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# The Canadian Entomologist.

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## OBSERVATIONS ON CERTAIN PLANT LICE OF THE GENUS APHIS.

BY THOMAS G. GENTRY, GERMANTOWN, PA.

That the Aphides in the spring time are wingless, virgin females, is an opinion that has been carefully entertained by some of the most distinguished naturalists and physiologists in the world. Bonnet, Reaumur, Owen, Huxley, &c., have especially studied this interesting class of insects, and have given expression to the above opinion in their writings. But this, there are strong reasons for asserting, must be taken in a restricted sense, so far, at any rate, as our own Aphidæ are concerned.

Whilst engaged recently in an examination of a species which was observed feeding upon the leaves and tender shoots of *Rumex crispus*, with the view of testing its manner and rate of reproduction, several clusters of the insect were met with, each of which, contrary to expectation, contained one or two winged specimens. These, in addition to the possession of wings, differed still further from the apterous ones in the superior length of the antennæ, and in the remarkable fulness of the thorax above; this fulness being undoubtedly necessary for the attachment of the wings and the muscles by which they are controlled. In color the wingless specimens were entirely jet black, which, however, in those endowed with the power of flight, was somewhat relieved by the presence of a light fulvous annulus upon each antenna and tibia.

The presence of wings in some of the specimens at this season of the year, in view of the assertions of naturalists to the contrary, would seem to imply the existence of males. This impression does seem to be further heightened and strengthened by comparison with drawings of the male rose Aphis in "Duncan's Transformation of Insects." To be assured

upon this point, a solitary winged specimen was secured and confined in a box in which a sprig of the insect's natural food had been previously placed to satisfy its wants ; due examination having been made to the intent that nothing in the shape of food or animal life should stand in the way of a fair and impartial test. After the lapse of twenty-four hours, the inside of the box and its contents were examined with a glass of moderate diameter, and a single, newly-born Aphis was discovered fastened to a leaf stalk, in the act of imbibing its juice.

A further continuance of the feeding process for several days longer was productive of the same positive results. The rate of increase in this species, as shown by these experiments, unlike its European congeners, was proved to be but one a day ; so it is to be seen that the insect does not propagate as rapidly in this case at any rate, as naturalists have asserted. European species, we read, produce at the rate of three, four, and seven a day, according to eminent authorities. As our native American species differ in many points from European, in a structural as well as a functional sense, this difference in the rate of propagation may not be wondered at. From the above facts it does seem that nature has decreed that there shall be both winged and wingless specimens in the spring time, for it seems just to conclude that both varieties are virgin females. But other observations which were subsequently made, seem to foreshadow the existence of males also ; but the evidence upon this point is not of the most positive character, and requires further facts to settle it beyond the shadow of a doubt.

Having secured similar winged specimens a few days later, they were submitted to a like test, when both positive and negative results were reached. Here was a rather curious and interesting problem for solution. Why some should prove fertile, and others, which in no single particular differed therefrom, so far as could be determined, should manifest a contrary state of affairs was more than could be divined, and this too after frequent experiments had been made. If the latter are males, as their sterility would seem to indicate, the solution is self-evident ; but if of the opposite sex, there can be no adequate key to unlock the problem, unless the principle of excessive nutrition, which seems to account for so many strange things in the vegetable creation, should prove to be it. But even here a doubt arises, as observation has shown me that a succulent shoot produces almost invariably wingless specimens, while a less tender one the opposite variety. As the very existence of the two forms depends upon

the quantity of sap which each obtains, said quantity being measured by the nature of the shoot, whether succulent or otherwise, the only rational conclusion that can be drawn is to consider the sterile form as male. The correct course to have adopted would have been a dissection of the animal, and a comparison of the organs of reproduction, but in this I was debarred by the want of suitable instruments for the purpose.

From what has been written upon European species, combined with the facts developed in this paper, it seems safe to conclude that the Aphidæ reproduce both in a sexual and asexual manner. If not sexually, then there is no getting rid of the conclusion that in the spring of the year three forms of females are produced, wingless virgin, winged virgin, and winged sterile females. As a further confirmation of the above facts, let me add that similar experiments were performed upon a small drab-colored species, which was found feeding upon the leaves and succulent shoots of *Spiraea corymbosa*, with similar results.

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#### NOTES ON RHINCOPHORUS ZIMMERMANII, SCH.

BY S. V. SUMMERS, NEW ORLEANS, LA.

Larvæ, long, 1.07 to 1.40 inch. Head rather large, smooth, vertical; occiput dark chestnut brown; medial line abbreviated, but well defined; lateral lines complete; vertex piceous, sculptured; front rufo-piceous; mandibles obtuse, opaque, with three large deep impressed punctures; labium 3-dentate; mentum sinuated, sub-flavous. Body sub-cylindrical, not curved, sub-flavous, middle segments largest, humeral and anal segments corneous, brownish; legs replaced by six tubercles.

Described from seven living matured larvæ.

Pupæ, long, 1.10 to 1.24 inch. Quite characteristic of imago, tawny yellow; prothorax and metasternum piceous; rostrum bent close on prosternum, and reaching anterior margin of metasternum; elytra enclosing posterior legs. Three specimens.

