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June, 1892

THE  
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OF THE

OTTAWA FIELD-NATURALISTS' CLUB

(Organized March, 1871. Incorporated March, 1884.)

CONTENTS.

	PAGE
Fauna Ottawaensis— <i>W. Hague Harrington</i> .....	25
Preliminary Check-List of the Land and Freshwater Mollusca of Canada — <i>Rev. George W. Taylor, Victoria, B.C.</i> .....	33
Royal Society of Canada.....	37
Parasitic Fungi— <i>Adolph Lehmann, B.S.A.</i> .....	38
On the Sequence of Strata forming the Quebec Group of Logan and Billings, with Remarks on the Fossil Remains found therein— <i>Henry M. Ami, M.A., F.G.S., &amp;c.</i> .....	41
Natural History Observations.....	43
Obituary.....	44
Excursion No. 1—To Kirk's Ferry.....	44

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## FAUNA OTTAWAENSIS.

## HEMIPTERA.

By W. Hague Harrington.

In the report of the Entomological Branch for 1890 (OTTAWA NATURALIST, Vol. V, 193) it was promised that a preliminary list of local Hemiptera would be published. The collection and study of our species has been of a very limited and fragmentary nature, and the list now submitted (with some reluctance) is correspondingly incomplete. It may, however, serve some purpose as a basis for future study of our many interesting forms, and, as few lists of Canadian Hemiptera have been published, a record of the distribution of the species enumerated. When the Abbé Provancher was publishing the third volume of his *Petite Faune Entomologique du Canada*, specimens of our Hemiptera were communicated by Mr. Fletcher, Mr. Guignard and the writer, and reference to his work will show that from our material he described several new species, and made a number of additions to his records.

The appearance of the present list, however, has been possible only through the kindly assistance of Mr Van Duzee, of Buffalo, N.Y., who has examined nearly all the writer's collections, and has also furnished a generic arrangement of the Homoptera, and in other ways given valuable aid. In the Heteroptera the check list of North American species published by Mr. Uhler in 1872 has been followed.

The following list contains nearly 200 species, but it only shows how much yet remains to be done before any satisfactory knowledge of our fauna is gained. The references to the relative abundance of the species, and the dates of their appearance, are given from the writer's collection, but in many instances are of small value, as these insects have not been systematically collected, but obtained when the main object of the chase was the capture of Hymenoptera and Coleoptera. The greater part of this collecting has further been in the early summer, when many of the species are immature, and comparatively little in July, August and September, when the mature insects would probably be most abundant. Our Psyllidæ, Aphidæ and Coccidæ have been omitted, for though the species are numerous and important, especially

from an economic standpoint, few have been collected and determined. Let us hope that Mr. Fletcher, whose professional duties bring to his notice many of these destructive forms, may at an early date be able to prepare a preliminary list of the species.

## HETEROPTERA.

### SCUTELLERIDÆ.

- Homæmus rœnifrons*, *Say*. Not common. July.  
*Eurygaster alternatus*, *Say*. Common. May to August.

### CORIMELÆNIDÆ.

- Corimelæna atra*, *Am. et S.* One specimen.  
*Corimelæna pulicaria*, *Germ.* Abundant. May.

### CYDNIDÆ.

- Amnestus spinifrons*, *Say*. One specimen.  
*Canthophorus cinctus*, *Pal. Beauv.* Not common. May.

### PENTATOMIDÆ.

- Perillus circumcinctus*, *Stal.* Two specimens. April.  
*Podisus cynicus*, *Say*. Not common.  
*Podisus modestus*, *Dallas*. Abundant. May, June.  
*Podisus* sp. ? Perhaps var. of *modestus*. One specimen.  
*Neottiglossa undata*, *Say*. Common. July.  
*Cosmopepla carnifex*, *Fab.* Abundant.  
*Mormidea lugens*, *Fab.* Common. May.  
*Euchistus fissilis*, *Uhl.* Abundant. May.  
*Euchistus tristigmus*, *Say*. Abundant. May.  
*Cœnus delius*, *Say*. Common. May.  
*Meneclis insertus*, *Sav.* One specimen. June 16th.  
*Pentatoma juniperina*, *Lin.* Abundant. On pines, etc.  
*Peribalus piceus*, *Dallas*. One specimen.  
*Banasa dimidiata*, *Say*. Two specimens.  
*Banasa calva*, *Say*. Not common. May 24th.  
*Acanthosoma cruciata*, *Say*. Not common.

### COREIDÆ.

- Anasa tristis*, *De Geer*. Two specimens several years ago.  
*Alydus eurinus*, *Say*. Not common.

*Alydus quinquespinosus*, *Say*. Not common. August.  
*Protornor Belfragei*, *Hog.* (*Tetrahinus quebecensis*, *Prov.*) Not  
 common. August

## BERYTIIDÆ.

*Neides muticus*, *Say*. Rare. June, July.  
*Corizus punctiventris*, *Dallas*. Not common. May.  
*Corizus nigristernum*, *Sign*. Common. August.

## LYGÆIDÆ.

*Nysius thymi*, *Wolff*. Abundant. May, June.  
*Ischnorhynchus didymus*, *Zett*. Abundant. May to July.  
*Cymus angustatus*, *Stal*. Abundant. June.  
*Ligyrocoris sylvestris*, *Linn*. Not common. August.  
*Pamera bilobata*, *Say*. One specimen.  
*Ptochiomera* sp. ? One specimen.  
*Salacis pilosula*, *Stal*. Two specimens.  
*Trapezonotus nebulosus*, *Fa.* Not common.  
*Peritrechus fraternus*, *Uhl*. One specimen.  
*Eremocoris ferus*, *Say*. Not common.  
*Scolopostethus affinis*, *Schill*. Two specimens. April  
*Megalonotus unus*, *Say*. (?) One specimen.  
*Peliopelta abbreviata*, *Uhl*. Abundant. June, July.  
*Lygæus Kalmii*, *Stal*. Common. July. On *Asclepias*.

