from all other species by the dark tips of the wings. *P. Alexinus* Walk. differs from *P. platigaster* by not having a brassy tinge, by the luteous tips of the femora, and by the luteous tibiae with a black band. The specimen of *P. Lepros* is too much mutilated to ascertain if it agrees with *P. platigaster*. *P. hyalinus*, above mentioned, has some resemblance to the European *P. violaceus*, but has an elongated scutellum; in this character it is far exceeded by the Mexican *P. gloriosus*, which far surpasses all other known species in size and beauty. *P. gloriosus* is also peculiar in the development of the secondary veins of the forewings

and is still more remarkable on account of the long cubitus, that vein being very short in all the other species. In Europe this genus is represented from Sweden to Italy by a few species which are generally of rare occurrence and have been observed to be parasitic on wood-feeding insects. There are two species in S. Africa, *P. maurus* and *P. discolor*; the former is wholly black; the latter is distinguished from all others by pectinated antennæ, by a bifurcate scutellum, and by a concave abdominal dorsum. *P. Hedychroides* is a small Ceylonese species, and *P. Salecius* from Australia, is the smallest species of the genus yet known.

Philomides, Haliday, is another genus of *Perilampidæ*, and is only represented by *P. paphius* Hal., a native of Cyprus. The genus *Psilogaster* Brulle, is placed by that author next to *Perilampus*.

Callimome consists of much smaller insects than those of the genera of *Chalcidæ*, before mentioned, and some species are abundant in England. None have been reported in Canada, but the genus is doubtless there, as it occurs both to the north and the south of that region. Two species have been found near Hudson's Bay. One of them, *C. cecidomyæ* is most allied to the British *C. euchlorus*; it is parasitic on *Cecidomyia spongivora*, which forms galls on the willow. The other, *C. splendidus*, should be placed next *C. purpurascius*, with which it agrees in its stout structure. The species collected by E. Doubleday, in the United States, appear to be different from those described by Say, and a few more from the same region have been lately published by Osten Sacken. The British species are very numerous, and, as to the female, may be most obviously distinguished from each other by the comparative length of the oviduct. The chief district of the genus seems to be now N. Europe, the known species of Australia and S. America being small and scarce. Some are natives of E. Siberia or Amurland, and it is probable that the more Southern parts of Asia were the earlier habitation of the present European species. Their instinct induces them to act so that their young ones may live at the expense of gall-making insects, and there is much to observe in the mutual adaptation of the size of the gall and the length of the oviduct, and as to what species are exclusively reared in one kind of gall or are developed in several kinds, and whether differences of habitation have any effect on outward appearance. The many-chambered galls are more interesting than those with a single cell. Some ten or twelve species of *Callimome* resort to oak apples and effect lodgments for their eggs at depths proportioned to the length of their oviducts; the species which

has the longest oviduct obtains possession thereby of the grub in the central part of the gall for the maintenance of its young ones, and the latter have a longer life in the gall than the young of the short oviduct species. The different species thus dwell in different concentric circles of the gall, and observations may be made whether there is mutual agreement as to the boundary lines between their respective territories, or whether complications occur between them when they have removed the earlier inhabitants. Many other species of insects dwell in these galls, and there is also much yet to be ascertained in the domestic habits of each one, whether herbivorous or carnivorous.

MISCELLANEOUS.

GENERIC NOMENCLATURE.—Can not some method be devised to check the recently introduced habit of rehabilitating fossil genera?

To borrow a geological simile, these had their little day of life in the Eozoic period of entomological science, proved themselves unfitted to survive in the struggle for existence, and then disappeared—it was to be hoped, forever. Is it not taking a very unfair advantage of the older authors to make them responsible for genera of which they had no conception, and which certainly would have been indignantly repudiated by them?

What a change, for example, from *Papilio* of Linnæus, an overgrown genus, capable of containing whole shoals of its lesser successors to *Papilio* Linn., *teste* Scudder, applying solely to one insect, already well supplied.

If Mr. Scudder's proposed revolution in our nomenclature should be adopted, I fear that also, on the other hand, the laboratories of the "genus grinders" will resemble the mills of the gods in one respect, and in one only, namely, that of "grinding exceeding small." If every genus has a single type, then, as species differ structurally more or less, what can be more evident than that each species is in itself the type of some genus, and immortality as enduring as that of Eratostratus is within the grasp of the man who grinds out his genera with the greatest rapidity!—THEO. L. MEAD.

