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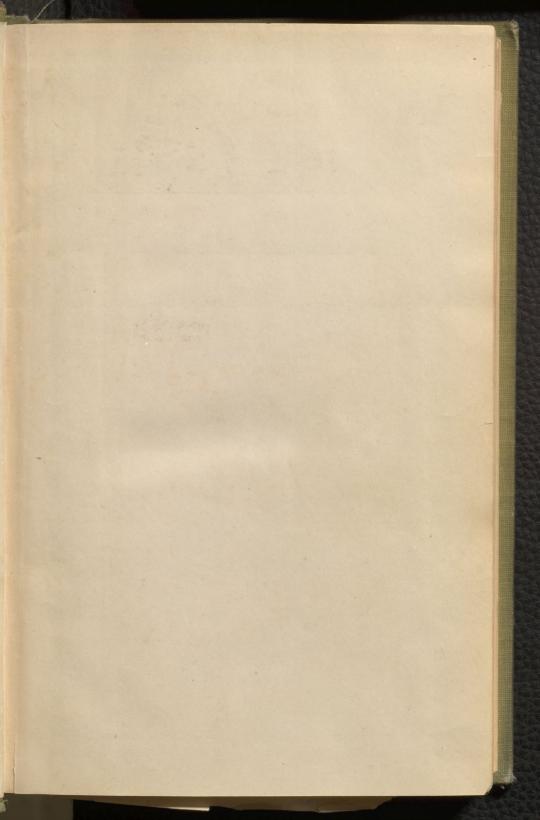


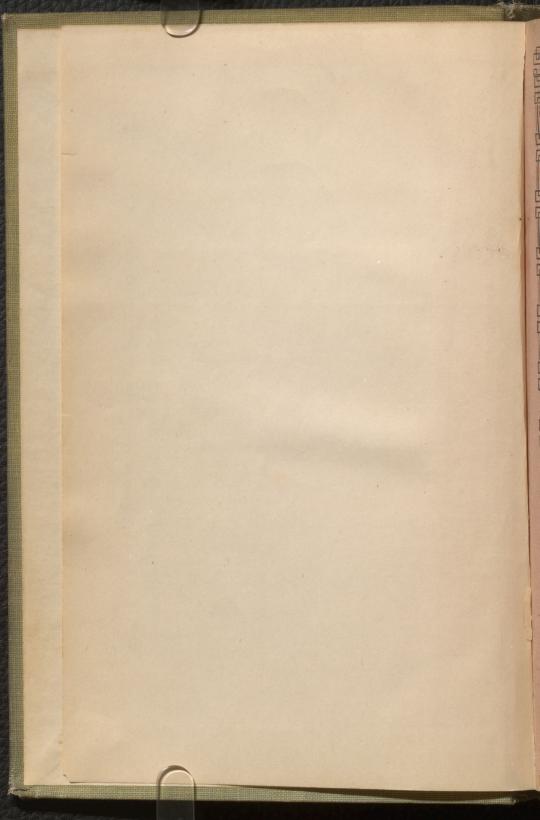
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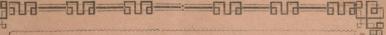
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TWENTY-SIXTH

## ANNUAL REPORT

OF THE

## NATURAL HISTORY SOCIETY

OF MONTREAL,

DELIVERED BY THE LATE COUNCIL,

- AND ----

READ AT THE MEETING OF THE SOCIETY,

18th May, 1854.

#### MONTREAL:

PRINTED BY WILSON & NOLAN, M'GILL STREET. 1854.

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PRINTED BY WILSON & NOLAN, M'GILL STREET.
1854.

### OFFICE-BEARERS AND COUNCIL,

#### FOR THE YEAR 1854-5.

First Vice-President..... Dr. Sutherland.

Second Vice-President ..... L. A. H. LATOUR, Esq.

Third Vice-President..... DR. Jones.

Corresponding Secretary .... DR. D. C. M'CALLUM.

Recording Secretary.....A. N. RENNIE, Esq.

Treasurer..... Dr. Benjamin Workman.

Cabinet-Keeper & Librarian . . DR. WM. WRIGHT,

DR. FRASER,

DR. SCOTT,

DR. BARNSTON,

Rev. A. DeSola, and

H. A. DAVIES, Esq.

## REPORT, &c.

### TO THE NATURAL HISTORY SOCIETY OF MONTREAL:

THE conclusion of another year in the operations of your Society having arrived, your Council beg to lay before you a sketch of them, at this, the Annual Meeting, not only as the last duty devolving upon them, but to evince to the Members of the Society that, though not marked with any peculiar features, they have been progressively instrumental in furthering their great object of extending and preserving in the public mind, the importance and the utility of the study of Natural History.

The free opening of your Museum on Holidays, has been found greatly conducive to this end, having been inspected by a great number of persons on such occasions, while some improvements in the arrangement of the specimens by your Curator, have enabled visitors to examine them with greater facility.

The crowded state of the rooms, however, has made this inspection at times inconvenient, and your Council have had their thoughts anxiously directed to an enquery into the possibility of obtaining a larger and more commodious building in a more eligible situation. For this purpose, a Special Committee was formed, the result of whose labour was, however, after most diligent enquiry and very mature deliberation, on account of the advanced value of land, particularly in suitable central sites, to recommend to the Council for the present, to give up the project of a removal. Your Council were therefore reluctantly compelled to relinquish all further attempts to accomplish the scheme, or to recommend it to the Society, in the hope that a more favourable opportunity may be afforded to their successors, to realise what they have so earnestly desired, on account of its evident tendency to promote the interests of the Society.

Your Council regret their having to report the withdrawal during the year of the late President, Major R. Lachlan,

CTTSC

from the office he held with so much benefit to the Society; and also of W. E. Logan, Esq., the Provincial Geologist, who was elected to succeed him. They have pleasure, however, in congratulating the members upon the election of the Rev. Dr. Leach, as their successor in the Presidency of the Society.

The Council also have to regret their inability to accomplish the wishes of their predecessors, to establish Literary Soireés,—difficulties having operated to frustrate their endeavours, and postpone the accomplishment of so desirable a measure.

The following Report of the Librarian and Cabinet-keeper, will show the present state of the Library and Museum, which, though not very greatly enlarged, have received some valuable additions to their contents. Your Council trust, however, from the means they have used, to call the attention of the Corresponding Members to this department of the Society's efforts, to receive from them more liberal contributions ere long.

The Report of the Treasurer and Finance Committee will be found to contain a statement of the Society's Financial affairs, that calls for the earnest and immediate consideration of the members. The receipt of the grant of £150 from Government has, as will be perceived, enabled your Council to reduce the amount due, on account of the purchase of the Society's premises, to £150, so that the payment of this sum whenever it can be effected, will put the Society into entire possession of the valuable property they hold.

The paucity of the Society's funds have completely prevented your Council from adding anything to the Museum by purchase, or to the Library any of the valuable scientific works now in course of publication, and still less to do anything in promoting the objects of the Society by the offer of Prizes to successful candidates for Essays on subjects of Natural History, important to the interests of Canada.

Your Council feel it to be a duty incumbent on them to call the particular attention of the Society to the valuable Report of your excellent Treasurer, who has with indefatigable pains examined the accounts of the Society for 18 years, to prove that some augmentation of the annual sub-

scription is necessary, in order to enable its Funds to bear their present and prospective expenditure. From a careful perusal of that document, your Council are impressed with a conviction, that it has become their duty also, strongly to recommend the increase of the Annual Subscription, as suggested by the Treasurer.

The Council have pleasure in announcing that the number of the Society's Members has been augmented by the addition of Lord Ellesmere, and Robert Stephenson, Esq., M.P., as Honorary Members; nine Corresponding Members; and twelve Ordinary Members.

Your Committee have, however, to regret the loss of two Ordinary Members by death; and three by resignation; leaving the number of paying members at present on the list, 139, being a nett increase of 10 members during the year.