## CAPSIDÆ.

*Trigonotylus ruficornis*, *Fall*. Two specimens. July.  
*Miris affinis*, *Reut*. Not common. April, May.  
*Leptopterna dolobrata*, *Linn*. Common. June, July.  
*Trachelomiris* (*Collaria*) *Meill. urii*, *Prov*. Common. July.  
*Resthenia insitiva*, *Say*. Not common. June, July.  
*Resthenia insignis*, *Say*. Two Specimens. June.  
*Lopidea media*, *Say*. Not common. June, July.  
*Phytocoris eximius*, *Reut*. One specimen.  
*Phytocoris pallidicornis*, *Reut*. Two specimens. July 14th.  
*Calocoris rapidus*, *Say*. Abundant. June.  
*Pycnopterna amœna*, *Prov*. (*Petite Faune Ent. III., 114, n. sp.*)  
*Lygus pratensis*, *Linn*. Abundant. April, June.

- Lygus flavonotatus*, *Prov.* Abundant.  
*Lygus* sp. (Not described.) One specimen.  
*Coccobaphes sanguinarius*, *Uhl.* Not common. July.  
*Pæcilocapsus lineatus*, *Fab.* Abundant. June.  
*Pæcilocapsus goniphorus*, *Say.* Very common. June, July.  
*Pæcilocapsus affinis*, *Reut.* (Prov. Petite Faune Ent. III., 123.)  
*Pæcilocapsus marginalis*, *Reut.* (Prov. *ibid.*)  
*Systratiotus americanus*, *Reut.* Two specimens. August.  
*Camptobrochis grandis*, *Uhl.* Two specimens.  
*Capsus ater*, *Linn.* Very common. June.  
*Monalocoris filicis*, *Linn.* One specimen. May 24. (High Falls.)  
*Pilophorus bifasciatus*, *Fab.* One specimen.  
*Stiphrosoma stygica*, *Say.* One specimen.  
*Labops hesperius*, *Uhl.* Abundant. June. (Long-winged form rare.)  
*Idolocoris famelicus*, *Uhl.* Not common. May, July.  
*Idolocoris agilis*, *Uhl.* One specimen.  
*Rhinocapsus Vanduzei*, *Uhl.* Two specimens, June 25.  
*Agalliastes* sp. (near *associatus*.) Two specimens.

## ACANTHIIDÆ

- Tetraphleps canadensis*, *Prov.* One specimen.  
*Anthocoris musculus*, *Say.* One specimen.  
*Acanthia lectularia*, *Linn.* Abundant in some localities.

## TINGITIDÆ.

- Acalypta Thomsonii*, *Stal.* One specimen.  
*Corythuca arcuata*, *Say.* Common.  
*Gargaphia tiliæ*, *Walsh.* Abundant.  
*Physatochila plexa*, *Say.* Two specimens.  
*Leptophya mutica*, *Say.* One specimen.

## ARADIDÆ.

- Aradus æqualis*, *Say.* (Prov. Petite Faune Ent. III., 165.)  
*Aradus acutus*, *Say.* (Prov. *ibid.*, 166.)  
*Aradus rectus*, *Say.* One specimen.  
*Aradus* sp. Several specimens of 3 or 4 species.  
*Aneurus inconstans*, *Uhl.* Two specimens. May.

## PHYMATIDÆ.

*Phymata Wolffii*, *Stal.* Common. August. On *Solidago*.

## NABIDÆ.

*Coriscus subcoleopratus*, *Kirby*. Common. June, July.

*Coriscus inscriptus*, *Kirby*. Common.

*Coriscus propinquus*, *Reut.* Not common. May.

## REDUVIDÆ.

*Sinea diadema*, *Fab.* Abundant. August, September.

*Diplodus luridus*, *Stal.* Common.

*Darbanus palliatus*, *Prov.* (*Petite Faune Ent. III., 182, n. sp.*)

*Evagoras marginata*, *Prov.* (*ibid, n. sp.*)

*Opsicætu* *personatus*, *Linn.* Not common.

*Pygolampis pectoralis*, *Say.* One specimen. May 31.

## LIMNOBATIDÆ.

*Limnobates lineata*, *Say.* (*Prov. Petite Faune Ent. III., 193*)

## HYDROBATIDÆ.

*Limnotrechus*, *n. sp.?* One specimen.

## SALDIDÆ.

*Salda major*, *Prov.* One specimen.

*Salda deplanata*, *Uhl.* One specimen.

*Salda* *sp.*, probably undescribed. Common. (Hull.)

## BELASTOMATIDÆ.

*Zaitha fluminea*, *Say.* Abundant.

*Belostoma americanum*, *Leidy.* Very common.

## NEPIDÆ.

*Nepa apiculata*, *Uhl.* One specimen. (Leamy's Lake.)

*Ranatra fusca*, *Pal. Beauv.* Common.

## NOTONECTIDÆ.

*Notonecta undulata*, *Say.* Abundant in lakes and streams.

*Notonecta undulata*, *Say.* *Var.* almost white. Not common.

*Notonecta irrorata*, *Uhl.* Not common. (Hull Brook.)

*Plea striola*, *Fieb.* Common. (Hull Brook and Canal.)



## CORISIDÆ.

- Corisa calva*, *Say.* Not common.  
*Corisa alternata*, *Say.* Abundant.  
*Corisa planifrons*, *Kirby.* Several specimens.  
*Corisa Harrisii*, *Uhl.* Very abundant.  
*Corisa trivittata*, *Prov.* One specimen.

## HOMOPTERA.

## CICADIDÆ.

- Cicada pruinosa*, *Say.* Abundant.  
*Tibicen rimosa*, *Say.* Not common.

