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No. 2

NOTES OF 1885 ON SOME INJURIOUS AND OTHER COMMON INSECTS.

BY JOHN G. JACK, CHATEAUGUAY, QUEBEC.

Read before the Montreal Branch Ent. Soc. of Ont., 9th Feb., 1886.

The past season was remarkable, in our locality, for the general scarcity of diurnal Lepidoptera, and also of many of the Coleoptera, especially among the Scarabeidæ, Cerambycidæ and Buprestidæ. Many species of these, usually plentiful, seemed rare this year, and even *Lachnosterna fusca* was not nearly so abundant or injurious as it is generally. Perhaps, with the exception of *Colias philodice*, the most common butterfly was *D. archippus*, which I have never seen so common. I do not think I saw a single specimen of *P. cardui*, although it was very abundant last year. *Pieris rapæ* was less numerous and appears to be decreasing in numbers every year, largely owing, no doubt, to the attacks of the parasite *Pteromalus puparum*. The birds also, especially the Fly-catchers, do not get full credit for the good work they do. Insects of all other orders seemed to be about as abundant as usual, and several species proved to be more than usually numerous and destructive.

The Buffalo Tree-hopper (*Ceresa bubalus* Say) was again very abundant, doing very much injury to apple and pear trees in young orchards. On July 5th I found some larch trees (*Larix Americana*) with the foliage very much destroyed by Saw-fly larvæ, and on examining the trees in the woods and surrounding country, I found that they were all attacked. At this time most of the larvæ seemed to be a little more than half grown, and they continued to feed until about July 15th, when some of them made cocoons. Many of the trees were now entirely defoliated, and the branches and twigs literally covered with the larvæ, many of which were dropping to the ground, and with the falling "frass" made a sound like that of fast falling rain drops. Three days later (July 18) very few of the larvæ were to be found, most of them having formed cocoons among the old

leaves and debris, or in the loose surface soil at the base of the trees or in the vicinity. When collecting some of these cocoons on July 19th, I found that very large numbers had already been collected and the larvæ taken out by some small animals, probably mice and moles, as there was a perfect network of small burrows under the old leaves and grass. The empty cocoons were collected into little heaps, and a very large handful could often be gathered at a single grasp.

Having been kept in a moderately warm room, some of the imagines emerged from the cocoons on December 22nd, and continued to do so almost daily until January 17th of this year. The larvæ, cocoons and imagines agreed exactly with the figures of *Nematus Erichsonii* (Hortig), in Prof. F. Riley's report to the U. S. Department of Agriculture for 1883.

I had noticed these larvæ on the larch trees in former years, but they were not so generally abundant, and I had not the opportunity to study them.

My father has told me that about thirty years ago the tamarack woods were entirely defoliated, and looked as though scorched by fire, and he thinks that the saw-fly larvæ were probably the cause. It was more noticeable at that time, as there were large tracts of land covered with tamarack forest that have now entirely disappeared.

Another insect has proved to be peculiarly injurious this season to young growing beans. It is a small dipterous fly, and specimens sent to Prof. Riley were determined by him as *Anthomyia angustifrons*, Mirgen (= *A. colopteni*, Riley), the larvæ of which have been hitherto known to feed upon the eggs of *Caloptenus*. During the past summer the larvæ attacked a field of golden wax beans that were planted about June 15th, and on that part of the field that was most seriously injured, at least nine-tenths of the crop was destroyed. About ten days after planting, as very few of the beans had grown to the surface of the ground, an examination was made for the cause, and it was found that nearly every bean was infected by from 1 or 2 to 20 or 25 small, long, white maggots. Some of the beans attacked had hardly sprouted, while most of them had grown from one to two inches, but being planted deep, they had scarcely reached the surface. Both the stems and seed-leaves were attacked. These larvæ were first noticed on June 25th; by the 28th many of them had pupated, and hardly a maggot could be found after July 2nd. The flies emerged

about July 10th. If this bean-feeding habit of the insect should become general, it might prove very annoying.

Grasshoppers of several species were very abundant and injurious, hundreds of bushels of grain having been destroyed by them, while pasture and grasses were much injured, and many young fruit trees were defoliated. Some farmers reported in early September that their buckwheat had been so devoured by grasshoppers that only the stumps of the stalks remained.

Cicada canicularis Harr. was not so common this season as it has been some years.

Females of the fall canker-worm moth (*Anisopteryx pomataria*) were taken depositing eggs on apple trees, Nov. 21-24. This insect is not common in our part of the country, and is not noticeably injurious.

Larvae of the pear-tree slug (*Selandria cerasi*) were found as late as Oct. 30th, or later. They are not abundant and give us no trouble.

The fall web-worm, *Hyphantria textor*, has become more abundant and troublesome during the past three or four years. Young larvae were first noticed July 10th, and new lots continued to hatch until about the middle of August.

A fresh specimen of the cotton moth (*Aletia xyliana* Say) was taken Sept. 19th.

