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The Canadian Entomologist.

VOL. IV. LONDON, ONT., JUNE, 1872. No. 6

DESCRIPTIONS OF LEPIDOPTERA FROM ALABAMA.

BY AUG. R. GROTE, DEMOPOLIS, ALABAMA.

Nematocampa expunctaria, Grote. ♂.—Pale ochreous, stained, and the veins lined with a more intense shade. Transverse anterior line arcuate, dark ochreous, continued. Median shade arcuate at disc, thence running straightly downward approximate to the transverse posterior line, continued. Transverse posterior line dark ochreous, even, distinct, slightly inwardly sinuate below vein 2. No vinous shadings whatever. Secondaries concolorous, with primaries; a single even median line corresponding with the transverse posterior line of primaries. Beneath paler, whitish; secondaries immaculate; primaries with traces of transverse posterior line superiorly, and a sprinkling of ochreous scales about the costal region. Body parts concolorous with wings. *Expanse* 23 m.m.

Outline and ornamentation of *N. filamentaria*, but differing by the absence of any purplish stains, the more intense color and denser squamation, and quite prominently by the different shape of the transverse posterior line, which is less even in *N. filamentaria*, and runs sooner and more deeply inwardly, attaining the internal margin further from the angle than in *N. expunctaria*. The course of the median shade differs also; this more nearly attains the transverse posterior line on disc, and again on submedian interspace. This latter inflection is entirely wanting in *N. expunctaria*, which seems a little the larger species.

Conchylis Robinsonana, *Grote*. ♂.—Primaries blackish fuscous with five silvery white maculations above. The first is ovate, free from the base, well sized, touching internal margin, not attaining costal edge. The second is parallel, outwardly exserted inferiorly. Before the apices are two nearly similar sized moderate spots, and the fifth is larger and covers internal angle. Hind wings pale fuscous. Collar fuscous white; the thorax is white above. Caputal squamation pale, while the abdomen is pale fuscous. Expanse 14 m.m. Size of *C. 5-maculana Rob.*, and resembling that species, but differing in the relative size and position of the spots on the primaries, notably the basal one and that covering internal angle.

I name this little species after my friend and brother entomologist, the late Coleman T. Robinson, whose sudden death has caused so great sorrow in many circles, besides the one in which I knew him best. Who shall say now that he wasted his time in describing the little insects he loved, when it is his descriptions of new species of North American Moths that will keep his fame after death, and, in the nature of human things, long after his other qualities shall have been forgotten by men? So many are now properly sorrowing for him—I have only to remember this and be silent.

NOTES ON PIERIS RAPÆ.

BY G. J. BOWLES, MONTREAL.

The April number of the ENTOMOLOGIST contains a communication from my esteemed friend Mr. S. H. Scudder, with reference to the yellow male variety of this species. In it he asks several questions which I shall endeavour to answer, adding some other particulars to make my notes as complete as possible.

I think that entomologists will agree with me in considering *P. rapæ* as one of the most interesting insects existing on this continent, not only with reference to its destructive habits, but also on account of its recent introduction and rapid dissemination over the country. The Colorado Potato Beetle is, perhaps, the only species whose progress has been so carefully recorded; for both have "made their mark" as they spread from place to place, although the butterfly has not been such a formidable enemy as the beetle. A new subject of interest—the yellow male variety—is now added to the history of the butterfly, and it is certainly worthy of the attention of students, as it may, in the future, aid in solving some of the problems connected with climatic influences and the distinction of species.

I first met with yellow males in 1863, and mentioned it in my paper on *Pieris rapæ* published in the *Canadian Naturalist* for August, 1864. Since then I have captured similar specimens each year, and found them to be produced throughout the season. I remember taking one or two so early in the spring that I felt satisfied they belonged to the very first brood of the year, which led me to conclude that the variety is likely to appear at all parts of the season, and in every brood. Those which I captured on the wing have always been males, but, strange to tell, among

a number reared in confinement during the summer of 1864, a yellow *female* made her appearance, smaller than usual, but of as dark a colour as any that I have seen of the other sex. It may happen, therefore, that the variety may become a permanent one, and, at some future time, be regarded as a distinct species. Who knows how soon favorable circumstances may develope a new (and yellow) species of Pieris, to be called *novangliæ* or *canadensis* !

We cannot, however, claim this variety as the effect of a change of habitat and climate on *P. rapæ*, as (with all due deference to Mr. Stainton) it has been met with in England. Curtis, in his work on "Farm Insects," (quoted in my paper before referred to), speaks of having in his collection a male *P. rapæ* "taken near Oldham, in Lancashire, which has all the wings of a bright yellow colour." From Mr. Stainton's assurance to Mr. Scudder, however, that it was unknown in Europe, its occurrence on that continent must be extremely rare; very different from Canada, and especially the neighbourhood of Quebec, where I should say that, at a low estimate, one male *P. rapæ* out of five hundred is of a yellow colour, more or less intense. This estimate would allow for many specimens in a season, as, of all Quebec butterflies, our friend is decidedly the most abundant and prolific. I have seen them by hundreds, at one time, hovering over the fields of cabbages, to the dismay of the cultivators of this useful vegetable. It is curious that this variety should be comparatively common in America, and almost unknown in Europe. The fact would lead us to think that though it cannot have *originated* here, yet the tendency to diverge from the normal colour of the species has been increased by the transfer to this continent.