## MEMBRACIDÆ

- Enchinopa binotata*, *Say.* Common. August.  
*Campylenchia curvata*, *Fab.* Abundant.  
*Ceresa diceros*, *Say.* Abundant. July, August.  
*Ceresa bubalus*, *Fab.* Abundant. August.  
*Ceresa subvittata*, *Sav. (?)* (Prov. Petite Faune Ent. III, 338.)  
*Stictocephala testina*, *Say.* (Prov. *ibid.*, 237.)  
*Acutalis semicremæ*, *Say.* One specimen.  
*Entylia sinuata*, *Fabr.* Common. June.  
*Publilia concava*, *Say.* Not common.  
*Cyrtosia vau*, *Say.* Two specimens.  
*Cyrtosia trilineata*, *Say.* (? *var.* of preceding.) One specimen.  
*Cyrtosia ornata*, *Prov.* (Petite Faune Ent. III., 240, *n. sp.*)  
*Aymna castanea*, *Fitch.* One specimen.  
*Thelia univittata*, *Harris.* One specimen. July 10.  
*Telamona unicolor*, *Fitch.* Females. Common. July.  
*Telamona fasciata*, *Fitch.* Mal s. Two specimens.  
*Telamona reclusata*, *Fitch.* Nc. common.  
*Telamona sp.*, near *monticola*, *Fab.* One specimen.  
*Carynota mera*, *Say.* Not common.  
*Carynota marmorata*, *Say.* Two specimens.  
*Carynota picta*, *Prov.* (Petite Faune Ent. III., 246, *n. sp.*) = *var.*  
of *marmorata*?

## FULGORIDÆ.

- Scolops sulcipes*, *Say.* (Prov. Petite Faune Ent. III., 223.)

- Cixius pini*, *Fitch.* One specimen.  
*Cixius stigmatus*, *Sav.* Not common. May.  
*Oliarus quinquelineatus*, *Say.* (Prov. Petite Faune Ent. III., 223.)  
*Myndus impunctatus*, *Fitch.* Two specimens.  
*Stenocranus dorsalis*, *Fitch.* Not common. May.  
*Liburnia pellucida*, *Fab.* Two specimens. May.  
*Helicoptera vestita*, *Prov.* (Petite Faune Ent. III., 221, *n. sp.*)  
*Oriocerus Degeeri*, *Kirby.* (= *Coquebertii*, *Kirby.* Prov. *ibid.* 217.)  
*Lamenia vulgaris*, *Fitch.* Not common.  
*Bruchomorpha oculata*, *Newm.* Rare.

## CERCOPIDÆ.

- Lepyronia quadrangularis*, *Say.* Common. July, August.  
*Aphrophora parallela*, *Say.* Common.  
*Aphrophora saratogensis*, *Fitch.* Two specimens.  
*Aphrophora quadrinotata*, *Say.* One specimen.  
*Philæmus lineatus*, *Linnaeus.* Not common. June and July.  
*Clastoptera proteus*, *Fitch.* Abundant. July.  
*Clastoptera obtusa*, *Say.* Common. July.

## BYTHOSCOPIDÆ.

- Bythoscopus sobrius*, *Walk.* Three specimens.  
*Bythoscopus fenestratus*, *Fitch.* Two specimens.  
*Bythoscopus variabilis*, *Fitch.* Two specimens.  
*Bythoscopus pruni*, *Prov.* One specimen.  
*Pediopsis trimaculata*, *Fitch.* One specimen. July.  
*Pediopsis insignis*, *Van Duzee.* Two specimens.  
*Pediopsis viridis*, *Fitch.* One specimen.  
*Pediopsis subolfasciatus*, *Say.* (Prov. Petite Faune Ent. III., 292.)  
*Idiocerus verticis*, *Say.* (Prov. *ibid.*, 292.)  
*Idiocerus alternatus*, *Fitch.* Abundant. May.  
*Idiocerus pallidus*, *Fitch.* One specimen.  
*Agallia quadrifunctata*, *Prov.* Common. June.  
*Agallia novella*, *Say.* Not common.

## TETTIGONIDÆ.

- Oncometopia costalis*, *Fab.* Abundant. May.  
*Oncometopia undata*, *Fab.* (Prov. Petite Faune Ent. III., 265.)

- Tettigonia hieroglyphica*, *Say*. Common. May, August.  
*Diedrocephala coccinea*, *Forst.* Abundant. July, August.  
*Diedrocephala noveboracensis*, *Fitch.* Common. July.  
*Diedrocephala mollipes*, *Say.* Not common.  
*Helochara communis*, *Fitch.* Several specimens. May 24. (High Falls.)  
*Gypona 8-lineata*, *Say.* Not common. July, August.  
*var. flavolineata*, *Fitch.* One specimen.  
*Gypona quebecensis*, *Prov. (?)* One specimen.  
*Gypona albomarginata*, *Woodsworth.* (= *Hullensis*, *Prov.*, *Petite Faune Ent.* III., 269, n. sp.) Three. June.

## JASSIDÆ.

- Ulopa*, n. sp. ? Common in moss, etc. Collected in November.  
*Gnathodus punctatus*, *Thunb.* Three specimens. May 28.  
*Cicadula variata*, *Fall.* Not Common. July.  
*Cicadula sexnotata*, *Fall. (?)* One specimen.  
*Scaphoideus immixtus*, *Say.* Two specimens. July 8, 11.  
*Thamnotettix clitellarius*, *Say.* Not common  
*Thamnotettix unicolor*, *Fitch.* Two specimens. July 7.  
*Athysanus plutonius*, *Uhl.* One specimen.  
*Athysanus*, n. sp. ? One specimen.  
*Platymetopius acutus*, *Say.* Two specimens.  
*Deltocephalus Sayi*, *Fitch.* One specimen. June 23.  
*Deltocephalus configuratus*, *Uhl.* One specimen.  
*Deltocephalus debilis*, *Uhl.* Two specimens. July 11.  
*Deltocephalus Melsheimeri*, *Fitch.* One specimen.