On July 12th, a large number of small parasitic flies emerged from a dead cut-worm (Noctuidae). These parasites are evidently the *Copidosoma truncatellum* Dalman, which is so well figured by Prof. Riley in his Report to the U. S. Dept. of Agr. for 1883.

Early in December I took a living specimen of *Cyrtophorus verrucosus* Oliv. in the wood of wild red cherry (*P. pennsylvanica* Linn.), and also found a large number of larvæ which I think were of the same species, as they occupied similar cavities to that of the beetle. The larvae of a Lepidopterous insect (probably *Ægerian*) was found under the bark of the same tree.

On Dec. 8th, a living pupa of *Tremex columba* was taken from the heart of a green beech log, the log being over ten inches in diameter. At the same time larvae of *Saperda calcarata* were taken from the heart of *Populus tremuloides*.

NOTES ON STAPHYLINIDÆ.

BY C. H. T. TOWNSEND, CONSTANTINE, MICH.

The following are some notes on a dozen of the more interesting species of *Staphylinidæ* which I have found in this vicinity. Two of the species, which will be duly given, were determined by M. Fauvel. All the others were identified by Dr. Horn.

Falagria dissecta Er. Numbers of this almost minute species were taken 8 Oct., 1884, in, on and under decaying and rain-soaked fragments of a large, reddish-tinged fungus growth, which I had previously plucked and broken to pieces to obtain *Phenolia grossa* Fab.

Homalota festinans Er. This species was determined by M. Fauvel, to whom I sent specimens, together with one other species given farther on. Ten or twelve specimens were taken by me on an old board fence one still and sunny day in autumn, 9th Nov., 1884. They were flying in the air, often alighting on the weather-beaten boards; and being quite small and dark-colored, one would occasionally be detected only by the lustre of its wings in the sunlight. In the evening of the following day I took a specimen, which I think is the same species, running over my papers as I was writing by lamp-light.

Quedius vernix Lec. This fine species is entirely of a highly burnished jet black. I took two specimens 9th Nov., 1884, under the soft, completely rotted remains of an old log in the woods. Both specimens lay perfectly motionless when they were disturbed, looking as though they were dead, but I recognized them, although they were black amongst black.

Philonthus brunneus Grav. I do not remember the conditions under which the original specimens were found; but they were probably taken in decaying fungus. One specimen, which I am quite sure belongs to this species, I took 8th Oct., 1884, in the same pieces of decaying fungus with *Falagria dissecta* Er.

Philonthus microphthalmus Horn. This is a rather small species, and was also taken 8th Oct., 1884, with *Falagria*. Several specimens were found in the decaying pieces of fungus.

Philonthus baltimorensis Grav. This very pretty species, with polished black head and thorax and reddish elytra and abdomen, is oc-

asionally taken flying in summer and autumn, as are so many of the *Staphylinidæ*.

Philonthus apicalis Say. This is a very fine species, of a shining black with the tip of the abdomen dark reddish. Two specimens alighted on my clothes in the woods 19th Oct., 1884; and while endeavoring to capture one, it emitted on my fingers a clear liquid having a strong smell which I cannot describe better than by saying that it was like a mixture of wintergreen and fungus essence. The odor lasted for some time, but in some unaccountable manner the Staphylinid disappeared. An hour or so afterward, in another part of the woods, a second specimen alighted on me, and this time I was more successful and captured it. It emitted the very same scent, and in this specimen it seemed to me that the scent was in the form of an essence or oil all over the body; as I could not find that the insect emitted it visibly, yet my fingers would be touched with it wherever I touched the insect. It was probably emitted as a clear liquid at first from the extremity of the abdomen, and afterward got over the body.

Xantholinus cephalus Say. This specimen I have elsewhere given as taken in one instance under the bark of a dead trunk of basswood in Oct.

Cryptobium bicolor Grav. One taken on my clothes 2nd Oct., and another under a stone 8th Oct., 1884.

Paederus littorarius Grav. This species I have taken in colonies in passages under the bark of dead stumps in Feb., and under dry rotten wood in Oct.

Boletobius exoletus Er. This is the other species kindly determined for me by M. Fauvel. It does not seem to be given in our lists. M. Fauvel writes me: "Le No. 2 est *Bolitobius exoletus* Er. (*trinotatus* Horn nec Er.)" It is given in Fowler and Matthews' Cat. of Brit. Coleopt. (as is also *trinotatus* Er.), and is consequently found in England. I took one specimen of this very pretty species 26th Aug., 1885, in a decaying "toad-stool" fungus.

Olophrum obtectum Er. The nomenclature of the U. S. species of this genus was formerly very mixed, but is straightened out satisfactorily now; *marginatum* Makl. is now a synonym of *marginatum* Kirby, and *convexicolle* Lec. of *rotundicolle* Sahlb., while *rotundicolle* Say and *emarginatum* Say are synonyms of *obtectum* Er., the name now adopted for the species under consideration. Two specimens were taken 8th Oct., 1884, in the decaying pieces of fungus with *Falagria*.