The Canadian *Pieris rapæ* (and, I expect, the New England as well), is, in common with some other species of the genus, subject to great variation in colour and intensity of markings, apart from the yellow variety under consideration. The spring brood is of a much purer white than those produced later in the season, and has the blackish markings less in size and paler in colour. I have often seen spring males without the spot on the upper side of the fore wings, and having the blotch on the apex so much obliterated, that I have supposed them, before examination, to be *P. oleracea*. The spot, however, is generally present beneath, and can be faintly seen through the wing. As the summer passes, the markings of the successive broods become more intense, until in the autumn, individuals (particularly females), are met with which have a greyish appearance, from the number of black scales sprinkled on the wings,

especially near the body. The illustrations on page 83 of the Report of our Society for 1871, published by the Ontario Department of Agriculture, give an exact idea of the insect at this season. This change in colour has been noticed in England; indeed, before its progressiveness had been observed, an eminent entomologist there separated the spring and autumn broods into distinct species. I quote from a letter received in 1864 from my friend Dr. Jordan, of Birmingham :—

"You are probably aware that here in England we have two distinct broods of the insect, the first appearing in April, the second in July. The first almost wants the apical spot on the top wing in both sexes, and on the male the central spot is often also quite obliterated. To this the name of *P. metra* was given by Stephens, who then supposed it a distinct species. In the autumnal brood, or typical *P. rapæ*, we have a larger and darker insect, with the spots more marked, and the black patch at the apex of the fore wing very much darker."

The yellow variety also shares in this progressive change of colour. The spring specimens are of a very delicate yellow, almost without spots, and are very handsome, while those appearing in the fall are of a sulphur yellow, and heavily marked.

Dr. Jordan speaks of there being two broods of the insect in England. I think that in Canada they are more numerous. It is impossible, however, to settle the number with certainty, as one brood encroaches on the next; and from the time when the butterflies begin to deposit their eggs on cabbage plants in the hot-beds, in April and May, until October, larvæ of all sizes and ages may be found feeding on the same plant. The short time required for the complete developement of the insect also favours the idea of there being three or more broods in one season. Some caterpillars reared by me in June, 1864, grew from one-twelfth of an inch in length to their full size, in eleven days; they then became pupæ, and seven days afterwards, the perfect insects were produced. Allowing for the influence of temperature in accelerating or retarding their changes, thirty days would be a fair average to give as the duration of each brood, and this would be equal to four or five broods in the season in the latitude of Quebec. In fact, there is no other way of accounting for their surprising numbers in the latter part of summer.

I have not yet met with any parasite infesting this butterfly, though I have found pupæ which had apparently been destroyed by them; and a fellow-student here (Mr. Caulfield) informs me that he now has about twenty chrysalids containihg some insect enemy. The most powerful

agent in lessening their numbers is, in my opinion, the intense cold of winter, for, contrary to the rule with regard to insects passing the winter in the pupal state, the chrysalis of *P. rapæ*, unless placed in a sheltered situation, does not seem to resist the effects of frost. In early spring, I have searched under the exposed coping-boards of fences, where these pupæ were suspended in scores, and very rarely found one alive; nearly all were killed and blackened by the severe cold, and any living ones brought into the house invariably died in a few days. The first brood of the year is, with regard to numbers, in wonderful contrast to the multitudes of larvæ which must have come to maturity and pupated during the preceding autumn, and this difference can only be ascribed to the destroying effects of the winter's cold upon the chrysalids. The species, in its new habitat, certainly has to pass through extremes of temperature which it has not been accustomed to in England—from which country it was most probably introduced; and while the increased summer heat of Canada appears to have made it more prolific, by augmenting the number of broods, the greater cold of winter has balanced the account by killing off the surplus, which otherwise would have rendered the insect an intolerable pest. The "compensating" principle in the laws of Nature is thus in useful operation with regard to *P. rapæ*, and as the power of cold decreases in effectiveness through the butterfly becoming acclimatized (which will probably happen in course of time), no doubt other agencies will arise in the shape of new parasitic enemies, to keep the species within due bounds.

It would be interesting to know how far this insect has now extended its range, particularly towards the west of Canada. The prediction I made in 1864 has been fully verified, as it has now spread over the Province of Quebec and the New England States; and last year destroyed $500,000 worth of cabbages in the vicinity of New York alone, according to the estimate of a leading newspaper there. It does not seem, however, to have made equal progress in Ontario. Could not our Kingston friends give us some information on this point? It would be "thankfully received and faithfully applied."

THE ENTOMOLOGICAL REPORT for 1871 has now been issued, and, we trust, is by this time in the hands of all our members. Should any fail to receive it, the Secretary will forward a copy on being notified.

MICRO-LEPIDOPTERA.

BY V. T. CHAMBERS, COVINGTON, KY.

Continued from page 92.

DEPRESSARIA.