## TYPHLOCYBIDÆ.

- Typhlocyba vitis*, *Harris.* *Var.* Abundant.  
*Typhlocyba* sp. Common.

PRELIMINARY CHECK-LIST OF THE LAND AND FRESH  
WATER MOLLUSCA OF CANADA.

By Rev. George W. Taylor, Victoria, B.C.

In the March number of the OTTAWA NATURALIST I published a request for information to enable me to compile a complete Check-list of the Canadian Land and Freshwater Mollusca, showing the distribution of each species.

It has since occurred to me that the gathering of records may be made easier by the publication of a *preliminary* list. This is printed herewith. It contains the names of all those species of the occurrence of which in Canada I have fairly reliable information.

It does not, however, lay claim to completeness or even to absolute correctness as far as it goes, for I have in more than one instance allowed names to remain which are most probably synonyms, and I have retained other names because they have appeared on published lists though I suspect the specimens on which such records were founded may have been wrongly identified.

Imperfect though it be the list will serve as a basis for future work, and corrections and additions can be made from time to time.

Of the 244 species here enumerated, 128 (47 Land and 40 Freshwater Univalves, and 41 Freshwater Bivalves) are on record from the Ottawa district; 57 (32 Land and 16 Freshwater Univalves, and 9 Freshwater Bivalves) are of my own collecting in Vancouver Island (19 of these being also on the Ottawa list). The remaining 79 (29 Land and 14 Freshwater Univalves, and 36 Freshwater Bivalves) are from other parts of the Dominion. Probably 20 or 30 others may be added to the list.

CHECK-LIST.

A.—*Freshwater Bivalves.*

1	<i>Sphærium sulcatum</i> , Lam.	8	<i>Sphærium latella</i> , Gould.
2	“ <i>aureum</i> , Prime.	9	“ <i>Vermontanum</i> , Prime.
3	“ <i>solidulum</i> , Prime.	10	“ <i>emarginatum</i> , Prime.
4	“ <i>striatinum</i> , Lam.	11	“ <i>flavum</i> , Prime.
5	“ <i>stamineum</i> , Conrad.	12	“ <i>tumidum</i> , Baird.
6	“ <i>rhomboideum</i> , Say.	13	“ <i>spokani</i> , Baird.
7	“ <i>occidentale</i> , Prime.	14	“ <i>partumeium</i> , Say.

15	<i>Sphaerium</i>	Jayanum, Prime.	51	<i>Unio</i>	<i>pressus</i> , Lea.
16	"	<i>tenuè</i> , Prime.	52	"	<i>radiatus</i> , Lam.
17	"	<i>transversum</i> , Say.	53	"	<i>rectus</i> , Lam.
18	"	<i>secure</i> , Prime.	54	"	<i>rubiginosus</i> , Lea.
19	"	<i>rosaceum</i> , Prime.	55	"	<i>spatulatus</i> , Lea.
20	"	<i>truncatum</i> , Linsley.	56	"	<i>subovatus</i> , Lea.
21	"	<i>lenticulum</i> , Gould.	57	"	<i>tenuissimus</i> , Lea.
22	<i>Pisidium</i>	<i>Virginicum</i> , Gmel.	58	"	<i>triangularis</i> , Say.
23	"	<i>Adamsi</i> , Prime.	59	"	<i>undulatus</i> , Barnes.
24	"	<i>compressum</i> , Prime.	60	"	<i>ventricosus</i> , Barnes.
25	"	<i>variabile</i> , Prime.	61	<i>Margaritana</i>	<i>calceola</i> , Lea.
26	"	<i>abditum</i> , Hald.	62	"	<i>complanata</i> , Barnes.
27	"	<i>ventricosum</i> , Prime.	63	"	<i>margaritifera</i> , L.
28	"	<i>rotundatum</i> , Prime.	64	"	<i>marginata</i> , Say.
29	"	<i>occidentale</i> , Newcomb.	65	"	<i>rugosa</i> , Barnes.
30	"	<i>ultramontanum</i> , Prime.	66	"	<i>undulata</i> , Say.
31	"	<i>sp.</i>	67	<i>Anodonta</i>	<i>angulata</i> , Lea.
32	"	<i>sp.</i>	68	"	<i>Benedictii</i> , Lea.
33	"	<i>sp.</i>	69	"	<i>corpulenta</i> , Cooper.
34	<i>Unio</i>	<i>alatus</i> , Say.	70	"	<i>Dallasiana</i> , Lea.
35	"	<i>asperrimus</i> , Lea.	71	"	<i>edentula</i> , Say.
36	"	<i>borealis</i> , A. F. Gray.	72	"	<i>Ferussaciana</i> , Lea.
37	"	<i>Canadensis</i> , Lea.	73	"	<i>fluviatilis</i> , Dillwyn.
38	"	<i>cariosus</i> , Lea.	74	"	<i>Footiana</i> , Lea.
39	"	<i>complanatus</i> , Sol.	75	"	<i>fragilis</i> , Lam.
40	"	<i>ellipsis</i> , Lea.	76	"	<i>implicata</i> , Say.
41	"	<i>gibbosus</i> , Barnes.	77	"	<i>Kennicottii</i> , Lea.
42	"	<i>gracilis</i> , Barnes.	78	"	<i>lacustris</i> , Lea.
43	"	<i>lachrymosus</i> , Lea.	79	"	<i>Lewisii</i> , Lea.
44	"	<i>ligamentinus</i> , Lam.	80	"	<i>Nuttalliana</i> , Lea.
45	"	<i>luteolus</i> , Lam.	81	"	<i>ovata</i> , Say.
46	"	<i>multiplicatus</i> , Lea.	82	"	<i>plana</i> , Lea.
47	"	<i>nasutus</i> , Say.	83	"	<i>Simpsoniana</i> , Lea.
48	"	<i>occidens</i> , Lea.	84	"	<i>subcylindræa</i> , Lea.
49	"	<i>phaseolus</i> , Hildreth.	85	"	<i>undulata</i> , Say.
50	"	<i>plicatus</i> , LeSueur.	86	"	<i>Wahlamatisensis</i> , Lea.