The Lectures delivered during the Winter Session, have been generally well attended, and were the following:—

- 1. The Introductory Lecture, by the President—Rev. Dr. Leach. Subject:—Geology.
- 2. By Edwin C. Bockus, Esq. Subject:—The Scottish Rebellion, in 1845.
- 3. By Dr. Hingston. Subject :- Sound.
- 4. By Professor Andrew. Subject:—Writing: the origin, mode, and materials.
- 5. By the Rev. J. Cordner. Subject:—An Excursion on Mount Righi.
- 6. By J. T. Dutton, Esq. Subject:—The Aurora Borealis
  —its Phenomena—peculiar Meteorological Exhibitions—and probable Causes.
- 7. By T. S. Hunt, Esq. Subject:—The Physical History of the Races of Man.
- 8. By Dr. B. Workman. Subject: The Geology of Montreal.
- 9. The Concluding Lecture—by A. N. Rennie, Esq. Subject:—The relation between Poetry and History.

The Council beg to acknowledge the debt of gratitude due to the gentlemen who consented to deliver the foregoing Lectures, and trust that their efforts will stimulate others to imitate their example, and when at leisure, prepare materials for the next Winter's Course. They would also embrace the opportunity of continuing the appeal of their predecessors, to make strenuous efforts for the regular establishment of literary and scientific Soirées, in connexion with the operations of the Society; being persuaded that at a moderate expense, they might be made instrumental in calling forth much native talent, and exciting in the young a strong desire for literary and scientific attainments.

Your Council having failed in opening any negotiation likely to be successful in obtaining a more suitable building, would recommend an immediate survey of the present one, in order to effect such repairs as are necessary, to preserve it from fire and delapidation; some parts of it being too much exposed to danger from fire, and other parts having been found affected by the weather, to an extent calculated to deteriorate the building, and lessen its value.

In conclusion, the Council would urge upon the officers and members, the necessity of persevering and sedulous attention to the interests of the Society, and zealous exertion during the coming year; and especially to maintain a punctual attendance upon the Monthly Meetings; being convinced that it will require all the efforts which the Society can put forth, to maintain its standing as a principal deposit of specimens of Natural History, in Canada, and the pioneer of the Science in British North America.

All which is respectfully submitted.

T. K. RAMSAY, Chairman.

COMMITTEE ROOM,
Montreal, 15th May, 1854.

## LIBRARIAN AND CABINET-KEEPER'S REPORT.

#### 1858-4.

Since the period of the last Annual Meeting, I have to report that the alterations in the Museum then in course of progress, have been completed. Furthermore, that the Mineralogical apartment has undergone considerable improvement; a room has been fitted up with such statues, busts, &c., as belong to the Society; the walls of the passages of the upper stories have been decorated with the war, and other implements of various nations; suitable cases have been procured for the coins, medals, &c.; and changes have been made in the disposition of different specimens, with a view to their more correct arrangement. The want of funds to meet the necessary expenses, has delayed farther improvements, some of which are much needed, as: the purchase of cases for a number of specimens, chiefly ornithological, which are unprotected from accident and destruction.

The chief additions during the past year to the Museum, have been in coins and minerals; of the coins, 43 in number, some are exceedingly rare, while others are duplicates of those already in possession. Two gentlemen have each contributed a highly prized donation of 15 mineralogical specimens, in good preservation, and of well marked characters. To one donor, Mr. Samuels, the Society is much indebted for a number of objects brought by him from the Marquesas and adjoining Islands, most of which exhibit the ingenuity and workmanship of the native inhabitants.

The number of paying visitors has been comparatively small. The Library has been augmented by but very few donations, and these for the most part have consisted of pamphlets, there being in the whole number but five volumes. The donors have chiefly been gentlemen residing out of the city. The Society has not had the means of procuring any works by purchase. Measures were adopted to secure the return of the missing books, 150 in number; but so far, they have proved quite ineffectual. It is very desira-

ble that this valuable property should be restored, and it has been suggested that advertisements in the daily papers might

be productive of success.

A Register has been opened for the entry of donations to the Museum and Library, and at much trouble it has been drawn up from the foundation of the Society, in 1827, to the present time; and gives as complete an enumeration of the articles presented, with the names and residence of their donors, as the records of the Society permit.

In conclusion, it is proposed that Members, both Ordinary and Corresponding, be solicited and encouraged to make personal donations to both Museum and Library. (Signed,)

WM. WRIGHT, M.D.,

Librarian and Cabinet-Keeper.

ments some of which are unch needed, as: the numbrase of cases for a number of specimens, cheffy armithological

moters. To one donor, Mr. Sumuela the Secrety is much indebted for a number of objects brought by him from the out of the city. The Society has not had the means of procuring any works by purchase. Aleasures were adopted to secure the return of the missing books, 159 in number; but

#### TREASURER'S REPORT.

#### 1858-4.

In submitting a statement of the Financial condition of the Society, the Treasurer deems it necessary to notice:

- 1. The Debts.
- 2. Sources of pecuniary support.
- 3. Contingencies to be provided for.
- 4. Means for improving our pecuniary resources.
- 5. Items of Income and Expenditure, during last year.

#### I. DEBTS.

These are included under two heads, a Mortgage Debt, and Miscellaneous Unsetfled Accounts, viz.:—

Mortgage	150	0	0	
tising, and Stationery	£ 25	14	5	
Total Debts due by the Society	175	14	5	

#### II. SOURCES OF PECUNIARY SUPPORT.

These consist of Entrance Fees, collected at the door of the Museum; a charge of one dollar for each Diploma issued; an Annual Subscription of two dollars each, from Members; and a small Aunual Parliamentary Grant. During the past year, there were received:—

Entrance Fees paid at the Door of the Museum £	3	0	0	
For Diplomas, and Interest, &c	8	2	11	
For Subscriptions of Members	52	10	0	
Parliamentary Grants—				
For 1851-2	50	0	0	
For 1852–3	50	0	0	
For the House	150	0	0	
	-	-	-	

Total Income of the Society during the year 1853-4..... £313 12 11

### III. CONTINGENCIES TO BE PROVIDED FOR.

#### These consist of-

Repairs required on House and Cabinet	€200 30	0	0
Curator's Salary	20	0	0
Gurators Salary. Fuel, (say) Gas Light		0	. 0
Gas Light Stationery	5		
Interest of Debt	9		
Water Rent			0
City Taxes			6
Incidental Expenses, (say)	25	0	0
Total	£311	17	6

This Estimate does not provide for any increase to the Salary of the Curator, a contingency, which, in view of the great advances in the prices of every necessary of life, and the duties and responsibilities devolving upon him, ought to be entertained. From these premises, it may be safely affirmed, that a sum of more than three hundred pounds would be required during the coming year, to keep the Society, its House, and Museum, in a safe and complete condition.

#### IV. MEANS OF IMPROVING OUR PECUNIARY RESOURCES.

This is the most important, and at the same time, the most embarrassing question that presents itself to the Society. It has been already stated, that our resources of income, exclusive of Parliamentary Grant, do not exceed £64 per annum, while the Society has to provide for an outlay of at least £300, with only 141 members, paying ten shillings each; a small Annual Parliamentary Grant, and a few other trivial items, to meet this amount. How is this deficiency to be made up? Would it not be advisable interalia to increase the Annual Subscription of members? If we do so, we can come before Parliament with a good grace, to ask for an augmentation of Legislative munificence. No step taken by the Society, since its commencement, has so seriously impaired its financial affairs, as the reduction of its Annual Subscriptions from five dollars to two dollars.— Upon reference to the accounts of the Society, the undersigned finds, that the aggregate amount of subscriptions paid in during the years 1834, 1835, 1836, 1837, 1838, 1839, 1840, 1841, and 1842, was £842 13s. Od., being an average of £93 12s. 7d. per annum, realised from members' subscriptions, when the rate was five dollars per annum. The aggregate amount of subscriptions paid in during the nine years that have elapsed since the rate was reduced to ten shillings for each member, viz.: 1845, 1846, 1847, 1848, 1849, 1850, 1851, 1852 and 1853, is only £342 12s. 6d., being an average of £38 1s. 5d. per annum. Such have been the disastrous results of this penurious policy. It does not appear clear to the undersigned how the Society could have escaped actual insolvency, as the consequence of this reduction, had it not been so fortunate as to be enabled to realize a considerable sum annually, by renting a part of its edifice to the Provincial Geological Survey, and thereby materially alleviating its crippled pecuniary condition for several years. But as this source of income is now no longer available, the question arises,-how can we sustain our enterprise? The undersigned sees no other mode of doing so but by an increase of the Annual Subscriptions, and an augmentation of our Annual Parliamentary Grant.