I might mention that all the above genera are found in Europe; all

except the last two (and very probably they also occur) are given by Sharp from the Amazon region in South America (Sharp, Staphylinidæ of the Amazon, Trans. London Ent. Soc., 1876, Parts I. and II., May and June), while *Philonthus* and *Xantholinus* are found also in New Zealand.

NATURAL HISTORY NOTES ON CERTAIN COLEOPTERA.

No. I.

BY JOHN HAMILTON, M. D., ALLEGHENY, PA.

Ceophyllus monilis Lec. Several of these curious little coleopters were taken May 11th, from a colony of ants inhabiting under a flat stone. This ant is honey yellow, .18 inch in length, very sluggish in its movements, and not disposed to be vicious; it seems to be the same as that with which *Batrisus bistriatus* is found (also in May), and is perhaps *Lasius integerrimus*, Mayr., which Mr. E. A. Schwarz thinks is the name of the ant with which on several occasions he found the same beetle in Michigan in early spring.

The beetles were on the under side of the stone distributed among the ants, and taking alarm immediately on its being overturned, scampered off so quickly into the underground galleries that only a few could be captured.

Dr. Leconte founded the genus on a single specimen taken in Michigan, in August, under the bark of the American linden; his specimen was only .11 inch in length, while these measure .16; otherwise his description applies, or from the different habitat another species might be inferred. Does *C. monilis* desert the ants in the spring to breed beneath bark during the summer and its offspring resort to the habitations of these ants to spend the winter? It is on many lists, but, except in the instance mentioned, has any one taken it elsewhere than with these insects? There are a considerable number of beetles found in friendly association with ants, especially in the spring, many of which are not recorded as having been observed elsewhere; but where their larval lives are spent is something entirely unknown. Some of them, in the spring, leave their friends, like *Cremastochilus canaliculatus*, which may be observed from May till August alighting during the hottest sunshine on warm stones and dusty roads; but whether all likewise leave is uncertain. The suggestion

is made to those finding ants-nest-beetles to mount an ant with each, as it will add much to the interest and value of the collection.

Eleusis pallidus Lec., seems to be rare. The specimens from which Dr. Leconte described the species were found in ants' nests; but their occurrence there was probably accidental, as their exceedingly thin, depressed form indicates a subcortical rather than a subterranean habitus. This summer I took a colony of over twenty under the decomposing bark of a Balm of Gilead (*Populus canadensis*), a near ally of the western cotton tree, under the bark of which another species, *E. fasciatus*, is found abundantly.

Cercus pennatus Murr., may be taken plentifully about the second week in May, on the blossoms of the Red Elder (*Sambucus pubens*), and is seldom seen after it is out of bloom. It is mostly found on bushes growing in or near marshy places, those on dry situations yielding but few examples; and from this it may be properly inferred that the larvæ require a humid soil for their habitation. In the synoptic table in Dr. Horn's revision, the club of the antennæ is said to be bi-articulate; this, however, does not appear to be a very constant character, as the difference in size between the ninth and tenth joint is in many specimens scarcely appreciable, especially in the males.

Cucujus clavipes Fab. The very depressed form of this well known beetle indicates, *a priori*, its subcortical habit, and no other has power to adapt its tastes to a greater variety of timber—locust, maple, oak, hickory, gum, buckeye, &c., are all alike to it. The larvæ do not eat the wood nor the bark, living apparently on the moisture existing between the two. They are elongate, much depressed, brownish yellow, and scarcely to be distinguished from those of *Dendroides canadensis*. Some time in September, the larva having matured, constructs a circular cell from small particles of the decaying bark and wood, and in this completes its transformations before severe frost, but the beetle does not quit the cell till the following spring. I have never known any of these insects to be taken elsewhere than under bark, though they undoubtedly fly, being possessed of a good pair of wings. On the 10th of October, 15 newly disclosed individuals and several pupæ were taken under the bark of a gum log; the latter are depressed like the beetle, pale at first, the eyes, antennæ and portions of the legs gradually changing to black, and the elytra becoming red after disclosure. This insect is annual.

Elater militaris Harr. is as rare as the preceding is common, though

it may eventually be discovered to be much more plentiful than heretofore, since collectors have been furnished with the data for its recognition by the publication of Dr. Leconte's Synopsis of the genus (Trans. Am. Ent. Soc., vol. 12). Till now it has been among a set of unfortunate beetles, with names in the catalogues and descriptions accessible to few. It may readily be confounded with *E. linteus*, with which it is found, specimens of which occur with the apical black of the elytra more or less obsolete; but it may always be distinguished by the epipleura being entirely black, whereas in *lin-teus* the anterior half is conspicuously pale. The elytra are yellower than in *lin-teus*, with the external and sutural margins narrowly black and a little cloudiness at the apex in one of my two specimens. The antennae, besides having the second and third joints rounded and equal, scarcely exceed in length the thorax in the male, while in the female they are one third shorter. Nine specimens that I have seen have the foregoing characteristics.