*B.—Freshwater Univalves.*

87	<i>Valvata tricarinata</i> , Say.	119	<i>Limnæa humilis</i> , Say.
88	“ <i>sincera</i> , Say.	120	“ <i>lanceata</i> , Gould.
89	“ <i>pupoidea</i> , Gould.	121	“ <i>gracilis</i> , Jay.
90	“ <i>virens</i> , Tryon.	122	<i>Physa Lordi</i> , Baird.
91	<i>Campeloma decisum</i> , Say.	123	“ <i>gyrina</i> , Say.
92	<i>Bythinia tentaculata</i> , L.	124	“ <i>triticea</i> , Lea.
93	<i>Bythinella obtusa</i> , Lea.	125	“ <i>ampullacea</i> , Gould.
94	<i>Somatogyrus depressus</i> , Tryon.	126	“ <i>ancillaria</i> , Say.
95	“ <i>isogonus</i> , Say.	127	“ <i>Billingsii</i> , Heron.
96	<i>Ammicola porata</i> , Say.	128	“ <i>heterostropha</i> , Say.
97	“ <i>pallida</i> , Hald.	129	<i>Bulinus hypnorum</i> , L.
98	“ <i>limosa</i> , Say.	130	<i>Planorbis corpulentus</i> , Say.
99	“ <i>Cincinnatiensis</i> , Anth.	131	“ <i>trivolvus</i> , Say.
100	“ <i>granum</i> , Say.	132	“ <i>macrostomus</i> , Whit-
101	<i>Fluminicola Nuttalliana</i> , Lea.		eaves.
102	<i>Pomatiopsis lapidaria</i> , Hald.	133	“ <i>bicarinatus</i> , Say.
103	“ <i>lustrica</i> , Say.	134	“ <i>campanulatus</i> , Say.
104	<i>Plurocera subulare</i> , Lea.	135	“ <i>opercularis</i> , Gould.
105	<i>Goniobasis livescens</i> , Menke.	136	“ <i>exacutus</i> , Say.
106	“ <i>salicula</i> , Gould.	137	“ <i>deflectus</i> , Say.
107	<i>Limnæa stagnalis</i> , L.	138	“ <i>albus</i> , Müll.
108	“ <i>ampla</i> , Mighels.	139	“ <i>nautileus</i> , L.
109	“ <i>decollata</i> , Mighels.	140	“ <i>parvus</i> , Say.
110	“ <i>columella</i> , Say.	141	“ <i>umbilicatus</i> , J. W.
111	“ <i>lepida</i> , Gould.		Faylor.
112	“ <i>megasoma</i> , Say.	142	“ <i>Billingsii</i> , Lea.
113	“ <i>palustris</i> , Müll.	143	<i>Segmentina armigera</i> , Say.
114	“ <i>catascopium</i> , Say.	144	<i>Ancylus parallelus</i> , Hald.
115	“ <i>emarginata</i> , Say.	145	“ <i>rivularis</i> , Say.
116	“ <i>caperata</i> , Say.	146	“ <i>caurinus</i> , Cooper.
117	“ <i>decidiosa</i> , Say.	147	“ <i>fragilis</i> , Tryon.
118	“ <i>Adelinæ</i> , Tryon.	148	“ <i>Kootaniensis</i> , Baird.

*C.—Land Shells.*

149	<i>Selenites concava</i> , Say.	151	<i>Selenites sportella</i> , Gould.
150	“ <i>Vancouverensis</i> , l.ca.	152	<i>Limax agrestis</i> , Müll.

153	<i>Limax campestris</i> , Binney.	184	<i>Patula striatella</i> , Arth.
154	" <i>hyperboreus</i> , Westerlund.	185	" <i>asteriscus</i> , Morse.
155	<i>Vitrina limpida</i> , Gould.	186	<i>Helicodiscus lineatus</i> , Say.
156	" <i>Pfeifferi</i> , Newcomb.	187	<i>Acanthinula harpa</i> , Say
157	<i>Zonites fuliginosus</i> , Griff.	188	<i>Punctum minutissimum</i> , Lea.
158	" <i>ligerus</i> , Say.	189	" <i>conspectum</i> , Bland.
159	" <i>intertextus</i> , Binney.	190	<i>Helix aspersa</i> , Müll.
160	" <i>inornatus</i> , Say.	191	" <i>hortensis</i> , L.
161	" <i>cellarius</i> Müll.	192	" <i>fidelis</i> , Gray.
162	" <i>nitidus</i> , Müll.	193	" <i>arbutum</i> , L.
163	" <i>arboreus</i> , Say.	194	" <i>Townsendiana</i> , Lea.
164	" <i>radiatulus</i> , Alder.	195	" <i>hispidula</i> , L.
165	" <i>indentatus</i> , Say.	196	" <i>rufescens</i> , Pennant.
166	" <i>minusculus</i> , Binney.	197	" <i>Cantiana</i> , Montagu.
167	" <i>miliun</i> , Morse.	198	" <i>thyroides</i> , Say.
168	" <i>Binneyanus</i> , Morse.	199	" <i>albolabris</i> , Say.
169	" <i>ferreus</i> , Morse.	200	" <i>dentifera</i> , Binney.
170	" <i>exiguus</i> , Stimpson.	201	" <i>Columbiana</i> , Lea.
171	" <i>fulvus</i> , Drap.	202	" <i>devia</i> , Gould.
172	" <i>suppressus</i> , Say.	203	" <i>Sayii</i> , Binney.
173	" <i>multidentatus</i> , Binney.	204	" <i>monodon</i> , Rackett.
174	<i>Pristiloma Lansingi</i> , Bland.	205	" <i>Leaii</i> , Ward.
175	" <i>Stearnsi</i> , Bland.	206	" <i>germana</i> , Gould.
176	<i>Tebennophorus Caroliniensis</i> , Bosc.	207	" <i>tridentata</i> , Say.
177	" <i>dorsalis</i> , Binney.	208	" <i>palliata</i> , Say.
178	<i>Ariolimax Columbianus</i> , Gould.	209	" <i>pulchella</i> , Müll.
179	<i>Prophysaon Hemphilli</i> , Bld. & Binney.	210	" <i>costata</i> , Müll.
180	" <i>Pacificum</i> , Cockerell.	211	" <i>labyrinthica</i> , Say.
181	<i>Patula alternata</i> , Say.	212	<i>Pupa muscorum</i> , L.
182	" <i>strigosa</i> , Gould.	213	" <i>Hoppii</i> , Møller.
183	" <i>perspectiva</i> , Say.	214	" <i>decora</i> , Gould.
		215	" <i>corpulenta</i> , Morse.
		216	" <i>fallax</i> , Say.
		217	" <i>corticaria</i> , Say.
		218	" <i>armifera</i> , Say.