V. ITEMS OF INCOME AND EXPENDITURE DURING THE LAST YEAR.

These will be seen by a reference to the Account Current which accompanies this report.

## Natural History Society in Account with Benjamin Workman, Treasurer.

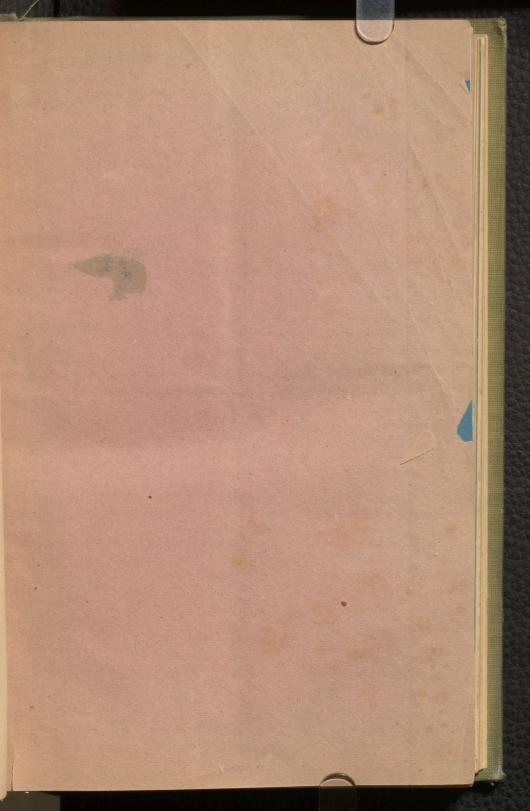
—— Dr. ——	
1853.	
HOUSE AND HOUSE-FIXTURES—	Ву
Mortgage—Paid W.Watson, in part 125 0 0	SU
CARPENTERS' WORK—	Co
Paid Dr. Gibb, for work superin-	Co
tended by him in the Museum 9 15 1	To
" A. & A. M'Donald	
" James Simpson	P
" J. Lapthorn 1 5 8½	Re
Winter Door 1 0 0	
Small repairs 5 5 9	
$45 17 9\frac{1}{2}$	Te
PLASTERERS' WORK—	SI
Paid Akin & Morrison 2 17 3 " J. M'Lean, 0 19 7	E
3 16 10	In
PAINTERS' WORK AND PAPERING-	
Paid W. Lloyd, Painter 3 0 0	Ву
" O. M'Garvey, do 2 13 9	
" G. Holland, paper 1 1 4	
Plumbers' Work	
Total for House and Fixtures 188 14 51	
COMMISSIONS—	
J. Hoggard, on Collections of Sub- scriptions 2 6 9	
City Bank, Com. on Gov't. Grants. 0 12 6	
City & District Savings' Bank, discount on U. C. money 0 0 7½	
2 19 10½	
POSTAGES—	
Paid J. T. Dutton 0 5 0 " " last year 0 10 3	
" Major Luchlan 0 5 3	

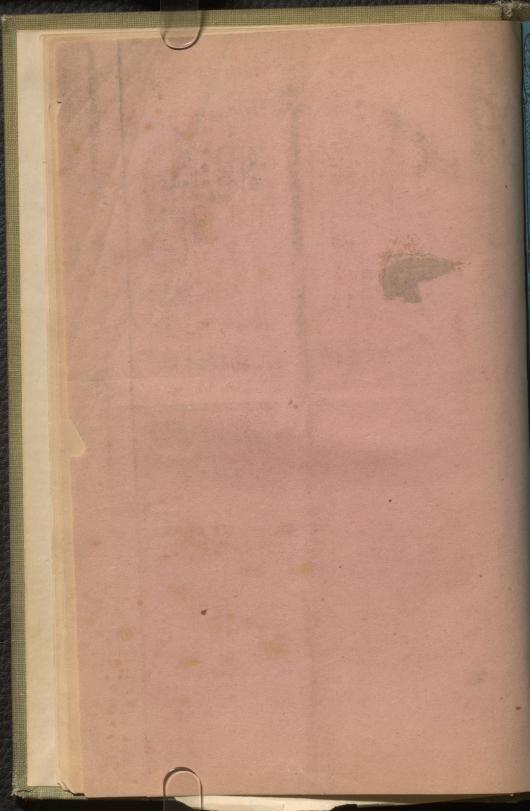
——— Cr. ———	
1853.	
By Balance on hand this day	£ 3 14 7
SUBSCRIPTIONS	
Collected from 106 members £ 52 10	0
Collected for 17 Diplomas 4 5	
Total for Subscriptions and Diplomas	56 15 0
PARLIAMENTARY GRANTS	
Received for 1851-2 50 0	
40 101 1002 0111111111111111111111111111	0
101 10000	
Total Parliamentary Grants	250 0 0
SUNDRIES—	
Entrance Fees received at door	0
Bank, to 31st Dec., 1853 0 17	
	- 3 17 11 3 0 4
By Balance due Treasurer	3 4 1

## Natural History Society in Account with Benjamin Workman, Treasurer.

——————————————————————————————————————	Cr
1853.	1853.
HOUSE AND HOUSE-FIXTURES—	By Balance on hand this day £ 3 14 7
MORTGAGE—Paid W. Watson, in part 125 0 0	SUBSCRIPTIONS-
CARPENTERS' WORK-	Collected from 106 members £ 52 10 0   Collected for 17 Diplomas 4 5 0
Paid Dr. Gibb, for work superin-	
tended by him in the Museum. 9 15 1  A. & A. M'Donald	Total for Subscriptions and Diplomas 56 15 0
" James Simpson	PARLIAMENTARY GRANTS
" John Ash 0 17 6 " J. Lapthorn 1 5 8½	Received for 1851–2
Winter Door 1 0 0	do for 1852-3
Small repairs 5 5 9 45 17 9½	200.00
PLASTERERS' WORK—	Total Parametricity Grants
Paid Akin & Morrison 2 17 3	SUNDRIES—
" J. M'Lean, 0 19 7	Entrance Fees received at door 3 0 0 Interest at City and District Savings'
3 16 10	Bank, to 31st Dec., 1853 0 17 11
PAINTERS' WORK AND PAPERING—	By Relence due Treesurer 3 17 11
Paid W. Lloyd, Painter 3 0 0 "O. M'Garvey, do 2 13 9	By Balance due Treasurer
" G. Holland, paper 1 1 4	
Plumbers' Work	
Total for House and Fixtures 188 14 5½	
COMMISSIONS—	
J. Hoggard, on Collections of Sub- scriptions	
City Bank, Com. on Gov't. Grants. 0 12 6	
City & District Savings' Bank, discount on U. C. money 0 0 7½	
2 19 10½	
POSTAGES—	
Paid J. T. Dutton 0 5 0 " " last year 0 10 3	
Major Lachlan 0 5 3	
" B. Workman 0 5 3	
Total Commissions and Postages 4 5 7½	
INCIDENTALS—	
Salary paid Thos. Broome, in full to 1st May, 1854	
FIREWOOD—	
Paid Evans, Bro's	
" Thos. Broome 0 16 3	
" Sawing, 9s 4d, 14s 7d, 2s 6d 1 6 5	
Advertisements—	
Paid Montreal Herald 1 5 0	
" Transcript 0 5 0 1 10 0	
Engraving —	
Paid G. Matthews	
<del></del>	
Candles—	
Moore, Owler & Stavens 2 9 0	
200000000000000000000000000000000000000	
Paid W. Watson, Interest	
Water Rent. 9 7 6 Insurance. 3 0 0	
" J. Gillespie fiving G 10 0 0	
" R. & A Millon, N.P. 012 0	
Medical Chronicle. 2 6 4 Medical Journal 0 10 0	
" A. G. Lachlan	
" for cleaning Private a Seal. 2 17 c	
" Express 3 0 0	
Total for Incidentals	
£124 7 9	
£317 7 10	
	ons excepted ) £317 7 10
MONTREAL, 17th May, 1854. (Errors and omissi	
	BENJAMIN WORKMAN, Treasurer.