*R. Zimmermanni*. Long (exclusive of rostrum), 0.66 to 1.20 inch. Black, shining, rostrum shorter than thorax; ♂ nearly arcuate before antennæ, smooth, with rather large punctures; ♀ not arcuate, tuberculate; antennæ with outer half of first joint rufous; eyes large, finely

granulate; prothorax longer than broad, smooth, finely and sparsely punctured; angles rounded; basal margin closely embracing elytra; scutellum prolonged, polished; elytra with six distinctly punctured striae which do not quite reach the apex; intervals broadly rounded.

Inhabits Southern and Gulf States; abundant. Our largest curculio, of which numerous varieties occur while immature, the most common variety has the elytra and thorax reddish-brown, with three black spots on elytra and one or more on thorax.

The larvæ bore in the roots and stocks of the Palmetto, in the latter part of June and July. When about to pupate, they construct an oblong cocoon, which consists of layers of fibres and excrement loosely woven together. These are invariably formed at the thickened basal part of leaves' stems, from which the imago issues in September and October. They do not seem to be attracted by the lamp, but on several occasions during the month of February, in the vicinity of New Orleans, I have observed large numbers flying among the Palmetto's, when they would produce a buzzing noise similar to *Copris carolina*. They seem most partial to the older and more injured plants, particularly those having been burnt. As many as sixty specimens have occurred in a single tree.

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### MICRO-LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KENTUCKY.

Continued from Page 115

CYLLENE, *gen. nov.*

Anterior and posterior wings linear lanceolate, and apparently destitute of nervures. (In a single specimen of the hind wing, mounted as a microscopic specimen in Canada balsam, a short costal nervure, a sub-costal and an independent nervure close along the posterior margin, but not beginning at the base, are visible, but ordinarily I can find no trace of any nervure except *perhaps* the costal is visible; to all ordinary observation the wings are without nervures.) The posterior are excised from the basal fourth of the costal margin to the apex. Size minute. The other generic characters are those of *Clymene* (*supra*), and it is characterized like it by the erect or reversed hair-like scales. But it lacks the pale spots in the integuments of the wings, which characterize *Clymena*.

*C. minutisimella*. *N. sp.*

Vertex, palpi and abdomen silvery; face rather sordid white: antennæ dark griseous or fuscous, tipped with whitish; anterior wings brown mixed towards the base confusedly with silvery, with a distinct silvery spot on the costal margin, two others on the dorsal margin, one of which is just behind the middle and the other farther back: one at the apex and one on the costal margin opposite the space between the two dorsal ones. In some lights these spots are not distinct. Ciliæ and hind wings dark griseous.

*Alar ex.* scarcely exceeding  $\frac{1}{8}$  inch. It is therefore probably the smallest Lepidopteron known. Mr. Stainton, *Nat. Hist. Tin.*, v. 1, says that *Nepticula microtheriella*, measuring  $1\frac{3}{4}$  lines in *alar ex.*, was then the smallest. It is a shaggy and rather "uncanny" looking little moth. The larva is unknown. I have taken the imago abundantly in May and July at the lamp. But I find that I have but a single specimen left, for, as it is too small to pin successfully, I placed it in a tin "cell" on a microscope slide, covered by thin glass, held down by a rubber band, into which crept villainous little *Atropes* and ate all my little *Cyllene* save one.

## NEPTICULA.

*Nepticula* miners of leaves of the Sycamore (*Platanus occidentalis*.)

Three species of *Nepticula* mine these leaves. Dr. Clemens describes these mines fully (*Proc. Ent. Soc. Phila.*, March, 1862). One of the mines is at first a slender track filled with frass. Afterwards the mine is expanded into a round blotch, almost obliterating the previous linear mine. This is the mine of

*N. platanella* Clem., *Proc. Ent. Soc. Phila.*, Jan'y, 1862.

It may be distinguished from the two other species by having the wings shining dark brown, with a silvery costal streak about the middle, and an opposite spot of the same hue on the dorsal margin. For other particulars see Clemens' description. *Al. ex.*  $\frac{3}{2}$  inch. Kentucky.

The mine described by Dr. Clemens as No. 2 is linear, slightly enlarged towards its extremity, with the terminal portion enlarged into a small blotch just before the larva leaves it. It has a central line of frass. Dr. Clemens was not acquainted with the imago which I call

*N. Clemensella*. *N. sp.*

Palpi and face stramineous, tinged with rufous between the antennæ and eyes; eye-caps yellowish silvery. Antennæ pale fuscous. Primaries

bluish black, with a minute ochreous spot on the extreme dorsal margin about the middle. Viewed from the direction of the head there is a faint silvery streak visible opposite the ochreous spot, but it is not visible with the light in any other direction usually, although in one specimen it is visible on one wing in any light, but is not on the other. Ciliae pale yellow, with a dark brown hinder marginal line near the base. *Al. ex.*  $\frac{5}{8}$  inch. Kentucky; Pennsylvania.

The mine of the third species is at first crooked, with a central line of frass. It is afterwards enlarged, forming an irregular blotch, which covers all or nearly all of the original mine. It then resembles the mine of *N. platanella*, but is less rounded and the outline is more irregular. I have not succeeded in breeding this species, but have no doubt that the species described below as *N. maximella* is the maker of the mine.