219	<i>Pupa contracta</i> , Say.	233	<i>Succinea Hawkinsi</i> , Baird.
220	“ <i>Holzingeri</i> , Sterki.	234	“ <i>lineata</i> , Binney.
221	“ <i>simplex</i> , Gould.	235	“ <i>Nuttalliana</i> , Lea.
222	“ <i>milium</i> , Gould.	236	“ <i>obliqua</i> , Say.
223	<i>Vertigo ovata</i> , Say.	237	“ <i>Oregonensis</i> , Lea.
224	“ <i>Gouldii</i> , Binney.	238	“ <i>ovalis</i> , Gould.
225	“ <i>Bollesiana</i> , Morse.	239	“ <i>Haydeni</i> , W.G. Binney
226	“ <i>ventricosa</i> , Morse.	240	“ <i>rusticana</i> , Gould.
227	“ <i>pentodon</i> , Say.	241	“ <i>Verrilli</i> , Bland.
228	“ <i>curvidens</i> , Gould.	242	<i>Onchidium Carpenteri</i> , W. G. Binney.
229	“ <i>Binneyana</i> , Sterki.	243	<i>Onchidella borealis</i> , Dall.
230	<i>Ferussacia subcylindrica</i> , L.	244	<i>Carychium exiguum</i> , Say.
231	<i>Succinea aurea</i> , Lea.		
232	“ <i>avara</i> , Say.		

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#### ROYAL SOCIETY OF CANADA.

The Eleventh Annual Meeting of the above Society will be held in Ottawa in the beginning of June.

Fellows and Delegates will register in Dr. Bourinot's office in the House of Commons on May 31st, between the hours of 9 and 10 o'clock a.m. There will be a general meeting of the Society from 10 to 12 and at 3.30 p.m. The Presidential Address will be delivered by the Rev. Abbé Laflamme, D.D.

The meetings of Section IV—Geological and Biological Sciences—will be held in one of the Committee Rooms of the House of Commons. All meetings are open to the public, and our members are particularly invited to attend. Mr. F. T. Shutt, M.A., F.I.C., F.C.S., our First Vice-President will represent the Club officially.



## PARASITIC FUNGI.

By Adolph Lehmann, B. S. A.

*(Read at Microscopical Soiree, No. 2, 25th February, 1892.)*

One of the many branches of science which is almost exclusively dependent on the microscope for its development, is Mycology or the study of that group of minute plants known as fungi.

This group is an exceedingly large one and, as might be expected, some of its members vary considerably in size and appearance; even more so than some of our forest trees differ from the herbaceous plants growing underneath them. A few like the mushrooms and toadstools are comparatively large; but the number of these compared with those invisible to the naked eye is so small that if the average size of the fungi could be ascertained this would not be materially increased by the former. Therefore, speaking of the group, we call it one of microscopic plants; or plants of which even the outline cannot be seen without a microscope.

In addition to great differences in size, very varied forms of structure and reproduction are found in this group; but one of the characteristics the fungi have in common is that they do not possess the peculiar green colouring matter, called chlorophyll, by which other plants are enabled to transform water and the carbonic acid of the atmosphere into starch or some closely allied compounds. Not being able to do this they must absorb them from other plants or animals or some of their products. They are, therefore either parasitic or saprophytic; the former if they draw their nutriment from living tissues, the latter if from their remains.

Nearly all the fungi have numerous slender filaments ramifying through the material on which they live. Generally this is the only portion of the plant existing in its early stage. It grows very rapidly and constitutes what is known as *mycelium*. From it, branches are sent out which, either directly or indirectly, produce minute reproductive cells called *spores*. Like the seeds of the higher plants, these serve the double purpose of multiplying and perpetuating the species. Many fungi produce two kinds of spores the one for quickly spreading its growth, the other, a resting spore, able to withstand extremes of climate, for tiding over periods unfavourable to the growth of the parent. Most

spores are very small and are easily carried by the wind, as they float in large numbers in the air. Owing to this, the diseases caused by fungi spread very easily.

One of the simplest fungi is the Yeast plant (*Saccharomyces*). It possesses no mycelium, consisting simply of a single, oval cell. Spores are seldom, if ever, formed. It reproduces itself by budding, *i. e.* by bulging out at some point till the protuberance resembles the parent cell and is separated from it by a wall. To study its growth a microscope magnifying 400 to 600 diameters and an artificially heated slide are necessary. It lives on materials containing grape sugar and has the power of splitting the latter into carbonic acid and alcohol. The manufacturer of beer is largely dependent on this lower form of life, for it transforms the sugar produced from the starch by the sprouting or malting of barley into the alcohol found in beer. But it does not assist man only in the manufacture of beer, wine, cider and other alcoholic beverages or the products, like vinegar, derived from the same; but performs an almost equally important role in the production of "the staff of life." The yeast growing in the dough gives rise to successive little bubbles of carbonic acid gas which retained by the latter till baked causes the rising of the dough and the production of a light and more easily digested bread.