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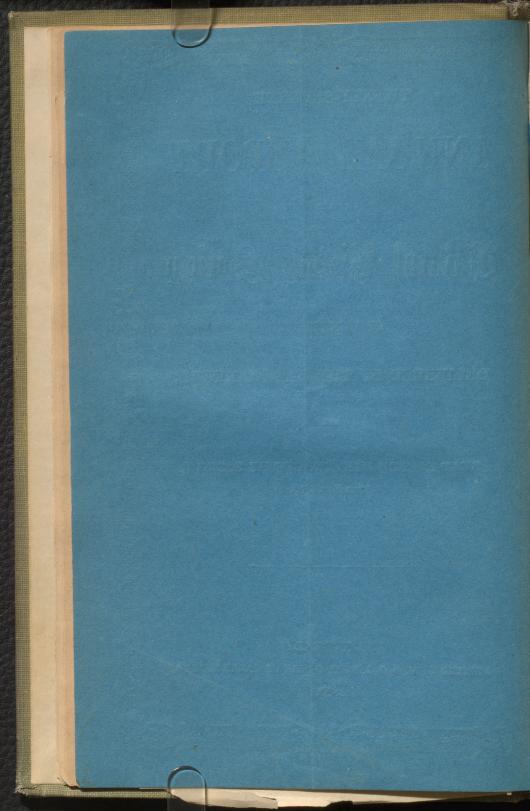
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1855.



TWENTY-SEVENTH

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MONTREAL:

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## OFFICE BEARERS AND COUNCIL

FOR THE YEAR 1855-6.

President.......The Lord Bishop of Montreal.

First Vice-President.....Professor W. Andrew.

Second Vice-President....L. A. H. Latour, Esq.

Third Vice-President....W. H. A. Davies, Esq.

Corresponding Secretary...Dr. D. C. M'Callum.

Recording Secretary...A. N. Rennie, Esq.

Treasurer......Dr. Benjamin Workman.

Cabinet Keeper & Librarian...Dr. Wm. Wright,

Dr. Fraser, Dr. Scott, Dr. Barnston,

Dr. Hingston, George Brown, Esq.

MONTHEAL:

#### REPORT.

#### TO THE NATURAL HISTORY SOCIETY OF MONTREAL.

The period when, according to custom, a sketch of the proceedings of the Natural History Society, for the last twelve months, should be submitted to the members, having again arrived, your Council proceed to discharge the duty imposed upon them.

If they cannot congratulate the members upon any great increase in the prosperity or influence of the Society, they can at least say that its sphere of usefulness has not been diminished, and that the number of its members continues to increase. The great object for which it was established, that of extending and preserving in the public mind the importance and utility of the study of Natural History, has been steadily persevered in; and if the laborers have been few, and the discouragements met with many, it is hoped that the efforts made have not been entirely fruitless, and that in the wide field embraced within the operations of the Society, additional help will be received, and more energetic action entered upon, during the course of the present year.

In accordance with the recommendation contained in the last report of the Council, the Society resolved that from the first of January last the annual subscription should be raised to four dollars. The Treasurer has shewn that heretofore the higher rate of subscription worked well; the present effect of this measure yet remains to be tested; the accounts for the present year at the increased rate, not being yet issued, your Council having deemed it expedient, in view of the general monetary depression, and the additional calls thereby occasioned, to defer collecting the subscriptions until the business season had fairly commenced. They recommend to their successors that this work should now be immediately undertaken, and they trust when members refleet how much the prosperity and usefulness of a Society depend upon the manner in which the annual contributions to its funds are paid up, that they will not be backward in performing this part of their duty, by discharging the arrears which are now outstanding, as well as paying up the subscription for the current year.

The Council, on the departure of Lord Elgin, late Governor-General of this Province, the then Patron of the Society, hailed with satisfaction the arrival of His Excellency Sir Edmund Head, his successor. His classical and literary reputation had preceded

him to this Colony, and his attachment to pursuits of a kindred nature to their own, pointed him out as one whose acceptance of the office his predecessor's return to England had left vacant, would reflect honor on the Society. His Excellency's late visit to Montreal afforded a desirable opportunity of ascertaining his wishes on this point. The council, headed by the President, and accompanied by several members of the Society, accordingly waited on His Excellency with a congratulatory address, at the same time respectfully praying him to become their Patron. They are happy to inform the Society that their reception was a most cordial one, and that Sir Edmund Head most readily and in the kindest manner consented thus to honor them. The Council would respectfully recommend that His Excellency be elected an Honorary Member of the Society.

The Librarian and Cabinet Keeper's Report, annexed, will shew the state of the Museum and Library, and the additions made thereto during the past year. The Council cannot but join in the regret expressed in this report at the paucity of the Donations, especially to the Museum, the increase of which must always be an object of paramount interest to the Society. With respect to the Library the Council cannot refrain from saying, that, with the present imperfect accommodation, there is little inducement for members either to give to, or consult, the Library of the Society; they earnestly recommend this subject to the consideration of their successors in office, with a view to giving greater accommodation to this portion of the Society's property. During the course of the year the Society passed a Resolution abolishing the small fee which had previously been exacted from Visitors to the Museum, thus doing away with the last restriction to the free admission of the public to their collections. The Council have much pleasure in stating that this measure has been followed by no ill effects to the safety of the Museum. It is an earnest of the willingness of the Society to do their part in making their collection what it ought to be, a national one.

The council have not lost sight of the recommendation of their predecessors, as to the propriety of establishing Literary Soirees as soon as the difficulties that have hitherto operated to prevent their organization could be overcome; the council, however, regret to say that the same difficulties still militate against the introduction of so desirable a measure, and that consequently nothing has been done during the past year in this matter.

The council have to express their regret that the services of so few of the members have been obtained as Lecturers during the last session. In this respect, however, they have been more fortunate than some other Literary Societies, who were unable to find sufficient assistance to form a course. The following are

REPORT.

the lectures that have been delivered with the names of the Lecturers and their subjects:

1. The introductory Lecture, by Dr. Workman. Subject—The importance of the study of Natural History.

2. By Dr. Barnston. Subject—The Flora of Monteal Mountain.

3. By J. T. Dutton, Esq. Subject—The utility and importance of the Science of Chemisty to Commerce and Manufactures.

4. By Dr. Hingston. Subject-Animalculæ.

5. By A. N. Rennie, Esq. Subject-Prose Fiction.

6. By J. T Dutton, Esq. Subject—A continuation of his first Lecture.

The Council acknowledge the debt of gratitute due to the gentlemen who so kindly came to their assistance when required, and delivered this series of lectures. They hope a regular course will be entered upon next sesson, and are happy to say that already four names have been obtained, who promise to be

prepared as soon as called upon to open the course.

Besides these Lectures forming the Society's regular course, at one of the ordinary meetings Dr. Barnston read an excellent Memoir on the Chimpanzee or Black Ourang of Africa, and at another meeting Mr. Dutton read a paper on "Geology." Both subjects excited some discusson, and the council cannot help expressing a hope that contributions in this shape will, for the future, become more general from the members, and that the ordinary meetings will not always be simply for the transaction of routine business, but may also be for receiving and imparting of

information in this very agreeable manner.