ATTRACTING LEPIDOPTERA.—At page 194, vol. iii, CANADIAN ENTOMOLOGIST, attention is drawn to a new French method of collecting Nocturnal Lepidoptera by means of bait.

Having purchased chemicals, &c., for the purpose of thoroughly testing it at Anticosti and Labrador, last summer, I give my experience with the hope that it may be of service. Dried apples, such as recommended, were immersed in Nitric Ether, and hung on branches of trees on the second day after my arrival on Anticosti, and I visited the baits that night and each succeeding one during my stay on the Island. Moths were flying in the vicinity, and several passed within twelve inches of the bait, but only *one* was noticed to rest on it during the season. The baits on Anticosti and Labrador were constantly visited by Diptera and ants, and these alone. My want of success discouraged me, and I resolved to add sugar to the bait, and it was only with this addition that moths were attracted. I think, therefore, that the old mode of sugaring is still the best for this country. My friend, Mr. Caulfield, tried it here last summer with a like result.

It occurs to me that a bait might be prepared to attract Diurnal Lepidoptera. I passed two months of the summer of 1871 on the Black River, about 140 miles north of Montreal. I resided in a shanty on the new Colonization Road, which follows the river through the mountains. Water in which salt pork had been par-boiled, was thrown out on the sandy loam opposite the door, and I noticed that hundreds of *Papilio turnus* frequented this spot during favorable weather, thrusting their tongues into the moistened sand when the fluid absorbed, for which they seemed to have such an extraordinary liking, rendered them semi-intoxicated.

I have seen them flying from all quarters direct for the shanty. Many of them, I believe, came from a distance of two miles at least. The spot which these butterflies visited was certainly that on which the pork water was thrown, and the effluvia resulting from this was doubtless the great source of attraction. In A. R. Wallace's "Malay Archipelago," page 124, he says that the rare *Charaxes Kadenii*, a Java swallow-tail butterfly, was caught as it was sitting with wings erect sucking up the liquid from a muddy spot by the roadside, and I have seen several of our Canadian butterflies sucking the moisture from mud on the margins of ponds made for the use of cattle.

I intend to try a few experiments in suitable places next summer on Anticosti, &c., with water in which salt pork has been par-boiled, with various other substances added, and the results will be noted for the benefit of those concerned. Cyanide of Potassium is a quick destroyer of insect life, and I recommend it for night collecting.

As it is almost impossible to keep butterflies perfect on pins while moving from place to place in wild regions, each specimen of Diurnal Lepidoptera of my next collection will be placed in a paper envelope, and my subscribers will, no doubt, receive the remainder of their specimens in good condition. Moths will be pinned, and collected chiefly by sugaring, as I believe it is the cheapest and most prolific method of procuring good specimens. I am anxious to obtain three additional subscribers for the Northern Diurnal Lepidoptera, to be collected during the season of 1873.—WILLIAM COUPER, 38 Bonaventure Street, Montreal.

QUERIES.—John R. Smith, of South Pownal, Vermont, U. S., wishes to ascertain the best locality for *P. Luna* and *Ceratocampa regalis*; also if there is any published price list of American insects.

Will any of our readers kindly give the desired information?

A NEW SOCIETY.—We are glad to learn that a new Entomological Society has been started in Brooklyn, N. Y. We cordially wish it every success.

EXCHANGE.—Mr. W. Cole, of London, Eng., is desirous to enter into correspondence with Canadian Entomologists with a view of effecting exchange of specimens. For further information address W. COLE, care of C. Browne, Esq., 5, Old Square, Lincoln's Inn, London, England.

ADVERTISEMENTS.

The undersigned would like to exchange desirable Lepidoptera from North America, Brazil, India, Europe, &c., for species of *Lyænidæ*, new to him (from any part of the world.) Californian and Arctic species especially wanted. Address H. R. MORRISON, Old Cambridge, Mass., U. S.

JOHN AKHURST, Taxidermist, No. 19, Prospect Street, Brooklyn, N. Y., keeps constantly on hand for sale, Sheet Cork for insect boxes—size, 12 x 3½ x ¼; \$1.25 per dozen sheets. Felt or German Insect Paper—size, 18 x 22 x ½; 50c. per sheet. Insect pins, French make; No. 2, 4, 6, 8, 10, 12, 14, 16, 18—\$1.25 per 1000. Insects for sale or exchange. Dealer in Bird Skins.

N. B.—The above prices do not include the cost of transportation.