5. *D. Rileyella. N. sp.*

Brush dark brown, apical joint pale yellowish. Head, thorax, and fore wings pale yellow, faintly tinged with pink, and minutely dusted with fuscous, and with a fuscous streak on the base of the costa. Head and thorax slightly iridescent, wings scarcely so; posterior wings a little paler. Under surface and legs pale yellowish, sparsely dusted with fuscous. *Alar ex.* $\frac{5}{8}$ inch. Named for Mr. C. V. Riley, State Entomologist of Missouri. Kentucky. Larva unknown. Also in the collection of Mr. Wm. Saunders, London, Ont.

6. *D. fuscoochrella. N. sp.*

Palpi white, flecked with fuscous; third joint fuscous, mixed above with whitish. Head pale whitish-yellow, flecked with pale fuscous, strongly iridescent. Antennæ pale yellowish, annulate with fuscous, and basal joint fuscous. Thorax and anterior wings pale ochreous, the wings suffused with fuscous at the base. A large oblique fuscous spot on the costa at about the basal fourth, reaching the fold, mixed next the costa about equally with pale ochreous. Anteriorly, this spot is distinctly outlined, but posteriorly, it passes gradually into pale ochreous, thickly dusted with fuscous, occupying the costal half of the wing, and spreading over the apical fourth of the wing, becoming darker towards the apex. Ciliæ silvery. Posterior wings and ciliæ grayish-silvery. *Alar. ex.* $\frac{7}{8}$ inch. The prevailing tint of the basal costal portion of the wing is fuscous. Kentucky. Larva unknown.

7. *D. fuscolutecella. N. sp.*

Palpi dark purplish-brown. Head bronzed, purplish. Antennæ pale fuscous and yellowish. Thorax and anterior wings pale fawn colour, with a silky lustre (under the lens pale yellowish, overlaid with fuscous). Posterior wings paler. Body yellowish, thickly dusted with brown, and with purplish reflections. *Alar ex.* $1\frac{1}{8}$ inch. Kentucky. Larva unknown.

8. *D. obscurisella. N. sp.*

Palpi and antennæ dark brown, the palpi with a little ochreous intermixed, and with the second joint ochreous on the inner surface; face pale ochreous, sparsely flecked with pale fuscous; thorax and anterior

wings dark brown, mixed almost equally with ochreous, and with a few scattered white scales. In some parts of the wings the dark brown scales are condensed into irregular, wavy, rather indistinct lines or narrow bands, one of which is placed at about the basal one-fourth of the costa, and is oblique and furcate, sending one of the branches nearly to the end of the disc ; at about the apical one-third they are again condensed into an indistinct zigzag line across the wing, and again into a brown irregular patch at the apex. Sometimes in fresh specimens these zigzag lines and spots in the apical part of the wing appear to be continuous ; but they are indistinct, and when the wing is a little rubbed, they appear as very indistinct separate lines or spots. Ciliæ dark fulvous, sprinkled with dark brown ; posterior wings pale grayish fuscous, becoming darker towards the tip. *Alar ex.* 5/8 inch. Kentucky. Larva unknown. Also in the collection of Mr. Wm. Saunders, London, Ont.

9. *D. pseudacaciella. N. sp.*

Antennæ and palpi dark purplish-brown, streaked and flecked with white. Head clothed with dark brown and white scales about equally, tinged with pale purplish. Thorax and anterior wings dark purplish-brown, streaked and flecked with white and ochreous especially ; a streak extending from the base nearly to the apex, just within the costal margin of which the prevailing hue is ochreous, mixed with white. A white costal spot at the beginning of the costal ciliæ, and an opposite dorsal one, both small. Ciliæ grayish silvery, with a rather distinct and wide hinder marginal line at their base dark brown. Hind wings pale ochreous-brown. Body and legs dark purplish-brown, with a nearly equal intermixture of white scales. *Alar ex.* nearly ½ inch. Very common in Kentucky.

Dr. Packard (*Guide, p. 349*) mentions another species, *D. robiniella*, which seems to be very distinct from this, but which, like this, feeds upon the leaves of the Locust (*Robinia pseudacacia*). The larva of this species, when young, inhabits the mines of *Lithocolletis robiniella*, Clem., and *L. ornatella, Mihi*, in the leaves of *R. pseudacacia* and *R. hispida*. When older, it sews together the leaflets, and lives between them. I once saw one cut its way into the mines of *L. robiniella*, proving thus that its frequent presence in those mines was not owing to its having accidentally wandered into torn mines.

The young larva is green, with darker green longitudinal markings, with the head and next segment shining black, and mouth ferruginous.

When older, it becomes pale green, with two dark brown longitudinal stripes on top of the third and following segments, with a row of dark brown spots on each side of each line, and a black longitudinal line on each side.

10. *D. bimaculella. N. sp.*

Palpi, head, thorax and forewings shining dark purplish-brown or black. Extreme tip of palpi yellowish-white; there is a large white spot on the disc just beyond the middle, and a white spot or streak which starts from the beginning of the costal ciliæ, but does not attain the dorsal margin. Ciliæ fuscous. Abdomen pale fuscous, each segment of the venter tipped with white. *Alar ex.* ½ inch. Kentucky. Common. Larva unknown.