The Treasurer's Report contains a statement of the Society's financial affairs, which deserves the particular attention of the members. Only 68 of their number have contributed by their annual subscriptions to the funds of the Society during the past year.\* The amount thus received, together with the Government Grant of £150, has barely sufficed to keep the Society in working order, and to pay off a small portion of the debt on the premises. While the council would speak with respect of the aid afforded to the Society by the Legislature, they cannot refrain from contrasting the liberality shewn by that body during the last few sessions to other institutions of a similar description, with the aid afforded to this Society. Towards promoting the study of Natural History, and affording the public the means whereby they may gratify it, and for an extensive and general collection, both animal and mineral, no other Society in this Province has done so much, or laboured so long, and yet the assistance furnished to

<sup>\*</sup> This does not include of course the subscriptions for 1854, collected from 40 members previous to the Annual Meeting on 18th May, 1854, as those were included in the Treasurer's Report for 1853-4.

us by the Legislature is in the proportion of rather less than one fourth of that afforded to the Canadian Institute in Toronto,the grants made to the Natural History Society during the last three years amounting to £400, while those to the Canadian Institute have reached £1750. It is hardly necessary for the Council to state that in making these remarks it is very far indeed from their intention to disparage the exertions or the utility of that Institution, whose greater good fortune they have instanced, nor would they for a moment imagine that the grants they have received are too much. Far from it; fellow laborers with ourselves in the field of science, we hail with pleasure and satisfaction the aid granted to them by the liberality of the Legislature, while at the same time it is permitted to us to bring the precedent thus afforded, as a reason why aid to a similar amount should also be afforded to us, an older institution. Your Council would therefore recommend that a representation to this effect be made to the Executive, and that additional assistance be prayed for, so as to enable the Society to carry out more effectually the design for which it was established.

The Society during the past year have had to regret the death of one of their oldest and most energetic members, and one whose exertions in promoting the cause that the Society has at heart, were beyond all praise. It is to the liberality and kindness of the late Dr. M'Culloch that the Society is indebted for many of the finest specimens that now enrich its museum. vote of condolence with his widow and family, in their deep affliction, has already been passed, but the Council feel assured that these few passing words, "in memoria," will be responded to and appreciated by every member of the Society. With this exception, and the loss of Sir James Alexander who, having left this country, has been put on the list of Cerresponding Members, there has been nothing in the shape of loss to chronicle. The number of Ordinary Members at present on the list is 148, twelve having been admitted during the year; to the list of Corresponding Members four additions have been made, while only two members have withdrawn from the Society.

Having now traced the leading features of the Society's history during the past year, it only remains for the Council to make a few remarks on its present position and future prospects. While it would be useless to deny that the state and position of the Society are not satisfactory, and that its career of usefulness has not, of late years, been such as the friends of science could have wished, the Council would yet fain hope that it has in some degree been progressive; but the Society must ever bear in mind that the rate of progress which would, in the earlier stages of its history, have been satisfactory, will now no longer be considered so, in view of its increased means as exemplified

REPORT.

in its collections; nor must it be forgotten that, in the scientific as in the moral world, the possession of wealth entails with it. the responsibility of making a proper use of it, under the inexorable penalty of disgrace and ruin. Possessed of an extensive museum, enriched through the means of Legislative grants, to some extent, it is not, it cannot be, permitted to the Society to rest satisfied with being the mere custodians of the treasures they hold,—something more is expected from them,—these treasures must be increased, and the knowledge of nature they are calculated to impart must be made available by every possible means. Nor are the expectations of those who look for something more from the Natural History Society than being mere cabinet-keepers unreasonable. We have taken an honorable title upon us, and the public have a right to demand that we should act up to the duties entailed upon us by such an assumption, nor while we bear the name can we rid ourselves of the duties implied by such a name. Fortunately the duties so assumed, and the opportunities for carrying them out, are neither difficult in the one case nor unfrequent in the other; the one consists in doing everything in our power to aid and assist in the extension of the study and of the science of Natural History, by lectures and by the publication of such facts as are of interest in that science, as well as by the collection of all such objects as illustrate it—and the other consists in the wide field opened for our exertions; for placed in a new and almost unexplored country, every fact or specimen we can collect is sure to be of interest either as confirmatory of something known before, or as illustrative of something till then unknown.

It ought to be the honorable ambition of every society that its fame should not be confined to the locality where it is placed, but that it should be favorably known abroad, and this object can only be attained by means of the press. The Council would therefore suggest the expediency of establishing a quarterly or semi-annual publication by the society, of papers connected with scientific subjects, more particularly those of Natural History. They cannot but think that the society must possess among its records many papers of value, that might be published to advantage, and that among the members of the society there is a sufficient amount of talent and scientific knowledge to insure the continuation of such a publication when once begun. It is the opinion of this Council that no means the society could take to arouse its dormant energies or awaken a taste for the study of nature would be so efficacious as this; they therefore earnestly recommend it to the consideration of the Society.

Before concluding, the Council would bring under the notice of the society the state of their property. The house is far from being in the state of repair it ought to be; they would therefore recommend that an immediate survey of it should be made, for the purpose of ascertaining the extent and amount of the deterioration, and the sum required to put it in thorough repair.

It now only remains for your Council to reiterate the urgent recommendations of their predecessors, as to the necessity of persevering and sedulous attention to the interests of the society, and of zealous exertions during the coming year. Every motive that can animate the lover of science calls for them, and success must as a matter of course crown their efforts, if made in such a spirit; while, on the contrary, apathy and neglect must entail a languid and useless existence on the part of the society. For the members may be assured that it is only by sparing no exertions on their part that they can make the society a useful one, or derive practical and permanent advantage from the important and interesting study the Natural History Society professes to encourage.

W. H. A. DAVIES,

Chairman of Council.

Natural History Society's Rooms, Montreal, 18th May, 1855.

#### REPORT

OF

### THE LIBRARIAN & CABINET KEEPER FOR 1854-5.

The accessions that have been made to the Library and Museum during the twelve months now elapsed are detailed in the subscribed statements. From a comparison of them with those presented at the last anniversary meeting, it will be observed that recently the augmentation in donations to the Library exceeded in number the specimens that had been given to the Museum, while on the previous year the increase was chiefly

experienced by the latter department of the Society.

The list of new books has been so arranged as to dispose them into two groups. 1stly, Transactions of Public Bodies; 2ndly, Monographs. The more important of the works under the former division will be found to be the Statutes of Canada, Transactions of the American Institute for 8 years, and the volumes containing the Bombay and Madras Magnetical Observations. Under the latter head, one in particular may be signalized, viz., Cassin's Illustrations of the Birds of California, Texes, Oregon, British and Russian America.

Regret cannot but be felt at the paucity of additions made to the Museum, and that notwithstanding repeated solicitations, members especially, the corresponding are rather more remiss than formerly in their responses to enrich the Cabinet with

objects of Natural History.

Of the alterations made in the internal arrangements of the Museum, it is only necessary to particularize one: the coins which had hitherto been in the custody of one of our members have been collected and deposited in the Mineralogical Apartment in suitable cases, expressly manufactured for their safe keeping. The present Report may not be inaptly concluded with an extract from its predecessor. "The want of funds to meet the necessary expenses has delayed further improvements, some of which are much needed, as the purchase of cases for a number of specimens, chiefly ornithological, which are unprotected from accident and destruction." To this it may be added, that the glass cases now in the Library are insufficiently commodious for its purposes, and that many valuable books have consequently to be temporarily stowed away in obscurity.

WM. WRIGHT, M.D., Librarian & Cabinet Keeper.

## DONATIONS, &c., TO THE LIBRARY, 1854-5.

Statutes of Canada, 1854-5, 2 parts.

Edit's Ordonnances Royaux, 1854.

Transactions of American Institute, 8 vols, 1847 to 1853, inclusive, from the American Institute of New York.

Transactions of Literary and Historical Society, Quebec, January 1855, from the Society. Bombay Magnetical and Meteorological Observations, 1850, from

the Court of Directors.

Proceedings of Boston Society of Natural History, Vols. 1, 2 and 3, and Nos. 1, 2, 3, 4 and 5 of Vol. 4, from L. A. H. Latour, Esq.

Seventh Annual Report of the Regents of the University of the State of New York of the Cabinet of Natural History, January, 1854.

New York State Register, 1845-6, by O. S. Holley, Esq., from Editor.

City Inspectors Report, New York, from J. B. Sabine, Esq. Disturnell's Railway and Steamboat Guide, from the Editor. Disturnell's American and European Guide, from the Editor. Annual Announcement of Medical Faculty of McGill College. Notes sur les regitres de Notre Dame de Quebec, from J. B. A.