*N. maximella.* *N. sp.*

Head and eye-caps yellowish white; palpi a little paler; antennae dark fuscous above, whitish beneath; thorax and anterior wings bluish black, with a silvery white fascia about the middle, concave towards the base, and sometimes faintly interrupted in the middle. Apical ciliae whitish, with a dark brown hinder marginal line near the base. *Al. ex.*  $\frac{1}{4}$  inch. Kentucky.

Taken in large numbers resting on the trunk and leaves of Sycamore trees (*P. occidentalis*), seldom elsewhere, and I believe it to be the miner No. 3.

*N. serotinella.* *N. sp.*

Tuft rufous; face reddish yellow; palpi silvery gray; eye-caps and hinder portion of the vertex very pale or whitish golden; thorax and primaries blackish, with purple and bronzy reflections, the primaries crossed by two silver fasciae, both of which are straight, the first being rather the widest, placed just before the middle, the second just before the beginning of the ciliae; ciliae of the general hue, but in some lights silvery gray, the dorsal ciliae rather pale. *Al. ex.*  $\frac{2}{3}$  inch. Kentucky.

The larva makes a very pretty mine on the leaves of the Wild Cherry (*Prunus serotina*). The mine is narrow, linear, very much convoluted at first, filled with frass, which afterwards becomes a central line only in the mine, which is gradually a little widened; the mine is whitish and the frass black, but to the naked eye the mine appears brownish red, and

the leaf around it also becomes stained of that hue. The larva is bright green. Possibly this may be the *N. bifasciella* Clem., but I can discern no trace of green in the wings. Dr. Clemens gives no measurements and was not acquainted with the mine of *bifasciella*. He mentions, *Proc. Ent. Soc. Phila.*, Nov., 1861, an empty mine in the leaves of the Wild Cherry as doubtfully that of a *Nepticula*, and possibly dipterous, and calls it *N. ? prunifoliella*. As, however, he says that that mine begins in a blotch, and as he was not acquainted with the insect in any of its stages, and it often happens that two or three species mine leaves of the same plant, I have not deemed it expedient to adopt his name. The practice of naming species from an empty mine or even a larva, is a bad one, I think.

*N. apici-albella*. *N. sp.*

Palpi and eye-caps white; face reddish orange; antennae silvery, suffused with fuscous; thorax and primaries dark brown, slightly iridescent, suffused with purplish or golden, according to the light; just behind the middle of the wing is an oblique white fascia, which is nearest to the apex on the dorsal margin; ciliae of the general hue, except at the extreme apex, which is white. *Al. ex.*  $\frac{5}{2}$  inch. Kentucky. Larva unknown. Imago in June.

*N. minimella*. *N. sp.*

Palpi white; face ochreous; eye-caps white; antennae light fuscous; primaries fuscous to the fascia, which is just immediately behind the middle, and is convex both anteriorly and posteriorly; purplish fuscous behind the fascia; apex whitish. *Al. ex.* less than two lines. Kentucky. At light in August.

*N. thorac-albella*. *N. sp.*

Palpi and eye-caps white; face reddish ochreous; antennae pale fuscous; thorax white, with a few scattered dark brown scales; primaries dark brown, with a curved white fascia about the middle, concave towards the base, and rather indistinct upon the costa. A white spot at the beginning of the costal ciliae, and an opposite dorsal one; ciliae of the general hue, except at the apex, where they are white. *Al. ex.*  $\frac{1}{2}$  inch. Captured in June in Kentucky.

*N. querci-castanella*. *N. sp.*

Head, eye caps and palpi white, except a dark brown spot between the antennae on the head; antennae dark brown above, whitish beneath;



thorax and primaries yellowish ochreous, well dusted with dark brown ; eiliae pale ochreous. *Al. ex.*  $\frac{5}{8}$  inch. Kentucky.

The larva makes a somewhat crooked linear yellowish-white mine, with a central line of frass, in the leaves of the Chestnut Oak (*Quercus castanea*), in the latter part of July.

*N. fusco-capitella.* *N. sp.*

Head dark fuscous ; palpi, eye-caps and antennae yellowish white, the antennae somewhat stained with fuscous above ; primaries and thorax white, faintly tinged with yellowish, and the apical half of the primaries dusted with fuscous scales arranged mainly in small spots ; body and legs creamy white. *Al. ex.* almost  $\frac{1}{4}$  inch. Captured in Kentucky in June.

*N. ochre-fasciella.* *N. sp.*

Head and eye-caps pale reddish-ochreous ; palpi a little paler ; antennae pale fuscous, with a silvery lustre ; thorax and primaries blackish-brown, with a nearly straight yellowish-ochreous fascia just before the middle ; apical ciliae yellowish-ochreous, basal half of the primaries yellowish-ochreous on the under surface. *Al. ex.* scarcely  $\frac{1}{4}$  inch. Kentucky. Taken in June.