11. *D. cercerisella. N. sp.*

Palpi white, except the third joint, which is dark brown from the apex nearly to the base. Face, head, and anterior margin of the thorax, white. Antennæ dark brown, faintly serrated towards the apex. Thorax and anterior wings shining, soft, velvety black, dusted with a few ochreous scales which, in some lights, give it a bronzy hue. Three large snow-white costal spots, the first of which is the largest, extending to the fold; the second is about the costal middle, and the third at the beginning of the ciliæ. A white dorsal spot opposite the third costal, and about four small white spots forming a row around the apex; costo-apical ciliæ short, dark brown; dorso-apical ones longer and silvery white; a dark brown hinder marginal line at the base of the ciliæ. Posterior wings scarcely emarginate beneath the tip, pale drab, faintly tinged with pink. *Alar ex.* ½ to ⅝ inch.

The larva is very pretty. When young, it is snowy white; when old, the basal half of each segment, above, is pearly white, and the posterior half shining black, with a shining black band across the head in front of the eyes, interrupted in the middle, and a transverse bow-shaped shining black streak on the vertex. The true feet are shining black. This is one of the few instances among the *Tineina* where the colours of the imago are indicated by those of the larva. It feeds upon the leaves of the Red Bud *(Cercis Canadensis)*, which it either folds or sews together. It is exceedingly abundant in the larval state, but is much infested by an ichneumonide parasite, so that I have been able to rear but a single specimen, and have captured another.

LIST OF THE WRITINGS OF THE LATE

COLEMAN TOWNSEND ROBINSON.

BY AUG. R. GROTE, DEMOPOLIS, ALA.

I give here a list of those of the Entomological writings of my late esteemed friend, Mr. Coleman T. Robinson, that have been published under his sole signature.

These recommend themselves to the attention of the student by their conscientious statement and adequate illustration of the different species they discuss. They were all written subsequent to Mr. Robinson's return in 1868, from a journey to England and Continental Europe, during the prosecution of which a representative collection of European *Lepidoptera* was acquired, and especial attention was paid to the smaller moths. Mr. Robinson saw and talked with Zeller, whose researches and studies on the Micro-Lepidoptera have furnished the basis on which our best authors have founded their classifications. He could not fail to be benefitted by such contact, and I know he carried with him to his early grave a sweet recollection of the old Professor who had honored him with his good fatherly counsel and even affectionate consideration. Five papers, under the common title of Descriptions of North American Lepidoptera, and illustrated by 86 figures, have been already published under the joint authorship of Mr. Robinson and myself in the Transactions of the American Entomological Society. The sixth and last paper, bringing, according to our original agreement, the number of illustrations to one hundred, and with a revisionary supplement, is in great part completed. The collection on which these and all our other joint entomological writings were based, is now in the possession of the American Entomological Society. Sometime I hope to be able to publish this Sixth Paper, and bring to a conclusion our joint plan and labors. How deeply do I feel the loss of my clear-headed, talented friend and coadjutor!

I.—LEPIDOPTEROLOGICAL MISCELLANIES. Annals of the Lyceum of Natural History, February 1st, 1869, pp. 152 to 158, Vol. IX., and Reprint, with one coloured plate.

In this Paper the following species are described and illustrated:—

Euphanessa mendica, Packard, p. 152, plate 1, fig. 1.

Euphanessa unicolor, Robinson, p. 153, plate 1, fig. 2.

I am inclined to refer this Texan species to Walker's genus *Ameria;* to which also *Crocota cuprearia*, Walk., belongs.

Oligostigma albalis, Robinson, p. 153, plate 1, fig. 3.

Cataclysta bifascialis, Robinson, p. 154, plate 1, fig. 4. A Texan species allied to *C. opulentalis*, Lederer.

Eromene texana, Robinson, p. 155, plate 1, fig. 5. Our only described North American species, and allied to Zeller's *E. ramburiella.*

Depressaria cinereocostella, Clemens, p. 155, plate 1, fig. 6.

Depressaria atrodorsella, Clemens, p. 156, plate 1, fig. 7.

Depressaria pulvipennella, Clemens, p. 157, plate 1, fig. 8.

Depressaria leconiella, Clemens, p. 157, plate 1, fig. 9.

Depressaria grotella, Robinson, p. 157, plate 1, fig. 10.

In thus illustrating the closely allied species of this Tineid genius, Mr. Robinson has performed a very useful task.

II.—Notes on American Tortricidæ. Transactions of the American Entomological Society, Vol. 2, February, 1869, pp. 261—288, with six lithographic plates containing eighty-six illustrations.

B. The same reprinted; a pamphlet of 27 pages, with the plates coloured.

With this article Mr. Robinson commenced his labours on the *Tortricidæ.* Forty-five species of the genus *Tortrix* are described and figured, twenty-three of which are noticed for the first time, one re-named, and fifteen referred here from the other genera. Fourteen species of the genus *Teras* are described and figured, nine for the first time, three referred here from other genera, one European species recognized as occurring in this country. Finally, twelve species of *Conchylis* are also described and illustrated. Of these, three belonging to that section of the genus which contains the silver-spotted species, are newly described; of the remainder, seven are first noticed in this paper, and two for the first time referred to this genus.

III.—List of North American Tortricidæ. Part 1. New York Printing Company, October, 1869.