Ferland, Esq.

Notes of a Half-pay in Search of Health, from H. E. Scott, Esq. Neglect of Chemistry by Practical Farmers, by E. J. Hemming, from Author.

Advantages of Study of Natural History Society, a Lecture, by E. Crisp.

Illustrations of the Birds of California, Texes, Oregon, British and Russian America, by John Cassin, 1853, 6 parts, from the Author.

Exploration Geologique du Canada, from Dr. Workman. . Description of and Remarks on a Chimpanzee, by J. Barnston,

M.D., from the Writer.

The following publications have been received during the year 1854-5:--

Medical Chronicle, monthly, Montreal. Canadian Journal, monthly, Toronto. Canada Gazette, weekly, Quebec.

Law Reporter, Montreal.

Canadian Literary News Letter, 2 numbers, Montreal.

### DONATIONS TO THE MUSEUM, 1854-5.

Young Crabs taken out of Oysters, from W. E. Isaacson, Esq. Stone taken from Bed of River St. Lawrence, from A. N. Rennie, Esq.

Three Specimens of Ore from Valparaiso, (2 gold, 1 native silver) from Captain Fraser.

Petrified Wood taken from Swift Creek, L. Ca., from Captain Fraser.

Petrified Deer's Antler, from S. Ducharun, Esq., Lachine.
Three sets of Copper Coins, 6, 4 and 7 in number, respectively, from L. A. H. Latour, Esq.

May 17, To balance due Treasurer  paid T. Broome, 12 months' salary,  paid for Firewood,  paid Candles and Gas  paid Freight and Postages  paid Collectors' Commissions  paid on Mortgage and Interest  paid Repairs of House and  incidentals  1855.  May 17, To balance on hand	- £3 0 - 30 0 - 31 1 - 2 14 - 0 12 - 1 15 - 59 0 - 57 10	0 3½ 4 2½ 0 0	1854-5.  By cash received from 68 members - £34 0 cash for a Diploma 0 5 cash subscription for Gas Fixtures - 2 12 cash Government Grants - 150 0	6 1
	£186 17	6	May 17, By balance to new account 1 3	9

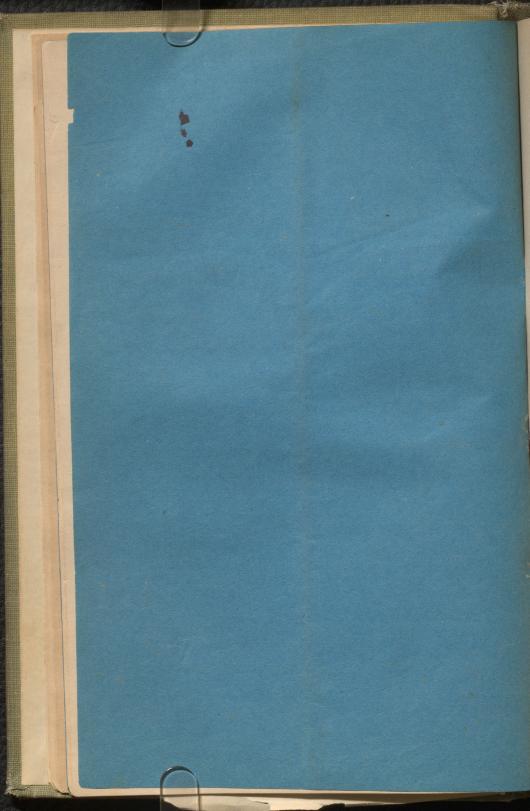
E. and O. E.

B. WORKMAN,

Treasurer.

Examined and found correct,
ALEX. DIGBY CAMPBELL.
GEORGE BROWNE.





## TWENTY-EIGHTH

# ANNUAL REPORT

OF THE

# Natural Mistory Society

OF MONTREAL,

DELIVERED BY THE LATE COUNCIL,

AND

READ AT THE ANNUAL MEETING OF THE SOCIETY, 19th May, 1856.

MONTREAL:

PRINTED BY HENRY ROSE, GREAT SAINT JAMES STREET.
1856.

## OFFICE BEARERS AND COUNCIL

FOR THE YEAR 1856-7.

PresidentMR. PRINCIPAL DAWSON.
President From From
First Vice-PresidentL. A. H. LATOUR, Esq.
Second Vice-President
Third Vice-President
TreasurerDr. Workman.
Corresponding Secretary Dr. Hingston.
Recording SecretaryA. N. RENNIE, Esq.
Curator and LibrarianDr. Barnston.
CouncilREV. CANON LEACH, D.C.L., REV. A. KEMP, DE
R. P. Howard, J. T. Dutton, Esq., Dr. Fraser.
Library Committee Dr. McCallum, Dr. Jones, Dr. Wright
DR. SCOTT, REV. CANON GILSON, M.A.

#### TWENTY-EIGHTH

## ANNUAL REPORT.

AT the Annual General Meeting of the NATURAL HISTORY SOCIETY, held in the Museum on Monday May 19th, 1856, Present,—The Lord Bishop of Montreal, President of the Society in the Chair; Rev. A. D. Campbell, Rev. A. Kemp, Drs. Fraser, Workman, Wright, Scott, McCallum, Jones, Kingdom, Hingston, Barnston, Fenwick, Principal Dawson, Messrs. Davis, Latour, Rennie, Dutton, Commissary General Ibbetson, Brown, Himsworth.

The minutes of the last Annual General Meeting were read

over and confirmed.

And after the transaction of some routine business the following Report from the Council was read by Dr. Hingston, and submitted for approval:—

### TO THE NATURAL HISTORY SOCIETY OF MONTREAL.

THE COUNCIL of the Natural History Society of Montreal, in obedience to custom and constitutional requirement, respectfully submit to the Members, their Report of the progress of the Institution, during the past year.

In this Report, your Council will state such facts as may appear to be necessary to a connected history of the Institution, and offer such suggestions as may seem important to its future

management.

In the first place, however, they deem it advisable to give a short and general résumé of the history of the Society since its foundation, so as to prove of interest to the members generally—more especially to those who have lately joined the Society; and for this purpose, they avail themselves largely of the industry of a former President of this Society—Major Lachlan.

The Natural History Society was founded in the year 1827,
— its first patron being the Earl of Dalhousie, and its first presi-

dent, Stephen Sewell, Esq.

It was incorporated by an Act of the Provincial Parliament, (12 Will. IV. c. 15.) in 1832, which received the Royal Sanction in February, 1833.

At its foundation it numbered 26 members, of whom only one is now connected with the Society, namely, Dr. Holmes, to whom we owe the catalogue of our mineralogical and geological cabinet.

At the date of its incorporation there were about 100 ordainary members, of whom about thirteen are still connected with the

Institution.

In 1835, it was proposed to have essays read before the Society "On the physical history of Rivers in general and the St. Lawrence in particular," and "On the circumstances affecting climate in general and Canada in particular."

In 1836, the Society purchased its present residence; and subsequently many valuable donations were made to the Mu-

seum and Library.

Circulars were addressed to the various corresponding members and to the Governor of the Hudson's Bay Territory, inviting attention to the subject of Meteorology in British North America.

To the Council of the same year is due the honour of having first drawn the attention of Government, to the advantages calculated to result from a Geological survey of the Province.

By an ordinance of 1841, the Government contemplated the merging of this Society, the Mechanics' Institute, and Montreal Library, into one Institution, to be called "The Montreal Institution of Literature, Science and Art," having its site in the Bonsecours Market Building, with the privilege of an annual donation of £300 from the city. But this comprehensive Scheme was never carried into effect.

In 1845, the Rev. Mr. Somerville laid the foundation for a regular course of lectures before the Society by a generous dona-

tion of £1000.

In 1846, the Museum was thrown open to the public at a triff-

ing charge.

During the following year, under the patronage of Lord Elgin, it was resolved to publish such approved Essays as were in possession of the Society.

The fee for life membership, which had been £10 up to this

time, was now reduced to £5.