*N. ciliae-fuscella.* *N. sp.*

Palpi silvery ; head reddish-yellow ; eye-caps silvery ; thorax and fore-wings dark brown, a little bronzed, and ciliae of the same hue. A white fascia just behind the middle of the wing, nearly straight, a little widest on the dorsal margin, and *perhaps* a little nearer to the base on the costal margin ; under surface and legs yellowish white ; posterior tibiae fuscous. *Al. ex.*  $\frac{5}{8}$  of an inch. Taken at lamp, Aug. 23rd.

I cannot see wherein this species differs from *fusco-tibiella* Clem., except that Clemens says "Ciliae pale grayish," whereas the ciliae in this species have the bronzy dark brown hue of the wings. Dr. Clemens gives no measurements.

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## INSECTS OF THE NORTHERN PARTS OF BRITISH AMERICA.

COMPILED BY THE EDITOR.

*From Kirby's Fauna Boreali-Americana: Insecta.*

(Continued from Page 117.)

305. *DONACIA CUPRÆA* Kirby.—Length of body  $4\frac{1}{2}$  lines. Taken in Canada by Dr. Bigsby [also on Lake Superior.]

[226.] Body above copper-coloured, glossy; underneath covered with a thick coat of decumbent pile of a cinereous colour, glittering in certain lights. Head downy, channelled; mouth and palpi rufous; mandibles and antennae black; prothorax rather wider than long, very minutely, thickly and confluent punctured and wrinkled; channelled, with a pair of impressions on each side, anterior tubercles not prominent; scutellum downy; elytra very grossly punctured in rows; a single anterior impression near the suture; truncated at the apex; three intermediate ventral segments of the abdomen have a yellow margin; legs obscurely rufous; thighs bronzed in the middle; posterior thighs with a minute tooth near the apex.

306. *DONACIA HIRTICOLLIS* Kirby.—Length of body  $3\frac{1}{2}$  lines. A single specimen taken in Lat.  $65^{\circ}$ .

Body underneath covered with a thick coat of decumbent pile resembling satin and shining like silver. Head hoary from inconspicuous hairs, most minutely and confluent punctured with a slight interocular channel with an obtuse ridge on each side; antennae with the second and third joints equal in length; labrum glittering with silver pile; prothorax longer than wide, hoary from inconspicuous down, most minutely and confluent punctured, channelled, sides subimpressed, anterior tubercles flat; scutellum large, levigated; elytra black, punctured in rows, whose interstices are wrinkled; posterior thighs with a single short obtusangular tooth.

This pretty species comes near *D. bidens* Oliv., which I always find on *Potamogeton natans*, but it is sufficiently distinguished by its black thorax hoary from down, and legs without any red.

[Synonymous with *D. rudicollis* Lac. Taken on Lake Superior.]

307. *DONACIA ÆQUALIS* Say.—Length of body 4-4½ lines. Many taken in the journey from New York to Cumberland-house [also in Ontario.]

[227.] Body underneath covered with a thick coat of silver pile as in the preceding species. Head bronzed, hoary from cinereous down, minutely and confluent punctured, channelled between the eyes with a longitudinal obtuse ridge on each side the channel; antennae black, bronzed at the base, second and third joints equal in length; mouth piceous; prothorax bronzed and gilded, rather longer than wide, thickly and confluent punctured and wrinkled; channelled; sides longitudinally subimpressed; anterior tubercles obsolete; scutellum hoary from down; elytra bronzed, gilded, punctured in rows except at the apex where the punctures are confluent, two impressions adjoining the suture, and one in the middle of the base; apex truncated; ventral segments of the abdomen, the last excepted, with a bright orange margin; posterior thighs with a stout short tooth.

N. B. In the male the ventral segments are without the orange margin.

VARIETY B. Prothorax bright copper, elytra black-bronzed.

#### FAMILY HISPIDÆ.

308. *HISPA (Anoplitis) BICOLOR* Oliv.—Length of body 3¾ lines. Taken in Canada by Dr. Bigsby. Mr. Francillon had specimens from Georgia. Oliv.

[228.] Body linear, naked. Head black, smooth, channelled between the eyes; antennae robust, scarcely longer than the prothorax, black; eyes large, dark-brown; prothorax transverse, narrowest anteriorly, red, with four dusky spots placed transversely, grossly punctured, posterior angles produced, behind with a slight sinus on each side; space above the scutellum truncate; scutellum dull-red; elytra linear, black, three-ridged, with an abbreviated ridge towards the apex between the second and third; ridges elevated; interstices with a double series of large and very close punctures; between the second and third at the base and apex the series is quadruple, in the middle triple; lateral margin and apex serrulate; underside of the body blood-red; legs black, base of the thighs red.

## FAMILY COCCINELLIDÆ.

309. *COCCINELLA EPISCOPALIS* Kirby.—Plate v, fig. 4. Length of body 2 lines. Taken in the journey from New York to Cumberland-house.

[229.] Body narrow, nearly linear, having at first sight the aspect of a *Haltica*, underneath black. Head black with three oblong pale yellow spots, two adjoining the eyes on their inner side, and one placed backwards in the vertex; mouth, antennae, and palpi rufous; prothorax and both elytra taken together, pale yellow with two black stripes, common to both, resembling a bishop's crosier, the crook being on the thorax and the stalk on the elytra; suture of the latter black except at the tip; legs pale testaceous; anus, sides of the abdomen, and tips of the ventral segment, except the basal one, pale.