IV.—Lepidopterological Miscellanies, No. 2. Annals of the New York Lyceum of Natural History, Vol. IX., December, 1869, pp. 310 to 316, and Reprint.

In this paper are described the following species:—

Hypena internalis, Robinson, p. 311. This species is now known as *Hypena torcenta*, Grote; the name used by Mr. Robinson is preoccupied.

Hypena evanidalis, Robinson, p. 311. This species is allied to *H. humuli*, Harris, and has probably been confounded with it. In a paper on the North American species of the genus in MSS., the differences are pointed out.

Schoenobius sordidellus, Zeller, p. 31.

Schoenobius longirostrellus, Zeller, p. 312.

Schoenobius melinellus, Robinson, p. 313.

Schoenobius clemensellus, Robinson, p. 313. This is *Chilo aquilellus*, Clemens, but the name had been previously used.

Schoenobius dispersellus, Robinson, p. 313.

Schoenobius unipunctellus, Robinson, p. 314.

Schoenobius tripunctellus, Robinson, p. 314.

Crambus minimellus, Robinson, p. 315.

Crambus satrapellus, Zeller, p. 315.

Crambus bipunctellus, Zeller, p. 316.

So far as known to me, the above list contains mention of all the writings for which the late President of the American Entomological Society was alone responsible.

INSECTS OF THE NORTHERN PARTS OF BRITISH AMERICA.

COMPILED BY THE EDITOR.

From Kirby's Fauna Boreali-Americana: Insecta.

(Continued from Page 96.)

238. PACHYTA LITURATA *Kirby*.—Length of body 7-9 lines. Several specimens taken in Lat. 54° and 65°.

[179.] This is the American representative of *P. quadrimaculata*, from which it differs principally in being not so hairy, with hoary instead of yellow-tinted hairs: the punctures of the prothorax and elytra are more minute; the antennae are rather shorter, and the elytra, instead of two subquadrangular black spots, have three less black linear ones, the two anterior ones being partly parallel, and in some specimens confluent.

GENUS LEPTURA, *Linn.*

This genus may be thus subdivided with respect to the species about to be described.

* Eyes emarginate, or kidney-shaped.
† Elytra triangular.
a ——— truncated ..... } at the apex.
b ——— premorse, or with a sinus taken out }
1 ——————— prothorax anteriorly constricted without posterior angles.
2 ——————— not constricted, posterior angles acute.
c ———rounded ..... at the apex.
†† Elytra linear.
a ——— truncated } at the apex.
b ——— rounded }
** Eyes entire.

* † a

239. LEPTURA CHRYSOCOMA *Kirby*.—Plate v., fig. 1. Length of body 5½—6¼ lines.

Several specimens taken; the largest, in the journey from New York: the smaller, near Cumberland-house. Taken likewise by Dr. MacCulloch and Capt. Hall, in Nova Scotia.

[180.] This beautiful insect is related to *L. virens*, but perfectly distinct. The body appears to be black, but that colour is, in most parts, nearly concealed by a thick and mostly long coat of brilliant golden hairs with a very slight tint of green, where the coat is thin the body appears minutely punctured. Head subelongated, the neck exserted, subtriangular; nose with only a few scattered whitish hairs; antennæ black, third, fourth, and fifth joints rather slenderer and longer than the succeeding ones: prothorax between globose and bell-shaped, constricted anteriorly, channelled, grossly punctured: substance of the elytra pale testaceous, towards the apex externally they are dusky; the golden down on them is shorter and decumbent; apex diverging and obliquely truncated: underside of the abdomen particularly brilliant from decumbent hairs: legs less hairy than the rest of the body. [Taken from New York to Lake Superior, but not common. More frequently taken in the neighbourhood of Quebec.]

240. LEPTURA SUBPUBESCENS *Kirby*.—Length of body not noticed. Taken in Canada by Dr. Bigsby.

Body black, thinly coated with yellow hairs. Head and neck grossly punctured; antennæ longer than the prothorax, black, downy, intermediate joints rather slenderer than the others, fourth shorter than the fifth: prothorax shaped as in *C. chrysocoma*, widely but obsoletely chan-

nelled; rough and reticulated, as it were, with numerous confluent punctures, sides more hairy than the disk: elytra thickly punctured, pale testaceous, black at the apex, where the suture curves outwards so that they diverge from each other, extremity nearly transversely truncated: abdomen underneath minutely, breast rather grossly, punctured: podex subemarginate.

* † b 1.

241. LEPTURA ERYTHROPTERA *Kirby*.—Length of body 8 lines. Taken in Nova Scotia by Capt. Hall.

[181.] Body very black, slightly downy, underneath minutely punctured. Head shorter than in the last section, as well as the neck obsoletely channelled; thickly but not minutely punctured; antennæ rather longer than the prothorax; third and fourth joints a little slenderer than the others, and pale red at the base; the sixth is pale with a black spot on each side at the apex: and the whole of the eighth is of the same colour: the last joint is acuminated; the prothorax is constricted anteriorly, and the constricted part is perfectly smooth, the rest is thickly and confluently punctured and wrinkled; at the base the prothorax is depressed and obsoletely trilobed: scutellum black, representing an isosceles triangle: elytra of a dull red, grossly and deeply punctured; extremity scooped out with the external angle longer than the internal and acuminate: mesosternum emarginate posteriorly. [Taken in Canada on flowers in July; not common.]