In 1848, it was proposed to grant three medals for the best Essays on subjects connected with natural history. The num-

ber of members this year was 144.

The past year has not been unproductive of benefit. The Society's building has undergone complete repair; the roof has been newly covered; the Library and Council room have been transformed into a large and handsome apartment. The lecture room has undergone transition from a small room on the ground

floor, to a spacious Hall on the third story of the building, which is disposed with great advantage to both lecturer and audience, whilst around the walls are a series of spaces for the reception

of stuffed animals, glass cases, &c.

These improvements have been effected under the able superintendence of George Brown, Esq. They have occasioned a considerable addition to the usual annual expenses, and it was in consequence found necessary to effect a loan of £400, for three

years, at six per cent.

The Edifice is now better suited to the purposes which it is intended. The first story consists of two rooms, one of which is devoted to the library, and the other to the geological department. The second story is divided into two spaces, one occupied by the ornithological collection, the other by the entomological department.

The third story forms the new lecture room capable of com-

fortably seating 250 persons.

The Council have the pleasure of announcing a larger increase to the list of members than usual, there being no less than seven corresponding and twenty-one ordinary ones during the year, making a total of 165 active members.

The losses by death and other causes, since the last annual meeting, though not numerous, have been severely felt; and your Council are sorry to include the name of one of their former presidents—the late Dr. Crawford, whose zeal has in no small degree contributed to the advancement of our Society's interest; and by whose liberality the Museum has been enriched with many of its valuable specimens.

They regret to be called upon to record the demise of the Rev. Zadock Thompson of Burlington, Vermont, a corresponding member of the Society, and the departure from among them of Lieut.-General W. Rowan for England. We have still however the benefit of his assistance as a corresponding member of the Society.

With these exceptions there is little in the form of loss to

record.

The Annual Course of Lectures delivered under the auspices of the Society commenced on Tuesday the 12th day of February of the present year, and were unusually successful.

The introductory lecture was given by His Lordship the Anglican Bishop of Montreal, President of the Society; subject—"The connection between Literature and Science—with some general remarks upon the study of Natural History."

The course was continued in the following order:— February 27th. By J. W. Dawson, F. G. S., Principal of McGill College; Subject—"Physical Geography of the Lower Provinces."

March 4th. By James Barnston, M. D.; Subject-"Coleridge's

Philosophy of Life."
March 11th. By W. H. Hingston, M. D.; Subject—" Circu-

lation of the Blood."
March 18th. By Ass.-Com.-Gen. Ibbetson; Subject—" Ento-

mology."
April 8th. Concluding lecture, by B. Workman, M. D.;

Subject-" Wonders of Geology,"

The Council are deeply indebted to these Gentlemen for their very able efforts in their favour. They congratulate the Society on the large attendance at these lectures, and the increased interest manifested in them. Your Council trust, that, during the ensuing year, the regular course of lectures will comprehend a still larger number; and recommend that an essay be read and discussed at every monthly meeting of the Society, with the view, to render these more instructive and interesting, and to ensure a large attendance of members and visitors.

The By-Laws of the Society have been submitted to a committee of revision pursuant to a resolution of the Society on the

subject; and are shortly to be printed.

Agreeably with the desire of the Canadian Institute of Toronto, to be furnished with the monthly reports of the proceedings of this Society, the necessary matter has been forwarded and published in the "Canadian Journal."

In accordance with the recommendation contained in the last Annual Report, our patron, Sir Edmund Walker Head, has been duly elected an honorary member.

The Council beg to submit the names of their retiring President, His Lordship the Anglican Bishop of Montreal, Sir Wm. Edmond Logan and Charles Smallwood, M. D., L. L. D., as justly meriting a like honour.

The Council have much pleasure in stating that during the month of March last, a committee of the three Vice Presidents and four other members, in company with a few gentlemen interested in Meteorological science, visited the Observatory of Charles Smallwood, M. D., L. L. D., at St. Martin's Isle Jesus, C. E., and a report on the subject of that gentleman's valuable and extended labors was laid before the Society and ordered to be published.

Your Council subsequently forwarded a petition to Parliament praying for such assistance as would enable Dr. Smallwood to publish the records which he has made for the last fifteen years, and to continue the prosecution of his investigations. (The

project of establishing an observatory in Montreal or its neighbourhood was included in the same prayer.)

If to such observations were added an analysis by some member of the society, of those already made, a very valuable amount of information would be furnished to meteorological science.

In this brief general résumé your Council find sufficient reason to feel, on the whole, satisfied with the struggles of a Society like this placed by its very nature, so far in advance of our crude national state.

There is sufficient ability in our Society at the present time to raise it to the very proudest rank of literary excellence; and all we need is merely to effect a proper distribution of our forces.

For this end your Council would recommend such a division of the members of the Society into committees on the following subjects, as one of its members has already submitted, namely:

1st .- Botany.

2nd.—Ichthyology, Herpetology and Entomology.

3rd.—Ornithology.

4th.—Other departments of Zoology.

5th.—Geology, Mineralogy and Conchology. 6th.—Comparative Anatomy and Physiology.

7th. - Indian Curiosities, Antiquities, and Miscellanies.

8th.—Library.

Your Council are of opinion that it would be to the Society's advantage, to make a careful distribution of duplicate specimens in the Museum among Institutions of a kindred nature within and beyond the Province. The act would no doubt be cordially

reciprocated, and the Museum enriched thereby.

It is also thought advisable to petition the Legislature for a copy-right Law, making it compulsory on all Publishers to contribute a copy of every publication to the several literary and scientific Institutions of the Province. In the mean time members are not denied the privilege of contributing to the Library and Museum; a priviledge most cheerfully accorded likewise to the public.

For a more complete account of the condition and prospects of the Finance, Library, Museum and Collections, you are referred to the accompanying reports of the Treasurer and of the Librari-

an and Cabinet Keeper.

In conclusion, your Council, taking a retrospective glance at the proceedings of the past year have every reason to hope that the Society has merged pour toujours from that anomalous position—so little in harmony with the objects of its founders, and in surrendering their trust into other hands they would beg to accompany it with the hope that the Natural History Society,—established to encourage the study and investigation of the

g REPORT.

varied and ever varying physical phenomena of our Country,—possessing a Library which embraces one of the best collections of valuable works pertaining to all branches of positive knowledge in this country; and a museum containing an extensive and varied collection of objects of Natural History—which the liberality of the Members has thrown open to the public free of charge—may meet with even greater success, and obtain that liberal support from its members and the public to which it is justly entitled.

L. A. HUGUET LATOUR,

1st Vice-President.

Montreal, 19th May, 1856.

The Treasurer of the Society (B. Workman, M.D.) then read the following account and statement:

1856. [av 1. T	o Ca	ash naid	Salaries -			The state of		£ 40	0	0	1855. May 17	By	Balance in Treasurer's hand £ 1 3
	"	11	Fuel -				_			Million II	1856.	23	Dalance in Treasurer's hand £ 1 3
	"	li .	Gas -	-	40	-	-	3	17	9	May 1,	"	Subscriptions, & Diplomas, received fees
	66	"	Water -	-	-20	-	-	3	0	0	1000年		to this date 65 5
	"	"	Freights -	-	-	- 1		1	8	11		"	"Government Grant 50 0
	46	"	Postages	-	-	4-1	-		2	3		"	Cash borrowed on Mortgage 400 0
	"	"	Printing	-	-	-	-	23	12	9		"	Interest at Montreal Savings Bank - 2 9
	"	"	Advertising	-	-	1-1	-	6	15	7		.00	" City & District " 1 15
	"	"	Interest		-	1-1	-	8	5	3	1 6 9 5		
	"	.11	Commissions	-	-	-	-	2	16	6			
	"	1).	Repairs	6-1	-	4-4	-	300	0	0	10000		
	"	"	Insurance	-	-	-	-	25	0	0			
	11	"	Incidentals	-	-	-	-	27	0	51			
	" Be	alance t	o New Accoun	it	-	-	-	51	14	31			
								£520	13	1	PETE		£520 13

E. and O. E.

B. WORKMAN,

Treasurer.