[Belongs to *Nemio* Muls.]

310. *COCCINELLA TREDECIM-PUNCTATA* Linn.—Length of body 3 lines. Several specimens taken in Lat. 54°.

Body oblong, black, lightly and minutely punctured; underneath slightly downy. Mouth and its organs pale rufous; nose white, whiteness with a posterior central lobe; antennae rufous; prothorax white with a large discoidal spot falling short of the anterior margin, where it is truncated; sides lobed, besides which there is a black dot on each side connected with the above spot; elytra reddish-yellow with six largish black dots, namely 1, 2, 2, 1, and one at the scutellum common to both elytra; the first marginal dot is ovate, the rest approaching to round; the tibiae and tarsi are testaceous; there are two transverse white spots on each side the breast, between the four posterior legs; and four triangular pale ones on each side the abdomen.

VARIETY B. Nose rufous, with a parallelogrammical white spot between the antennae.

[Belongs to *Hippodamia* Muls.; very common in Canada.]

311. *COCCINELLA TRIDENS* Kirby.—Length of body 2¼ lines. Two specimens taken in the Expedition.

[230.] Body rather oblong, very minutely punctured; black underneath, with two distant white spots on the breast, and three contiguous ones on each side of the abdomen. Head black with a transverse white band or trident between the eyes, tricuspidate both anteriorly and

posteriorly; the intermediate posterior lobe the longest; prothorax white with a large bipartite black spot, each lobe being trilobed with rounded lobes resembling a trefoil leaf and connected with the other by a transverse band; elytra pale reddish-yellow; with three black spots and one at the scutellum common to both elytra, placed 2, 1, 1; the scutellar spot somewhat bell-shaped, the humeral one roundish, the intermediate one nearly kidney-shaped, and that nearest the apex rather crescent-shaped.

VARIETY B. Frontal band replaced by three white spots, the intermediate the longest and linear.

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## LIST OF COLEOPTERA OF ST. LOUIS COUNTY, MISSOURI.

BY S. V. SUMMERS, M. D., NEW ORLEANS, LA.

The following list has been prepared to enumerate all the known Coleoptera—not new—found in Southern Missouri, collected on a line between St. Louis and Sedalia during the summers of 1869, '70, '71, and '72. The families Curculionidæ and Cerambycidæ are omitted in this list.

### CICINDELIDÆ.

#### TETRACHA, *Westw.*

*carolina*, *Linn.*

*virginica*, *Linn.*

#### CICINDELA, *Linn.*

*sexguttata*, *Fab.*

*purpurea*, *Oliv.*

*splendida*, *Hentz.*

var. *audubonii*, *Lec.*

*generosa*, *Dej.*

#### CICINDELA, *Linn.* (*continued.*)

*vulgaris*, *Say.*

*repanda*, *Dej.*

var. *12-guttata*, *Chaud.*

*hirticollis*, *Say.*

*cuprascens*, *Lec.*

*macra*, *Lec.*

*lepida*, *Dej.*

*punctulata*, *Fab.*

### CARABIDÆ.

#### OMOPHRON, *Latr.*

*tesselatum*, *Say.*

*americanum*, *Dej.*

*nitidulum*, *Lec.*

#### ELAPHRUS, *Fab.*

*clairvillei*, *Kirby.*

*ruscarius*, *Say.*

- NOTIOPHILUS, *Dum.*  
     *sibiricus, Motsch.*
- NEBRIA, *Latr.*  
     *pallipes, Say.*
- CALOSOMA, *Fab.*  
     *externum, Say.*  
     *scrutator, Fab.*  
     *Wilcoxi, Lec.*  
     *frigidum, Lec.*  
     *Sayi, Dej.*  
     *calidum, Fab.*
- CYCHRUS, *Fab.*  
     *lecontei, Dej.*  
     *elevatus, Fab.*
- PASIMACHUS, *Bon.*  
     *elongatus, Lec.*  
     *punctulatus, Fab.*
- SCARITES, *Fab.*  
     *substriatus, Hald.*  
     *subterraneus, Fab.*
- DYSCHIRIUS, *Bon.*  
     *globulosus, Say.*  
     *sphaericollis, Say.*  
     *truncatus, Lec.*  
     *sellatus, Lec.*
- ARDISTOMIS, *Putz.*  
     *viridis, Say.*
- ASPIDOGLOSSA, *Putz.*  
     *subangulata, Lec.*
- CLIVINA, *Latr.*  
     *corvina, Putz.*  
     *cordata, Putz.*  
     *ferrea, Lec.*  
     *bipustulata, Fab.*
- SCHIZOGENIUS, *Putz.*  
     *ferruginea, Putz.*  
     *amphibius, Hald.*
- BRACHINUS, *Wlber.*  
     *tomentarius, Lec.*  
     *alternans, Dej.*  
     *strenuus, Lec.*  
     *perplexus, Dej.*  
     *americanus, Lec.*  
     *ballistarius, Lec.*  
     *fumans, Fab.*  
     *cordicollis, Dej.*  
     *medius, Lec.*  
     *lateralis, Dej.*  
     *distinguendus, Chaud.*  
     *patruelis, Lec.*  
     *rejectus, Latr.*  
     *pumilo, Lec.*
- PANAGAEUS, *Latr.*  
     *fasciatus, Say.*
- MORIO, *Latr.*  
     *georgiae, Beaur.*
- HELUCOMORPHA, *Lap.*  
     *laticornis, Dej.*
- GALERITA, *Fab.*  
     *atripes, Lec.*  
     *janus, Fab.*  
     *lecontei, Dej.*  
     *bicolor, Drury.*
- ZUPHUM, *Latr.*  
     *americanum, Det.*
- CASSONIA, *Latr.*  
     *pennsylvanica, Linn.*
- LEPTOTRACHELUS, *Latr.*  
     *dorsalis, Fab.*
- PLOCHIONUS, *Dej.*  
     *bonfilsii, Dej.*
- LEBIA, *Latr.*  
     *grandis, Heutz.*  
     *atriventris, Say.*