242. LEPTURA CANADENSIS *Olivier*.—Length of body 6¾ to 8 lines. Taken in Nova Scotia by Dr. MacCulloch.

Body very black, slightly downy, minutely punctured. Head as in the last species, but the neck is not channelled; antennæ with base of the fifth joint, the whole of the sixth and eighth, except the black apex of the former, pale or pale rufous: prothorax as in *L. erythroptera*, only deeply and confluently punctured but not wrinkled: elytra black, sanguineous at the base. In other respects this species resembles that insect; the external angle of the apex of the elytra is however shorter. [Quite common from Georgia to Lake Superior.]

* † b 2.

243. LEPTURA TENUIOR *Kirby*.—Length of body 5¾ lines. Taken in Canada by Dr. Bigsby.

[182.] Body black, rather slender, slightly punctured, thinly coated with decumbent yellow hairs. Antennæ shorter than the body, fifth joint

scarcely longer than the fourth: prothorax between bell-shaped and a truncated cone, a little constricted in the middle, fringed with yellow hairs anteriorly and posteriorly: scutellum triangular: elytra testaceous, yellow at the base, and with three yellow bands, the first interrupted; oblique sinus at the apex not so deep as in the two preceding species: legs testaceous; abdomen of a deeper colour; and segments scarcely emarginate. This species differs in habit from the two preceding ones, it is narrower in proportion, and comes nearer to *L. quadrifasciata*, but the posterior angles of the prothorax, though acute, are not so prominent; it belongs however to the same subdivision, with the last mentioned insect. [Considered by Newman to be synonymous with *Strangalia fugax*.]

* † c.

244. LEPTURA BREVIS *Kirby*.—Length of body 5 lines. Taken in Canada by Dr. Bigsby.

Body shorter than usual in proportion to its width; black, underneath minutely punctured and thinly covered with rather silvery decumbent hairs. Head thickly and confluently punctured, rather downy with erect hoary hairs; antennæ shorter than the body; fourth, fifth, and sixth joints long and slenderer than the rest; six last short and pale at the base: prothorax between bell-shaped and globose, deeply and confluently punctured; downy with some erect hoary hairs; anteriorly constricted, posteriorly depressed: scutellum linear covered with pale decumbent hairs: elytra very grossly and deeply punctured, shorter than the abdomen and rounded at the apex, with a lateral band bent a little inwards towards the base, which it does not reach, of the colour of the yolk of an egg; anus entire: down on the legs yellow. [A variety of *L. vagans* Oliv. Taken in Canada, also in N. Y. and Penn.]

245. LEPTURA SEXMACULATA *Linn.*—Length of body 5½ lines. Two specimens taken in Lat. 65°.

[183.] Body rather short, black, downy, minutely punctured. Head very thickly and minutely punctured, obsoletely channelled; antennæ slender, shorter than the body, fifth joint considerably longer than the fourth: prothorax shaped as in the preceding species but less depressed posteriorly; very thickly as well as minutely punctured: scutellum triangular: elytra pale-yellow, with an arched black spot at the base, then follows an interrupted band consisting of three acute black spots placed in a triangle, beyond the middle is a dentated black band which reaches

neither the suture nor the lateral margin; the apex also, the suture, and the lateral margin towards the apex, are all black.

VARIETY B. Head not channelled: spot at the base of the elytra coalescing with the intermediate and lateral ones of the anterior band, and reaching the lateral margin; interior spot reaching the suture so as to form the half of a spot common to both elytra; the intermediate band is broader and reaches both the suture and lateral margin. [Belongs to *Strangalia (Pachyta)*. Taken at Quebec by Mr. Couper; Lake Superior by Agassiz's Expedition.]

* †† a.

246. LEPTURA SEMIVITTATA *Kirby*.—Length of body 6 lines. Taken in Canada by Dr. Bigsby.

Body long and narrow, black, underneath slightly and minutely punctured, with the sides of the breast and abdomen brilliant with a silvery lustre from decumbent silky hairs, above glossy and almost naked. Head thickly punctured, but behind each eye there is a levigated space; antennæ longer than the prothorax, intermediate joints not slenderer than the others, the fourth as long as the fifth; neck short and levigated: prothorax bell-shaped, not constricted anteriorly, depressed posteriorly; thinly punctured, especially in the disk: scutellum triangular: elytra punctured but not thickly, punctures almost arranged in rows, towards the apex they are very slight; a reddish-yellow subflexuose stripe runs from the middle of the base of the elytra a little more than half way towards the apex, which is diverging and truncated: the ventral segments of the abdomen terminate in a reddish membrane. [Synonymous with *L. vittata* Oliv.; common in Canada on flowers during June and July; taken from Alabama northwards.]

[184.] 247. LEPTURA GULOSA *Kirby*.—Length of the body 5 lines. Taken in Nova Scotia by Dr. MacCulloch.