Elasmocerus terminatus Say, was obtained in large numbers from a box of dead grape vines in May and June. These grape vines also yielded a multitude of *Phymatodes amoenus*, some *Neoclytus erythrocephalus*, *Chariessa pilosa*, *Tenebrioides corticalis*, besides other smaller species. The *P. amoenus*, which had nearly pulverized the vines, had mostly emerged before *E. terminatus* appeared. On splitting the vine several of its pupae were found in galleries excavated by the larvae themselves; these were from four to six inches in length; the distal end was packed with coarse fibre after the manner of the Cerambycans, and the other, towards which lay the head, with fine dust, leaving about an inch of vacancy for the pupa. These, like the perfect insects, vary from .25 to .50 inch in length. They are cylindrical, the abdomen smooth without projections or hooks, and having a greater diameter than the parts anterior; color entirely pale, the emargination of the eyes and tip of the abdomen first become dark, then the legs and wing pads; next the pupa skin is cast, and in three or four days the head and thorax have also changed to dark and the abdomen to red, and then the perfect insect comes forth in quest of flowers and a mate, the time occupied in the transformation having been from ten to fourteen days.

The vines contained the larvæ of several species, but which produced this beetle was not certainly ascertained, though I strongly suspect it to have been one that was round, six-footed, .25 to .50 inch. in length, white with a very small retractile black head armed with short, strong mandibles.

bles; the legs stout, with one claw; the pro-legs well developed; the segments gradually tapering from the seventh to the head, the others not varying much in diameter, except the last, which is tapering and terminated with two short black hooks; the body has a few long stiff hairs. These larvæ were taken in the act of excavating galleries similar to the ones in which the pupæ of *E. terminatus* were found.

Whether the larvæ are carnivorous is unknown, but they are certainly lignivorous, as the work of their burrows shows. The Cleridæ are said to be parasitic in the larva state, but this species looks like an exception, as that much misapplied term is scarcely elastic enough to embrace a larva that is at the most only carnivorous.

Xanthonia villosula Mels. Two forms at least are recognized in this species. The first is the typical, entirely brownish rufous, and usually taken on oak, especially white oak, in June and July; it is so abundant and well known as to require no further notice. The other is slightly larger, with the thorax a little less convex and more coarsely punctured; the under sides except the legs are black; the antennae, mouth parts and feet are always yellowish; the head, thorax and elytra vary from ferruginous through all degrees of cloudiness to deep black. Like the other form, in life they are densely coated with an amorphous white powder that gives them the appearance of having been dusted with flour, and is so fugitive as to be only imperfectly preserved by the most careful handling possible. This form appears to feed on hazel alone, though it may be taken on any bush in its vicinity. While perhaps not separable from the first form by any constant structural characters, yet for the benefit of collectors it might be well that it should as a color variety have a name.

When color variations are in any way constant, they are as necessary in a complete cabinet as typical forms, and might be named and catalogued with great advantage to collectors and no detriment to science.

Nemognatha nemorensis Hentz. This beetle has a wide range, extending from the Atlantic to Colorado. It is probably not so rare as it seems to be, owing perhaps to the character of its food plant and its apparent resemblance to certain common and undesirable species of Lampyridæ, both of which may cause it to be readily overlooked. I find it abundantly throughout July on two species of *Rudbeckia* growing in meadows bordered with woods (*R. speciosa* and *R. hirta*), which rarely yield any Coleoptera except *Acmaeodera pulchella*. The insects belonging to this genus and the next (*Gnathium*) are remarkable for having the

outer lobe of the maxillae greatly elongated, being in some species equal to the length of the body, and very slender. As seen in the cabinet these lobes are widely separated, but in life they are closely approximated, forming a single nematoid appendage. In the present species this arrangement is admirably adapted to the character of the flowers on which they feed; the florets of the *Rudbeckias* being very long and very compactly inserted on the disk, to reach the nectaries at their bases, just such an armature is required. The lobes of the maxillae are inserted closed and do not embrace the florets nor open and shut in feeding, but are moved up and down like a drill, the needle shifting around among the florets without being withdrawn; but in what way the nourishment is conveyed to the mouth I could not ascertain.

The species of this genus are numerous west of the Mississippi, and it would be interesting to learn what species of flowers they frequent.

NOTE ON *ORYSSUS SAYI*.

BY W. HAGUE HARRINGTON, OTTAWA.