A more typical fungus, the various stages of which are shown in some of the microscopes before you, is the one producing the disease known as "Rust" on the various grains and grasses. This disease, most prevalent in wet seasons on heavily manured soils, is generally first noticed by the appearance of reddish-brown spots on the leaves and stems of cereals, which rapidly multiply till the grain ripens. These spots consist of loosely attached, unicellular, oval, somewhat spiny, reddish-brown spores, which carried by the wind, birds or insects to other places, quickly germinate, producing a mass of mycelium and in turn another crop of similar spores. These successive crops of *uredo spores*, as they are called, continue to be produced till the nutriment in the straw lessened by the ripening of the grain and the growth of the fungus is not sufficient to support a vigorous growth of the latter. The parasite then terminates its growth for the season by the production of a somewhat larger, dark brown, two-celled resting spore seen on the

straw during winter in the form of dark, linear patches; such as you will find on this sample of straw. Germinating in spring both of the cells may produce short filaments bearing on the points of its several branches small globular cells known as *sporidia*, easily transported by the wind when detached. Shortly after the leaves of the Barberries have expanded thickened patches, dotted with minute yellow spots, may frequently be seen on them. The yellow spots are clusters of a large number of spores gathered together as chains in cup shaped masses and embedded in the diseased, thickened tissues of the leaf through which the mycelium passes in every direction. These spores produced on the barberry leaf may, after being brought in contact with growing grain or grasses, again produce the red rust. This fungus absorbing the nutriment in the stem and leaves of the grain which would otherwise be stored in the seed, causes the latter, instead of being entirely filled to present a more or less small and shrivelled appearance reducing it sometimes very materially, in weight and quality.

In order to check the development or spread of injurious fungi it is important to know as much about their methods of growth and reproduction as possible. Even the knowledge that a disease is caused by a fungus may be of great value in itself, as this would make us careful to destroy or disinfect, as much as possible such materials on which these organisms might be growing. The thickenings sometimes seen on plum or cherry trees, known as "Black Knot" (caused by a fungus) should therefore not only be cut off but burned. The knowledge that the fungoid growth appearing on the leaves of the potato vines causes later on the rot of the tuber, enables us to fight this enemy before the potatoes are taken out of the ground. Much loss has also been prevented by the discovery that the disease on grains known as Smut, produced by the spores clinging to the seed grain can be overcome by soaking the grain before sowing, in a solution of copper sulphate.

The pleasure to be derived from the study of this group of plants is, therefore, not confined to seeing the beauty and harmony of nature but may be materially enhanced by discovering something of value to the human family. Many of those who use the microscope for recreation or amusement will doubtless find this a study well worth while pursuing.

ON THE SEQUENCE OF STRATA FORMING THE QUEBEC  
GROUP OF LOGAN AND BILLINGS, WITH REMARKS  
ON THE FOSSIL REMAINS FOUND THEREIN.

By Henry M. Ami, M.A., F.G.S., &c., of the Geological Survey.

(Presented to the Royal Society of Canada by Dr. G. M. Dawson,  
F.R.S. &c., May, 1891.)

(Abstract.)

The paper dealt with the Geological facts and grounds upon which the Quebec group rested and made it a necessary term in the geological nomenclature of strata in North America, but especially in the Province of Quebec.

The grounds, upon which the separation of the various terranes constituting this natural group was based, as well as the faunal and physical relations of its different members, were pointed out, showing the validity of the existence of such a series of fossiliferous sedimentary strata as that which Sir William Logan had recognized and Mr. Billings so clearly demonstrated early in the "sixties."

The removal of the so-called Hudson River black graptolitic series of shales, etc., which are met with at Quebec City, at the west end of the Island of Orleans, along the Marsouin River, and at many other places in the Province of Quebec—at Norman's Kiln, in the State of New York, and in Penobscot County, Maine, and other places in the United States—from an uppermost position in the Ordovician System—immediately above the Utica, or just below the base of the Silurian System—was absolutely necessary in the light of facts whether palæontological or stratigraphical or in the light of other physical reasons.

The characteristics of this so-called "Hudson River" series of rocks, when studied in the field as well as in closer detail, point clearly to its intimate relation and association with the "Levis" of Sir William Logan's Quebec group. The *Levis* and the *Quebec* formations or terranes along with the *Sillery*, form a group of terranes geologically and geographically closely related, which can be divided and sub-divided

in many instances into definite zones or horizons and smaller subdivisions, all of which were deposited under peculiar conditions such as characterised the lower half of the Ordovician (Cambro-Silurian) Epoch in geology.

It will thus appear that the rocks constituting the *Quebec terrane* (which term has been used and is being adopted by many American geologists as a proper one with which to designate these so-called "Hudson River" rocks) form part and parcel of the original "Quebec Group" of Logan.

The paper went on to refer to the faunas entom'ed in each of these three divisions, care being taken to exclude from the list of characteristic species—such forms as were not found *in situ* or from the rocks proper of each series—whether from loose pieces or from conglomerates or conglomerate like bands, in order that the possibilities of error in correlation as well as in palæontological or faunal differentiation might be lessened in the problem which like the present one affords such diversity of relations and complicated terms.

The paper is, in fact, a sequel to the writer's contribution read before the Geological Society of America at Washington, last December and published since. (See *Bulletin of the Geological Society of America*, Vol. II., pp. 477-502, plate 20, 1891.) Whilst the latter dealt more particularly with the region about Quebec City—the present one referred to the relations and characteristics of the Quebec Group of Logan and Billings throughout the whole extent of the Province of Quebec and contiguous districts, upon which to base the proofs for the validity and actual existence of such a group or series of terranes in that portion of North America. The equivalency of the term "Canadian Period," or "Canadian Epoch," as used by Prof. James D. Dana and others, is also adduced as further evidence, corroborative of the magnificent work performed by Sir William Logan in elucidating the complex structure of the Province of Quebec—which work with the exception of Sir William Dawson, in several papers and reports—found scarcely any advocate, whilst its factors are based upon principles and data which are as durable as the rocks from which they proceed or with which they are related.