Very nearly related to the preceding species, from which it differs chiefly in being much smaller, in having the underside of the body more thickly covered with hairs glittering like silver; in having the throat pale-red; the fifth joint of the antennæ longer than the fourth; the punctures of the elytra more numerous and scattered; the yellow stripe running nearer to the apex of the elytra, dilated at the base and not flexuose: the fore-breast also in the disk, the after-breast on each side, and the base of the thighs are obscurely red: the tibiæ are piceous.

* †† b.

248. LEPTURA SUBARGENTATA *Kirby*.—Length of the body 4 lines. Taken in Lat. 65°.

Body narrow, entirely black, very minutely and thickly punctured, underneath glittering, but less conspicuously with silver pile; antennæ shorter than the body, nearly filiform, fourth and fifth joints of equal length; prothorax perfectly bell-shaped, anteriorly not constricted, posterior angles acute, diverging and covered with silver pile: elytra rounded at the apex. [Taken in Canada and Lake Superior.]

[185.] 249. LEPTURA SIMILIS *Kirby*.—Length of body 3⅓ lines. A single specimen taken in Lat. 65°.

This may possibly be the other sex of the preceding species which it resembles in every respect, except that the antennæ are rather longer, the scape or first joint, all but the base on the upper side, is rufous, as are likewise the thighs and four anterior tibiæ; the posterior thighs are however black at the apex.

250. LEPTURA LONGICORNIS *Kirby*.—Length of body 5 lines. A single specimen taken in Lat. 65°.

At first sight this species a good deal resembles *L. semivittata* and *gulosa* of the former section, but its eyes are entire, and its antennæ much slenderer and of a different type, more nearly resembling those of *L. argentata* and *similis*. Body black, minutely punctured, downy, especially underneath, with silvery hairs. Head minutely, thickly, and confluently punctured; labrum and base of the mandibles rufous; last joint of the palpi securiform; antennae very slender nearly as long as the body; scape incrassated, rufous, black at the base: prothorax a little constricted anteriorly, very thickly punctured with a longitudinal dorsal impunctured line or channel: scutellum longitudinally concave, rounded at the apex; elytra nearly linear, grossly punctured, glossy, nearly black, with a pale stripe extending from the middle of the base to near the apex, and gradually approaching the suture; apex subtruncated: legs rufous at the base. [Belongs to the genus *Acmæops* Lec.]

* *

[186.] 251. LEPTURA PROTEUS *Kirby*.—Length of body 3¼—5½ lines. Taken abundantly in Lat. 54° and 65°.

Body narrow, black, punctured, somewhat glossy, rather hairy, especially underneath, with decumbent hairs, those on the elytra have somewhat

of a golden lustre, the rest are silvery. Nose more grossly punctured than the rest of the head; vertex convex; eyes subovate, pale with a slight golden lustre; antennae filiform, longer than the prothorax, obscurely rufous, with the four first joints black, fifth joint longer than the fourth: prothorax campanulate, anteriorly constricted, posterior angles a little diverging, thinly punctured; channelled, the channel running between two dorsal gibbosities: scutellum triangular: elytra rather widest at the base, and punctured there more grossly next the suture; diverging and truncated at the apex: tibiae piceous or rufo-piceous; four posterior thighs rufous at the base.

VARIETY B. In this variety only the base of the six last joints of the antennae is rufous, all the thighs are rufous at the base, and the tibiae of a clearer red, but they are dusky at the apex; tarsi rufous at the base. Length of the body 3¾ lines.

C. Elytra with a stripe at the base, tips and lateral margin rufous: antennae entirely black: legs as in variety B. Length of the body 4¾ lines.

D. Elytra with a longitudinal rufous stripe dilated at the base and apex; bead of the lateral margin also rufous; antennae and legs nearly as in B, but the whole of the tarsi is obscurely rufous. Length of the body 3—4 lines.

E. Elytra rufous with the suture and a stripe near the margin abbreviated at both ends, dusky: antennae as in A; legs as in B. Length of the body 4—5 lines.

F. Elytra rufous, with a dusky suture; antennae as in A; legs as in D.

G. Like F, but elytra luteous; antennae all black. Length of the body 4 lines.

H. Like F and G, but legs and antennae black. Length of the body 3¾ lines.

L. Proteus seems to vary ad infinitum in the colour of the elytra, antennae, and legs, but as all the varieties agree in every respect except colour and size, and the elytra advance so gradually from pale rufous to black, or vice versa, there can be little doubt of the identity of the different varieties. [This very variable species is common throughout Canada. It belongs to the genus *Acmæops* Lec.]

[187.] 252. LEPTURA LONGICEPS *Kirby*.—Length of body 4 lines. Several specimens taken in Lat. 54° and 65°.

Like the preceding species but shorter in proportion with a longer head. Body black, punctured, hoary with rather silvery down: head as long or longer than the prothorax; eyes pale, subtriangular; antennae with the second, third and fourth joints slenderer than the rest: prothorax shaped as in *L. Proteus*, constricted before, depressed behind, but without diverging angles, channelled but with no gibbosity on each side the channel: elytra nearly linear, very thickly punctured, dirty-yellow, with a dusky lateral blotch extending from the base beyond the middle of the elytrum, suture and subtruncated apex black; down yellowish. [Belongs to *Acmæops* Lec.]