The members of the genus *Oryssus* are apparently rare in Canada, and I was therefore much pleased to capture on the 2nd June a fine ♀ *O. Sayi*. It was running up and down a telegraph pole (one of the new ones put up for the electric light wires), and had at first glance all the appearance of some small wasp (*Crabronidæ*), searching for a suitable hole for its nest. Its movements were very quick, and its antennæ vibrated rapidly. It was so alert and restless that my prospects of capturing it without a net seemed far from bright. However, the capture was made, and its struggles in my cyanide bottle were brief. A few days later I took a ♂ upon one of the same poles, although in a different part of the city, and saw what appeared to be another of these insects fly away from higher up the pole. On the 24th I secured another female, which was even more active than the first, and which flew away and returned to the same place twice before I effected its capture. This habit of flying away when disturbed and of returning, even from some distance, to the very spot left, is one which I have noticed in other species of *Uroceridæ*. The poles upon which the above specimens were taken are cedar, and it is more than probable that the insects had emerged from the poles, as many had very numerous holes in them, apparently of *Uroceridæ* as well as of *Coleoptera*.

ADDITIONS TO THE LIST OF CANADIAN LEPIDOPTERA.

BY J. ALSTON MOFFAT, HAMILTON, ONT.

But little attention seems to have been given to Micro-Lepidoptera by Canadian collectors hitherto, so far as can be gathered from the printed lists, 83 names being all that could be reached when the latest one was published. It is certainly not for want of an abundance of material to work upon. I turned my attention to them specially last summer, and was quite surprised to find that so many different species could be obtained when sought for, considering that the season was a most unfavorable one for collecting generally, and no doubt affected them similarly. Mr. Fernald has kindly named the following 33 species for me, which I had in duplicate :

- | | |
|--|---|
| 1. <i>Scoparia libella</i> , Grote. | 18. <i>Gnectra xanthoides</i> , Walk. |
| 2. <i>Botis terrealis</i> , Fr. | 19. <i>Amphisa discopunctana</i> , Clem. |
| 3. " <i>venalis</i> , Gr. | 20. <i>Conchylis straminoides</i> , Gr. |
| 4. <i>Cataclysta fulcalis</i> , Clem. | 21. <i>Eccopsis permundana</i> , Clem. |
| 5. <i>Paraponyx plenilinealis</i> , Gr. | 22. " <i>concinna</i> , Clem. |
| 6. <i>Homophysa albolineata</i> , G.-R. | 23. " <i>inornatana</i> , Clem. |
| 7. <i>Ephestia interpunctella</i> , Hub. | 24. " <i>Footiana</i> , Fern. |
| 8. <i>Crambus sericinellus</i> , Zell. | 25. <i>Penthina hebesana</i> , Walk. |
| 9. " <i>alboclavellus</i> , Schl.,
var. | 26. <i>Sericoris agilana</i> , Clem. |
| 10. " <i>topiarius</i> , Zell. | 27. <i>Paedisca transmissana</i> , Walk. |
| 11. " <i>elegans</i> , Clem. | 28. " <i>Scudderiana</i> , Clem. |
| 12. " <i>vulgivagellus</i> , Clem. | 29. <i>Semasia formosana</i> , Clem. |
| 13. <i>Schoenobius longirostrellus</i> , Cl. | 30. <i>Steganoptycha nubeculana</i> ,
Fern. MSS. |
| 14. <i>Cryptolechia tentoriferella</i> , Cl. | 31. <i>Phoxopteris nubeculana</i> , Clem. |
| 15. <i>Epigrapchia eruditella</i> , Gr. | 32. <i>Chimabacche haustellata</i> ,
Wlsm. |
| 16. <i>Pandennis lamprosana</i> , Robs. | |
| 17. <i>Lophoderus politana</i> , Haw. | 33. <i>Gelechia roseosuffusella</i> , Clem. |

There were several which I sent to him besides, that were new to him or unnamed in his collection. Of these 33, four are in the Canadian list Nos. 3, 4, 12 and 21. No. 4 is in the Society's collection as *C. annulalis* Walk., which Mr. Fernald informs me is a South American species, and 21 is probably the *Grapholitha permundana* of the Society's list. The conditions must be particularly favorable for the development of No. 4 at

Ridgeway, I would suppose from the multitudes of them I saw there last summer. I found them amongst some walnut trees which were growing by the lake shore, on the line where the barren sand of the beach, joined the vegetation of the field, and when the lower branches or grass was disturbed, they would rise in clouds. I have now in my collection 108 named species; of these 58 have printed labels, leaving 25 labels yet unoccupied by me, and giving me 50 names new to the Canadian list, and I have 76 single specimens besides yet undetermined.

TENTHREDO (?) DELTA, PROV.

BY W. HAGUE HARRINGTON, OTTAWA.

Among the Tenthredinidæ captured by me during the past season was a good series of *Tenthredo delta* Prov, consisting of 12 females and 26 males. In pinning them I was frequently struck by the evident irregularity of the venation of the wings, and on a more careful examination of the specimens I find these irregularities to be both numerous and remarkable. No other species represented in my cabinet show any such divergencies from the typical form, except in rare instances. Provancher describes the female (page 210, "Petite Faune Entomologique du Canada") as having *two* discoidal cells in under wings, and Cresson ("Trans. Am. Ent. Soc.," vol. viii., page 44) as having *one or two* middle cells. *One* middle cell appears to be the rule, and any deviation therefrom to be an exception. Of my 12 specimens, 10 have *one* middle cell each, one has *two* middle cells, and the other *none*. The males are more uniform apparently in their venation, as none of my 26 specimens have middle cells in the under wings, thus agreeing with the description given by Cresson (loc. cit). Apart from the varying number of middle cells, the under wing of the females have the cells varying much in shape, especially the middle one, which ranges from a small triangular form to a large four-sided (square or irregular) one. There are also occasionally small additional cells on the posterior margin.