- LEBIA, *Latyr.* (continued.)  
 pumila, *Dej.*  
 furcata, *Lec.*  
 scapularis, *Dej.*  
 vittata, *Fab.*  
 lobulata, *Lec.*  
 pulchella, *Dej.*  
 bivittata, *Fab.*  
 viridipennis, *Dej.*  
 marginicollis, *Dej.*  
 var. affinis, *Dej.*  
 viridis, *Say.*  
 var. moesta, *Lec.*  
 ornata, *Say.*
- TETRAGONODERUS.  
 fasciatus, *Hald.*
- BLECHRUS, *Motsch.*  
 linearis, *Sch.*
- AXINOPALPUS, *Lec.*  
 biplagiatus, *Dej.*
- GLYCIA, *Chaud.*  
 purpurea, *Say.*
- CYMINDIS, *Latr.*  
 americana, *Dej.*  
 pilosa, *Say.*
- CALLIDA, *Dej.*  
 punctata, *Lec.*
- CALATHUS, *Bon.*  
 gregarius, *Say.*  
 opaculus, *Lec.*  
 impunctata, *Say.*
- PLATYNUS, *Bon.*  
 marginatus, *Chaud.*  
 pusillus, *Lec.*  
 sinuatus, *Dej.*  
 extensicollis, *Say.*  
 decorus, *Say.*  
 cupripennis, *Say.*
- PLATYNUS, *Bon.* (continued.)  
 punctiformis, *Say.*  
 limbatus, *Say.*  
 crenistriatus, *Lec.*  
 pectinicornis, *Newm.*  
 crenulatus, *Lec.*  
 luteulentus, *Lec.*  
 octopunctatus, *Fab.*
- OLISTHOPUS, *Dej.*  
 parmatus, *Say.*  
 micans, *Lec.*
- LOXANDRUS, *Lec.*  
 erraticus, *Dej.*  
 minor, *Chaud.*  
 taeniatus, *Lec.*
- EVARTHUS, *Lec.*  
 seximpressus, *Lec.*  
 obsoletus, *Say.*  
 incisus, *Lec.*  
 substriatus, *Lec.*  
 colossus, *Lec.*  
 orbatus, *Newm.*  
 var. sodalis, *Lec.*
- PTEROSTICHUS, *Bon.*  
 chalcites, *Say.*  
 lucublandus, *Say.*  
 var. fraternus, *Say.*  
 var. castanipes, *Kirby.*  
 var. dilatatus, *Lec.*  
 coracinus, *Newm.*  
 erythropus, *Dej.*  
 caudicalis, *Say.*  
 disidiosus, *Lec.*  
 femoralis, *Kirby.*  
 stygius, *Say.*  
 permundus, *Say.*
- LOPHOGLOSSUS, *Lec.*  
 haldemani, *Lec.*

## CORRESPONDENCE.

To the Editor :

SIR,—Your notice of “The Bulletin of the Buffalo Society of Natural Sciences,” edited, I believe, by Mr. Grote, reminds me that I have a duty to perform.

Mr. Grote has, I am told, named and described a new *Sesia* in the Bulletin (*Sesia marginalis* I think is the name.) To this insect Mr. Grote has no sort of right of any kind, nor had he any right to name or describe it.

It was, as I am informed, simply sent to him by my friend, Mr. Strecker, for the purpose of obtaining his opinion as to whether it was a new species or not, and as it was consigned to Mr. Strecker by me for the express purpose of having it described and figured in his new work now being issued, I must protest against Mr. Grote's action in this matter, and trust that Entomologists generally will mark their disapprobation of this grab game by ignoring altogether Mr. Grote's very unbecoming action in the premises.

W. V. ANDREWS.

P. S.—I shall send the insect to Europe for description, &c., with an explanation of the circumstances.

New York, Aug. 1, 1873.

NOTE BY ED.—We really are unable to sympathize with our correspondent in his grievance. If he has ever done anything in descriptive Entomology he must know what an immense amount of labour is oftentimes involved in the effort to ascertain whether a particular insect has been described before or not. Unless one is thoroughly conversant, by dint of hard study and research, with the group or family to which an insect belongs, one must spend hours of work in hunting through, not only the descriptions of American Entomologists, but also the French, German and Latin, as well as English descriptions of European authors. After all this has been done and one arrives at the conclusion that the insect in question is new to science, it does seem a little hard that the labourer should be required to hand over the results to some one else who has not the ability or the industry to perform the work himself, and to allow him to reap all the credit that may be attached to the publication



of a new specific name. Surely Mr. Andrews is expecting Mr. Grote to do a little too much when he allows him to perform all this labour in identifying a particular species of *Sevia*, and then proposes that some one else should publish the results!