END OF CERAMBYCIDÆ.

OBITUARY.

We grieve to have to record the death of another devoted Entomologist, MR. COLEMAN T. ROBINSON, of New York, who expired, after a very brief illness, on the 1st of May last. Mr. Robinson was born in Putnam County, N. Y., in 1838, and had but recently completed the 35th year of his age. When quite a young man, he made a prolonged tour through Europe, Egypt and the Holy Land, and spent some time at the University of Berlin. On his return to New York, in 1861, he engaged in business as a stock broker in Wall Street, and soon became the head of a very successful and enterprising firm, Messrs. Robinson, Cox & Co. So shrewd and successful were his speculations that in a few years he amassed a large fortune, and on his retirement from business a couple of years ago, he was reputed to be worth about a million and a half of dollars. Latterly he resided near Brewster's Station, on the New York and Haarlem Railway, where he had purchased a handsome country seat. Notwithstanding his devotion to business of so engrossing and exciting a character, he yet found time to indulge in his favorite study of Entomology, and in connection with his friend, Mr. Grote, described a large number of new species of North American Lepidoptera, chiefly belonging to the families of Sphingidæ, Bombycidæ, Noctuadæ and Tortricidæ. A list of his published papers, prepared by his coadjutor, Mr. Grote, is given on another page. We are glad to learn that amongst his other bequests, Mr. Robinson left the handsome sum of $10,000 to the Buffalo Society of Natural Sciences, with which he was connected for several years.

MISCELLANEOUS NOTES.

A NEW DEPARTURE.—We invite especial attention to the card of that talented and well known Entomologist, MR. FRANCIS GREGORY SANBORN. We heartily congratulate our esteemed confrere on the stand he has taken on the behalf of Practical Entomologists. Mr. Sanborn is thoroughly qualified, from his scientific attainments and personal reputation, to take this step, and we sincerely trust a new era may be dawning for Entomological Science, in which the professional skill of competent scientists may rece ve an equal share of recognition with that of members of the various other learned professions. We feel, however, quite satisfied that while Mr. Sanborn has laid down his terms of consultation, he will always be ready, as heretofore, to afford any information to brother Entomologists, or to students struggling to overcome the difficulties of the science.—[*Editor C. E.*]

STRANGALIA LUTEICORNIS.—On one of the last days of July, 1871, as I emerged from the woods which cover the eastern end of Bishop's Island—one of the most romantically situated of the Thousand Isles—I came upon a sunny glade, and in it stood a flowering shrub, (the name of which I do not know,) in full bloom. The blossoms were thronged with the insect hosts—well nigh all orders being represented in sufficient variety to stock a fair-sized entomological cabinet. My attention was most attracted to the Coleoptera, from the great numbers of *Typocerus fugax* and some few specimens of *Strangalia luteicornis*. The latter, from the extreme narrowness of their bodies and elytra, as well as from their markings, were very noticeable ; they were also particularly active, running over the flowers, taking to flight, or dropping down among the leaves in a way that almost defied capture. I, however, succeeded in taking one ; and learning from a great authority in such matters, that though well known in Pennslyvania, it has not, as yet, been included among the natives of this Province, I make this note of the fact of my capture.—R. V. ROGERS, Kingston.

NOTES AND QUERIES.—*Trichius Bigsbii.*—*Gnorimus maculosus*, Burmeister, Knoch. This insect seems to be very rare in this part of Canada. During nearly thirty years collecting, I have found only one specimen, taken at Drummondville, in the Niagara District. Other collections seem to have been equally unfortunate.

Pelidnota punctata.—Common about London and Niagara ; has never to my knowledge, been found near Toronto.

Desmocerus cyaneus.—About 25 years ago, I took a colony of about 30 specimens off some elder bushes in rear of Trinity College. I have never met with another specimen near Toronto, one I found in fall of 1870 at the Sault St. Marie.

Calosoma scrutator.—Of this magnificent insect, many dead specimens may be collected on the south shore of our Toronto peninsula after a southerly wind, but I have collected but two living specimens on this side of the lake.

QUERY.—Is it known that any of the large *Carabidæ* are capable of ejecting an acid liquid like the *Bombardiers?* The following anecdote may prehaps be worth embalming in the CANADIAN ENTOMOLOGIST:—In the fall of 1839, I was wandering with a friend over the rocks at Thurand, near Dresden, and found a magnificent *Carabus*, about an inch long, probably *Auratus* or *Auronitens*. Examining it, the beast exploded, and shot me in the eye. The pain was so intense, lasting for full a quarter of an hour, that, notwithstanding my Entomological proclivities, the insect was allowed to escape.

QUERY.—Can any of your correspondents refer me to a paper on the sugar from the "Mexican Honey Ant?" I have seen it, but cannot recall where. On mentioning this to my late lamented friend, Mr. Williamson, who was for years engaged on railway construction in Mexico, he informed me that the Indians were often in the habit of knocking down ants' nests from the boughs of trees, and extracting honey from the interior; this honey having been formed, not by the ants, who build the suspended nests, but by a species of bee (he called them Sweat Bees), which constructed their comb in the centre of the ants' nest. I should be glad to obtain any information of my late friends statement.—H. H. CROFT, Toronto.

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