The most interesting variations are, however, to be observed in the anterior wings, and in this respect both sexes are nearly on a par; a female with *three* marginal cells is offset by a ♂ with but *one*. The former has both wings symmetrical as regards the additional marginal cell, and in

having the outer submarginal partly divided, while in the second the right wing shows a portion of the cross-nervure, which is totally wanting in the left. A rudimentary, or incomplete, cross-nervure in the outer submarginal cell occurs in several specimens, and in one ♂ the third submarginal nervure is continued half-way across the cell below. Another male has the third submarginal cell divided into two cells by a cross-nervure, which nearly coincides with the second recurrent. The left wing of one specimen has the third submarginal nervure forked at the anterior end, so as to form a minute triangular areolet, which, on the opposite wing, is almost square, and gives from the lower outer corner a branch partly across the cell. The outer submarginal cell is also in one instance partly divided longitudinally by a branch from the centre of the third submarginal nervure. The consideration of variations such as these specimens afford will indicate one of the difficulties which may attend the determination of a species (especially in the case of single insects) from descriptions, and the possibility of its being placed in a wrong genus and confounded with some species resembling it in color and markings. In a species whose wing-venation is evidently so unstable as that of the present insect, the specimens with additional complete or rudimentary cells appear to be reversions toward an earlier type, in which the wing-cells were more numerous. Another point in regard to the wings of this species is that the outer cells of the under wings of the male (in all my specimens) are closed, as in several of our species of *Strongylogaster*. This fact is not mentioned in the descriptions before quoted, and seems to me sufficient reason to question the propriety of placing the species in *Tenthredo*, from the members of which genus it also differs in general appearance, and to suggest the advisability of including it for the present in *Strongylogaster*. From the first tribe of this genus (as divided by Cresson) it seems to differ chiefly in having the lanceolate cell with a short, straight cross-line, instead of an oblique one. That its true position in the family is somewhat uncertain is evident from the fact that it was originally described as a species of *Pachyprotasis*, a genus much further removed from *Tenthredo* than is *Strongylogaster*. My specimens were all taken in the same locality—a swampy meadow margin, luxuriant in ferns, herbaceous plants and shrubs. The majority of them were taken during June and July.

THE ENTOMOLOGY OF VANCOUVER ISLAND.

NOTES ON SEVENTY-SIX SPECIES OF CICINDELIDÆ AND CARABIDÆ
COLLECTED NEAR VICTORIA, VANCOUVER ISLAND.

BY GEORGE W. TAYLOR, VICTORIA, B. C.

The beetles enumerated below were all taken by myself in the neighbourhood of Victoria, Vancouver Island, during the past few seasons. Some of the larger species, especially the Colosomas, were captured under heaps of rubbish in my garden. The species of *Omus* and *Cychrus* and many others were found while searching for land shells under oak logs in the woods. Very many kinds too were found under stones, also during search for shells, while most of the rarer kinds were taken, accidentally I might say, while flying in the sunshine.

The number of specimens of Carabidae that could be collected here is very large, individuals being in fact far more numerous than I have ever seen them anywhere else, and I feel confident that a season's careful working would almost double my present list of species.

A large number (40 out of 78) of those I now record are new to the Canadian fauna, that is, as far as my knowledge of the same (which is based upon the Toronto Check List) goes, and some of these additions are very interesting ones.

The correctness of the determinations is, I think, beyond question, all the types (except in the case of eleven species) having passed through the hands of Mr. Ulke, of New York, who has been most kind and obliging in this matter. The remaining eleven species have been named for me by Dr. Horn, through the kind mediation of Mr. W. H. Harrington, of Ottawa. I have added to the list two species taken on the mainland of British Columbia by Mr. James Fletcher (of Ottawa) in 1883, and very generously given to me.

CICINDELIDÆ.

1. *Cicindela vulgaris* Say, var. Not uncommon, but much less frequent than the next species.
2. *Cicindela 12-guttata* Dej. The variety *Oregona* Lec. is the form occurring here. It is very common indeed, especially by the seaside. I have another species of *Cicindela* not yet identified.

CARABIDÆ.