After all, however, it seems to us a very great misfortune that so much importance—so much glory, in fact—is supposed to be acquired by a naturalist by the mere giving a new name to an insect, and the appending of his own to it. Were this kind of renown less sought after—were there more generally diffused amongst us a humble desire to benefit science and increase the sum of human knowledge—we should not be oppressed with such a burden of synonyms as Entomology now groans under—infinite labour would be spared to the conscientious student,—dire confusion and distraction would not so often await the efforts of the painstaking observer.

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## ECONOMICAL ENTOMOLOGY.

BY PROFESSOR BELL, OF BELLEVILLE.

It is distinctly within my knowledge that many persons who are not overburdened with too large a share of worldly wealth, are strongly inclined to make the study of Entomology and the collecting of insect specimens an employment for their leisure hours, were it not for fear of the expense they believe it necessary to incur for cabinet, cork, pins, &c. Now, the cabinet and cork may be dispensed with—in fact, I have neither the one nor the other myself. I keep my collection in boxes, nineteen by twenty-four inches, outside size, of three-fourth inch pine board planed down to about five-eighth inch, by two and a quarter inches deep; the backs are made of clean basswood planed smooth, and half an inch thick, nailed on to the sides. On the upper edge of the two sides and on one end I fix a slip of thin pine, so as to leave eighteen and an eighth inches clear between the edges, and about one eighth for a groove at the bottom. Over each of these I nail firmly a slip of pine a quarter of an inch thick and a little wider than the thickness of the sides, so as to project over the inside slightly. This forms a groove for a light of glass eighteen by twenty-four inches to slide in, and the groove at the bottom receives the lower edge. The top is left open and the upper edge of the

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glass projects about a quarter of an inch above the frame, which is convenient for drawing it out by. The inside is then lined out with paper such as newspapers are printed on, a stout picture-ring is screwed into the *side* at the top, and the box hangs like a picture against the wall.

I find that the Basswood, with a little care in putting in the pins, answers as well as cork; but if a softer substance is thought desirable, take a Basswood log and cut it into slices, about three-eighths of an inch thick, *across the grain*, making the boxes a quarter of an inch deeper and lining the backs with this, previously smoothed with a sharp plane. This is an excellent substitute; in fact I prefer it to cork, as it is free from the hard nodules which often have caused me to bend a pin and spoil a valuable specimen, and it never corrodes the wire, which the acid developed in the cork often does.

Some of my younger friends have adopted this plan, and look with pardonable pride on the adornment of their walls by these cases, which they have coloured and varnished, and which they declare are far superior to any pictures they could afford to buy.

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#### MISCELLANEOUS.

PYRRHARCTIA (*Spilosoma*) ISABELLA.—Under this heading, in the April, '73 No. of the CANADIAN ENTOMOLOGIST, we have from the pen of Mr. Wm. Saunders, a brief history of the habits and metamorphoses of this insect. My experience with the larvae of this moth has been that some individuals at least *are* somewhat particular as to their diet, many rejecting clover and preferring the early shoots of June grass, others persistently refusing the latter and greedily devouring the former, others still ignoring both in their anxiety for some possibly more palatable article of food. Omnivorous they certainly are, but sometimes decidedly finical. Mr. S. states that they are "*probably* subject to the attacks of ichneumons." I have this spring bred from cocoons of *Pyrrharctia Isabella* two parasites, which have been kindly identified for me by Prof. Riley as *Ichneumon signatipes*, Cresson; and *Trogus obsidianator*, Brulle.

I may add as a noticeable fact that I have this morning pinned a brood of *Cryptus nuncius*, Say, bred from cocoon of *Platysamia cecropia*, numbering 21 ♂ and 19 ♀, neither sex, in this instance at least, being remarkably predominant.—O. S. WESTCOTT, Chicago, July 12, 1873.

PHYLLOXERA.—A very important paper has been printed by Government, respecting the *Phylloxera vastatrix*, or new Vine Scourge. It commences with a letter from Sir C. Murray, H. M. Ambassador at Lisbon, calling attention to the ravages of the disease; and stating that the Portuguese Government has named a Commission "to examine into the progress of this dangerous evil, and to gather from all quarters, whether scientific or practical (*sic*) suggestions for the best mode of extirpating it." A report follows from Mr. Crawford, H. M. Consul at Oporto, on the scientific aspects of the disease, as well as several others from French authorities, including a very important one addressed to the Minister of Agriculture and Commerce by the Commission instituted for the study of the new disease, M. Dumas, president. The various papers having been referred to Dr. Hooker for him to report upon them, he states that the only really effectual remedy at present discovered, and this can obviously be only very partially applied and not in the best districts, is flooding the vineyards in winter. He adds: "there is reason to believe that on the first symptoms of attack in isolated cases, the prompt destruction of the vine, its burning on the spot, and the subsequent treatment of the soil with some approved insecticide, such as carbolic acid, would be of great importance." Vines of American species appear at present to have enjoyed immunity from its ravages in the Rhone district, but the disease has undoubtedly appeared in this country on vines cultivated under glass.—*Nature*.