*Terranes.*

ORDOVICIAN SYSTEM.	Upper	$\left. \begin{array}{l} 1. \text{ HUDSON RIVER, } (= \text{ LORRAINE.}) \\ 2. \text{ UTICA,} \\ 3. \text{ TRENTON,} \\ 4. \text{ BLACK RIVER,} \end{array} \right\}$	TRENTON GROUP.	<i>Terranes.</i> $\left. \begin{array}{l} \text{Quebec.} \\ \text{Levis.} \\ \text{Sillery.} \end{array} \right\}$
	Lower	$\left. \begin{array}{l} 5. \text{ CHAZY,} \\ 6. \text{ CALCIFEROUS,} \end{array} \right\}$	QUEBEC GROUP.	

The above table is given to indicate the relations of the various members of the Ordovician (Cambro-Silurian) System in Canada showing the position of the "*Quebec Terrane*" in the lower half of the system instead of being classed or grouped along with the Hudson River (= Lorraine) terrane at the very top of the system as formerly. The exact relations, stratigraphical and palæontological, which exist between the Quebec, Levis and Sillery terranes have yet to be defined. Their sequence and order in the scale of time require further investigations before this interesting fact can be ascertained on which Sir Wm. Logan and Mr. Billings were still actively engaged when called away.

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### NATURAL HISTORY OBSERVATIONS.

A form for registering observations of the first and last records in Natural History has just been issued by the Royal Society of Canada. This form has been drawn up by a committee of the Royal Society and distributed to the different Natural History and Scientific Societies throughout the country. Observations are asked for upon certain well-known wild plants in all the Provinces of the Dominion, the time of sowing and harvesting grain and the ripening of wild and cultivated fruits. Then follow the arrivals and departures of birds and the most noticeable meteorological occurrences.

There is no doubt that the Royal Society will gather together by this means most valuable information. It is proposed to have the schedules collected once a year and the results laid before the Royal Society for publication in their annual Volume of Transactions.

## OBITUARY.

We regret to have to record the death, on 23rd ult., at Cap Rouge, near Quebec, of the Abbé Léon Provancher, F.R.S.C., a noted Canadian Naturalist, and one of the corresponding members of the Ottawa Field Naturalists' Club. For many years the Abbé had devoted almost his whole time to the study of the natural history of Canada (especially of the Province of Quebec) and to the publication of the results of his labours. In 1869 he began to issue the "Naturaliste Canadien," the last volume of which, No. XX, was completed in 1891. He also wrote a Flora of Canada, three volumes upon portions of the Insect fauna, a treatise upon the Univalve Molluscs, and several other works. Of the above the most important is the Faune Entomologique, in which are described many new species of insects captured at Ottawa. The types of many of these, and of the other species described by the Abbé, remain in his collection, and we sincerely hope that arrangements will be made by which this collection, which has a special value from that fact, may be deposited in some public institution and may not be either broken up and distributed, or even neglected until destroyed by insects. The Abbé Provancher was born at Becancour, Que., in 1820, and before residing at Cap Rouge was for some years Curé of Portneuf.

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## EXCURSION No. 1.—TO KIRK'S FERRY.

The first excursion of the season will be held on Saturday, June 4th, to Kirk's Ferry. The excursionists will leave the Union Depot by the Gatineau Valley Railway at 9.45 a.m., *punctually*, and will be back in Ottawa at 7.30 p.m. This will give the party from 10.45 in the morning until 6.30 in the evening for collecting in this beautiful locality. It is hoped there will be a large attendance of members of the Club and their friends. The Railway Company have promised ample accomodation, and tickets may be obtained at the railway station or previously of any member of the Council, at the following rates:—

Members, adults . . . . .	50 cents.
“ children . . . . .	25 “
Non-members, adults . . . . .	60 “
“ children . . . . .	30 “



## SUMMARY

— OR —

# Canadian Mining Regulations.

## NOTICE.

THE following is a summary of the Regulations with respect to the manner of recording claims for *Mineral Lands*, other than Coal Lands, and the conditions governing the purchase of the same.

Any person may explore vacant Dominion Lands not appropriated or reserved by Government for other purposes, and may search therein, either by surface or subterranean prospecting, for mineral deposits, with a view to obtaining a mining location for the same, but no mining location shall be granted until actual discovery has been made of the vein, lode or deposit of mineral or metal within the limits of the location of claim.

A location for mining, except for *Iron* or *Petroleum*, shall not be more than 1500 feet in length, nor more than 600 feet in breadth. A location for mining *Iron* or *Petroleum* shall not exceed 160 acres in area.

On discovering a mineral deposit any person may obtain a mining location, upon marking out his location on the ground, in accordance with the regulations in that behalf, and filing with the Agent of Dominion Lands for the district, within sixty days from discovery, an affidavit in form prescribed by Mining Regulations, and paying at the same time an office fee of five dollars, which will entitle the person so recording his claim to enter into possession of the location applied for.

At any time before the expiration of five years from the date of recording his claim, the claimant may, upon filing proof with the Local Agent that he has expended \$500.00 in actual mining operations on the claim, by paying to the Local Agent therefor \$5 per acre cash and a further sum of \$50 to cover the cost of survey, obtain a patent for said claim as provided in the said Mining Regulations.

*Copies of the Regulations may be obtained upon application to the Department of the Interior.*

**A. M. BURGESS,**

Deputy of the Minister of the Interior.

DEPARTMENT OF THE INTERIOR, }  
Ottawa, Canada, December 19th, 1887. }



EXCURSION No. 1—KIRK'S FERRY—JUNE 4th.

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