3. *Elaphrus Clairvillei* Kirby. One specimen only, on 20th August, 1882, near the margin of Green Mountain Swamp (Victoria). I have searched the locality on several other occasions, but have failed so far to procure another specimen.
4. *Elaphrus riparius* Linn. This widely distributed species is very abundant here.
5. *Loricera 10-punctata* Esch. Several specimens on different occasions, generally flying in the middle of the day.
6. *Notiophilus sylvaticus* Esch. Not common.
7. " *nitens* Lec. Two only. A third species of *Notiophilus* is at present undetermined.
8. *Nebria virescens* Chaud. Several at different times.
9. " *Mannerheimii* Fisch. A pair under seaweed on the beach.
10. *Leistus ferruginosus* Mann. Not rare.
11. *Calosoma tepidum* Lec. Not uncommon ; very variable in size.
12. " *calidum* Fab. Several specimens of this fine beetle last spring. I have also three or four *Calosomas* which seem different from my type of *calidum*, but I have not yet submitted them to any authority.
13. *Carabus taedatus* Fischer. Common under logs, etc. A few days ago I secured 20 or 30 in some holes that had been dug the day before for fencing posts.
14. *Cychnus marginatus* Dej. Quite the commonest of our large Carabidae.
15. *Cychnus angusticollis* Fischer. Not so common as *marginatus*, but by no means rare.
16. *Omus Dejeani* Reiche. Very common under logs, and often to be seen wandering over the roads, I suppose in search of prey.
17. *Omus Audouini* Reiche. Not uncommon.
18. *Promecognathus crassus* Lec. I took a couple under a stone in 1882, and this season I have seen two or three more.
19. *Dyschirius patruelis* Lec. One specimen only. I have this year taken a considerable number of a species a little larger than this, but in other respects very similar. They were found running over the sands at Cadboro' Bay.
20. *Dromius piceus* Dej., var. *quadricollis* Lec. Several.
21. *Blechnus lucidus* Lec. Very common under logs and stones.

50. *Chlaenius interruptus* Horn. Not very uncommon in damp localities.
 51. " *harpalinus* Esch. " " " "
 52. *Anisodactylus viridescens* Lec. Not rare; color variable.
 53. " *semipunctatus* Lec. Common.
 54. " *piceus* Meretr. Common.
 55. " *Californicus* Dej. Common.
 56. *Bradycellus nigrinus* Dej. Not rare.
 57. " *Californicus* Lec. Not rare.
 58. *Harpalus cautus* Dej. Very common.
 59. " *rufimanus* Lec. Very common, less so than the other two.
 60. " *somnolentus* Dej. Very common.
 61. *Stenolophus conjunctus* Say. Common.
 62. " *limbalis*, Lec. Common.
 63. " sp. "Not named yet"—Ulke. Common.
 64. *Patrobus fossifrons* Dej. Not uncommon under logs.
 65. *Bembidium mutatum* Gemm. 71. *Bembidium nigripes* Kirby.
 66. " sp. A. 72. " *connivens* Lec.
 67. " sp. B. 73. " *versicolor* Lec.
 68. " *erasum* Lec. 74. " *sulcatum* Lec.
 69. " *inrematum* Lec. 75. " *conspersum* Chd.
 70. " *iridescens* Lec. 76. " *paludosum* Sturm.
 var. *lacustre*.

All these species of *Bembidium* seem to be common except *paludosum*, of which species I have only taken one specimen, and I cannot recall the precise locality. Of the two unnamed species, Mr. Ulke informed me that he had specimens from other localities, but they were not yet described.

The species determined for me by Dr. Horn are as follows: Nos. 1, 6, 9, 12, 23, 73, 74, 75, 76; and the two under-mentioned species, which are the ones alluded to at the commencement of this paper as having been taken on the mainland of B. C. by Mr. Fletcher.

Cicindela imperfecta Lec.

Opisthius Richardsoni Kirby.

NOTE ON AN INJURIOUS SAW-FLY LARVA.

BY THE REV. THOS. W. FYLES, SOUTH QUEBEC.

Length of larva, one and one-eighth inches; breadth at widest part, three-sixteenths of an inch. The body flattened beneath, and slightly rounded above. It is scalloped along the sides. The legs proper are long and projecting. The creature has the habit of twisting the last four or five segments to one side. When disturbed it throws itself into the usual attitude of a *Nematus* larva. Its general color is yellow—the head has an orange tinge. There are ten rows of black spots on the body—six rows along the back, one row on each side, and two rows underneath. The spots of the side rows are longer than the rest, and are placed one on the fore part of each scallop. In each of the rows on the back the spots run three to a segment. The last segment has no spots. The eyes of the larva are black, and the mandibles are brown. The creature forms a rather loose, white cocoon.

Swarms of this kind of larva fed on the white birch, in the neighborhood of Quebec, during the month of September. They have all now gone into the cocoon stage.

NOTES ON TENTHREDINIDÆ, 1885.

BY W. HAGUE HARRINGTON, OTTAWA.

Read at the Annual Meeting of the Ent. Soc. Ont.