EXCHANGES.—As I have occupied myself for some time with Entomology, and have in my collection a good number of duplicates of insects in all the orders, I am ready to make exchanges with any of the correspondents of the CAN. ENT. I am in especial want of Neuroptera. As I spend the summer in the collection of insects, I believe that I am in a position to make numerous exchanges.—F. X. BELANGER, Naturaliste, Universite Laval, Quebec.

EXCHANGES.—I am much in want of a Canadian correspondent in Lepidoptera. I may say that every Canadian insect is a desideratum to me, for I have not a series of good specimens of any species. I have many, of course, but not a complete series, and there is not a butterfly

which I should not be glad of, even to *Pieris olivacea*, *Grapta faunus*, and *Danais chrysippus*. Thus even the commonest species would be very acceptable. My plan is to send a large box from Liverpool once a year, instead of smaller ones, though I occasionally forward lesser ones by post. Address:—DR. JORDAN, 35 Harborne Road, Edgbaston, Birmingham, England. [We take this opportunity of thanking Dr. Jordan for the little box, containing 46 species of beautiful English Lepidoptera, that he so kindly sent us. They came by post, and, thanks to careful packing, arrived in excellent order. As soon as we obtain a little leisure we shall return the box—not empty.—ED. C. F.]

**PIERIS RAPE.**—This destructive pest of the cabbage and allied plants has now come as far west as Port Hope; it is almost as abundant in our garden as the common *Colias philodice*. No doubt it will proceed as far as Toronto before the close of the season. We have not yet perceived any particular depredation from its larvæ in the kitchen garden, but we fear that we shall not long enjoy this immunity.—C. J. S. B.

**SEMBLING.**—On the 19th of June last a fine female *Cecropia* Emperor moth issued from its cocoon, which had been cut from an apple tree and kept in my study for some weeks. Being anxious to try the virtues of the process of "sembling," I fastened its wings by an ordinary spring clip and exposed it on my verandah for several nights without success; the evenings were fine and cool. On the 28th, the evening being warm and misty after a shower, the moth was exposed as usual on an empty flower-stand, just outside of an open window; inside the room on a table a lamp was kept burning. About 11 o'clock, p. m., I entered the room and observed nothing but a few ordinary *Noctuae* flying about; on returning, however, an hour later, I was amazed to find four splendid specimens of the male *Cecropia* quietly at rest upon the table and lamp; a few moments after a fifth came in and flew wildly about the room, succeeded in a little while by a sixth! They were all in excellent order and evidently fresh from their cocoons. As I had kept the female so long in confinement, I determined not to continue the experiment any longer; I accordingly dispatched five of the males with chloroform, while the sixth was left with the object of his attraction. The result was a large batch of eggs and subsequent larvæ. As the female was entirely hidden from view underneath the window, and was not found by the males, who entered the room to the light instead, flying but a short distance over the fair one of whom they were in search, it is evident that they were guided to the

spot by the sense of smell and not by sight. The light in the room could not have been the primary attraction, as it was so obscured by a trellis covered with creepers as to be hidden from view a few yards off.

Not long after I tried the same experiment with a female *Promethes*, but with no success whatever, though the evenings were often favourable. This failure I attributed to the scarcity of its food plants in the immediate neighbourhood (its cocoon was brought from a considerable distance), and the consequent absence of males within reach of the females' attractive powers.—C. J. S. B.

NOXIOUS INSECTS.—The Hessian-fly (*Cecidomyia destructor*) has made its appearance in the neighbourhood of London, Ont., and has done a great deal of injury to the spring wheat. The Colorado beetle (*Doryphora decem-lineata*) is very abundant throughout Western Ontario, but, we are happy to say, is being well kept down by the intelligent farmers of that district, who wage an exterminating war upon it with Paris Green. In its eastern progress it has nearly traversed the whole Province of Ontario, but not yet in sufficient numbers to occasion much diminution of the potato crop. To the south-east we learn that it has invaded Maryland and Pennsylvania. In the neighbourhood of London and Guelph, Ont., we observe, with great regret, that the Locust trees are being rapidly destroyed by the ravages of the borer (*Arhopalus robiniae*, Forster). Young Apple and Mountain Ash trees are also suffering grievously from the attacks of the Buprestis borer (*Chrysobothris femorata*, Fabr.) About Port Hope, Ont., this summer, the Forest and American Tent caterpillars (*Clisiocampa sylvatica* and *Americana*) have been more than usually numerous and destructive.—C. J. S. B.

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#### ADVERTISEMENTS.

EXCHANGE.—I am desirous to exchange English for Canadian or American Lepidoptera. J. C. WASSERMAN, Beverly Terrace, Cullercoats, North Shields, England.

COLEOPTERA FOR SALE.—A number of Rocky Mountain Coleoptera will soon be for sale in sets by JOHN AKHURST, 19, Prospect Street, Brooklyn, N. Y.