The earliest species which I noted during the past season, was the common and obnoxious currant saw-fly, *Nematus ventricosus*, which appeared on 15th May. Two days later I captured upon willow in bloom a specimen of *Dolerus collaris*, and on the 21st and 22nd found *D. aprilis* quite common on and about alders, with a few *D. sericeus*? and *D. abdominalis*. By the 24th May the strawberry saw-fly, *Emphytus maculatus*, and the raspberry saw-fly, *Selandria rubi*, were in considerable numbers, and at the same time appeared several less well known species in fields and woods, such as *Hylotoma McCleayi*. This species I found again on 2nd June and subsequent days, upon the flowers of choke-cherry. Later in the season specimens were found upon Spiræa. *Selandria flavipes* was captured on 10th June, and was abundant during the season. It

could always be obtained by using a sweeping-net among the common fern. At the same time could be obtained in abundance upon the ferns greenish laryae which I have no doubt were those of that species. These larvae when full grown are about two-thirds of an inch long. The body is finely transversely wrinkled; bright green above and whitish below. The head has a brown patch on vertex and behind the eyes, which is reduced in some specimens to two dots on vertex and one behind each eye. By the middle of June the species were numerous, including *Tenthredo verticalis*, *T. rufopectus*, *M. flavicoxa*, *Pacilostoma albosectus*, this rare insect being taken on 13th; and *Tenthredo (?) delta*, of which seven ♂ were taken on 16th. Hickories suffered considerably during the latter part of the month from the larvae which I think to be those of *Acordulecera dorsalis*. They are one-third of an inch long. The body is whitish, with green dorsal stripe, is slightly pubescent and has the lateral margins dilated. The head is black and the thoracic feet are whitish. The abdominal feet are very minute. On the 24th I found several colonies of *Nematus Erichsonii* on larches not far from the line of the Canada Atlantic Ry., along which route the fly appears to have reached Ottawa. These I destroyed, with the exception of one brood, which I took home and which commenced to spin their cocoons on 2nd July. Two or three days later I found a few other broods of small larvae, and twigs bearing eggs which were also destroyed. On subsequent visits I found no further traces, and hope that I have checked the increase of the species in that locality for another year. On the 27th June I found cedars at Hull greatly infested with the larvae of an undetermined saw-fly. I have mislaid a description of these larvae and have only the following brief note of four specimens taken the previous August: "Yellowish green, with darker undefined dorsal and lateral stripes; black thoracic feet, eight pair abdominal feet, head ferruginous, length 15 m." It seems to be the species mentioned by Packard on page 257 "Insects Injurious to Forest and Shade Trees," as *Lophyrus abietis*, but the larvae differ somewhat in color from those of that species taken upon spruce. I have always found the larvae of *Lophyrus abietis* captured on spruce comparatively easy to rear, but with those from the cedar I was unsuccessful. When placed in the breeding-jar, they left their food and clustered upon the side, and would only feed when the jar was wrapped up or placed in the dark, and they gradually died before spinning their cocoons. The larvae of *N. similaris*, the locust saw-fly, were common during the summer. An imago

was seen on 24th June, and a larva taken the same day spun its cocoon on the 30th. On 1st July, I noticed a young ash in front of a neighbor's house with its leaves badly eaten. It immediately struck me that this might be the action of larvae of *Selandria barda*, and on examination I found upon the under side of the leaves a number of large whitish larvae corresponding to those described by Mr. Osborn (CAN. ENT., vol. xvi., page 150). They fed a few days longer and then went into the earth. During July larvae of various species were very plentiful, and in some instances the plants attacked by them were much defoliated. The flies were also abundant and many species were captured, such as *T. vericalis*, *T. ventralis*, *T. basilaris*, *H. trisyllaba*, and *Emphytus tarsatus*; the last is a large handsome insect resembling superficially the members of the genus *Tenthredo*. In August saw-flies diminished in numbers, but several species could still be obtained, and *Allantus basilaris* was, as usual, common on golden-rod, etc. About the middle of Sept. (12th?) a number of plants of turtle-head (*Chelone glabra*) were found infested by the larvae of some unknown species. These, unlike the majority of saw-fly larvae, were very pretty caterpillars, mottled, or marbled, with velvety black and white, and with jet black heads. The same species has been found by me in July feeding upon meadow-rue (*Thalictrum cornuti*), but I have not succeeded in breeding it. A few larvae of other species were seen up to the first of October, but the repeated sharp frosts apparently caused them to disappear. My captures of saw-flies during the season number altogether about 300 specimens, with perhaps one-fourth as many species. Of these many are rare insects, while several species are yet undetermined.

CHRYSOMELA ELEGANS, ROGERS.

Dear Sir: In the Society's report for 1882, Mr. W. H. Harrington states that he had found this species to be common at Ottawa, but had not discovered its food plant. I find *elegans* to be abundant in this neighborhood on Beggar Ticks, *Bidens frondosa* and *B. cernua*. There appears to be two broods, if not more, as I have found them plentiful in June and again in August and September; the beetles of the last brood evidently hibernate, as I have taken stray specimens in early spring. The food plant was kindly determined for me by Dr. J. B. McConnell.

F. B. CAULFIELD, Montreal, P. Q