Examined and found correct,

W. H. A. DAVIES.

### REMARKS.

The Treasurer in submitting his Annual Account Current, would append thereto the following remarks, viz:—

ESTIMATE OF EXPENDITURE FOR 1856-7.			
Balance yet due Contractor for repairs	£ 72	16	0
Required to complete Repairs, say	75	0	0
Salaries	40	0	0
Interest	30	0	0
Outstanding Accounts for articles purchased			
for repairs, but of which purchases Ac-			
counts have not yet been rendered	15	0	0
Chairs & Table	20	0	0
Paper & Paperhanging	5	0	0
Fuel and Light	30	0	0
Incidental Expences	25	0	0
Incidental Expences	_		
Estimated Amount required for 1856-7	£312	16	0
RESOURCES.			
Ill Heasurers hands			
Subscriptions			
Interest at the Savings Dank, Sajitte			
Government Grant 50 0 0	178	0	0
Estimated Deficit	£134	16	0
Estimated Denoter			
BENJAMIN V	TODEM	AN	
DENGAMIN		asure	141
Montreal, 1st May, 1856.	116	usure	
	nol amba	anint	iona
P.S.—This statement will shew that the change of the Ann	uar suos	Eine	noog
from Ten Shillings to Twenty Shillings has been advantageous	s to the	rina	nces
of the Society, viz:	0 0		. ^
Subscriptions and Diplomas in 1855-6 produce			
Do. Do. 1854-5	34	5	0
Gain	£ 21	0	0
Galn	, . £ 31	0	0
	The same of the sa	DESCRIPTION OF REAL PROPERTY.	CONTRACTOR OF

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Upon motion by Mr. Dutton seconded by Rev. A. D. Campbell, the Report as read was received and adopted, and ordered to be printed and circulated, and the Lord Bishop of Montreal, Sir Wm. Logan, Knight, F. R. S., F. G. S., L. L. D., &c., &c., and Charles Smallwood, M.D., L. L. D., were by acclamation elected Honorary Members.

Drs. Fraser and Barnston having been appointed Scrutineers, the Meeting then proceeded to Ballot for Office Bearers for the current year; when the following were declared elected:

President..... MR. PRINCIPAL DAWSON.

First Vice-President ..... L. A. H. LATOUR, Esq.

Second Vice-President .... W. H. A. DAVIES, Esq.

Third Vice-President ..... REV. A. D. CAMPBELL, M. A.

Treasurer..... Dr. Workman.

Cor. Secretary...... Dr. Hingston.

Rec. Secretary.....A. N. RENNIE, Esq.

Curator and Librarian....Dr. Barnston.

Council....Rev. Canon Leach, D.C. L.; Rev. A. Kemp; Dr.

R. P. HOWARD; J. T. DUTTON, Esq.; DR, FRASER.

Library Committee.......Dr. McCallum; Dr. Jones; Dr. Wright; Dr. Scott; Rev. Canon Gilson, M.A.

Upon motion of Dr. Workman, seconded by Dr. Scott, a cordial vote of thanks was passed to the Lord Bishop of Montreal for his kindness in having consented to fill the President's chair, the able and zealous manner in which he had discharged the duties of his office during the past year, and the exertions he had made in the cause of science, in extending the sphere of operations of the Society, and adding to its list of members.

The meeting then adjourned.

### PROCEEDINGS AT THE SOIREE.

On Tuesday evening, the 20th May, 1856, the members of the Society gavea Soiree in honor of Sir Wm. E. Logan, one of its members, which was numerously and fashionably attended. Upwards of 150 ladies and gentlemen, the elite of the city and neighborhood, were present, and the proceedings of the evening were listened to with the deepest interest and attention. At half past seven o'clock precisely, the Lord Bishop of Montreal, accompanied by the guest of the evening, and the Council of the Society, entered the Lecture Room, and took their places. The Bishop was supported on the left by J. W. Dawson, Esq., Principal of McGill College, and President elect of the Society. The Meeting was opened by his Lordship calling on Mr. Rennie, the Secretary, to read the minutes of the Annual Meeting and Report of Council. This having been done, his Lordship said, —It is now my pleasing duty to read and present to Sir Wm. Logan, our honored guest, the following address from the Natural History Society:—

To Sir William Edmund Logan, Knight, F. R. S., F.G. S., L. L. D., &c., &c., Chev aer of ilthe Legion of Honor, Director of the Geological Survey of Canada.

SIR, - It is with feelings of sincere pleasure mingled with no small degree of pride that we, the President and Members of the Natural History Society of Montreal, welcome you as our guest on the present occasion. We have invited you here this evening, not merely from a sense of duty, nor in consideration of the honor your presence would confer upon us, but likewise for the purpose of testifying publicly the interest which we, as a Scientific Institution, have always taken in your indefatigable labours to advance the cause of Geological Science in Canada. It is for this latter reason, that the opportunity now presented of acknowledging your valuable services, both to Science and our country, affords us unfeigned gratification. As Director of the Geological Survey of this Province, you have laboured for a long series of years with unremitting zeal and assiduity, and if your untiring efforts have surmounted the many difficulties of a scheme, in its nature so extensive and gigantic, and have at length met with that success to which they are so justly entitled, we rejoice to think that the rewards so honorably gained have been acquired by one whom Canada claims, not only as her brightest ornament in Science, but as her honored and cherished son.

Limited as have been the means hitherto placed at your disposal in order to carry out your investigations, you have nevertheless, by skilful economy and at much personal sacrifice, succeeded in bringing to light the valuable internal resources of our country, and of raising our Province to that high and important position

which it now holds in foreign estimation. That the Provincial Legislature has appreciated your past labors, and is convinced of the necessity of continuing the noble work under your guidance, is abundantly proved by the munificent grant of the present session towards the Geological Survey, and we believe this is but the echo of the mind of an intelligent public.

Your unwearied efforts when in London and Paris, on two memorable occasions, have been acknowledged in a manner which must be very gratifying to you; and while we congratulate you upon the high honors received at the hands of our Most Gracious Queen and of his august Majesty the Emperor of the French, we are no less rejoiced to know that Science, from its loftiest throne, has not omitted to present to you its highest tributes of praise, and its rarest token of reward, in acknowledgment of your valuable researches and discoveries in one of its most important departments. The value of such honors can only be measured by the severe toils and hardships of those mental and bodily labors which have so happily gained them; and our humble prayer is, that you may long live to enjoy these rewards, and continue to prosecute those researches, which will prove lasting memorials of your talents and perseverance, and be of permanent benefit to the country.

In thus tendering you our hearty congratulations, we beg respectfully to present you with the highest mark of esteem and recognition our Society can bestow, namely, the Diploma of Honorary Member of the Natural History Society of Montreal.

(Signed)

F. Montreal,
President.

A. N. Rennie, Rec.-Secretary.

Montreal, May 20, 1856.

SIR WM. LOGAN said, -- My Lord, Ladies and Gentlemen, I have to return your Lordship and the members of the Natural History Society my sincere thanks for the very flattering address you have just read, and the honor you have done me, in bestowing the highest mark of your esteem and approbation upon me, by presenting me with the diploma of an Honorary Member of the Society. The marks of distinction which have been bestowed upon me, as the fruits of my labors connected with the Geological Survey of Canada, are no doubt highly appreciated by me-both those from the hands of the Queen of England, and the Emperor of France, and those of the learned of both countries. And though the marks of your consideration, my Lord, come after them, and are perhaps in part given to me in consequence of them, yet I do not on that account esteem them the less; for I have a grateful remembrance of the satisfaction with which many years ago, when residing in England, I received the diploma of a corresponding member of this Society, and that, before I had given to the public any geological researches worthy of notice (applause.) I was happy, my Lord, to receive that diploma from the hands of my old master, Mr. Skakel, to whose instructions I am indebted for the first rudiments I obtained of some of those exact sciences connected with that branch of geology which I have since more especially pursued (applause.) I cannot forget, also, that though ten years before the establishment of the geological survey, many worthy and enlightened persons both in and out of parliament, had endeavoured to induce government to grant their aid in the investigation of our mineral resources, yet it was only in the time of Lord Sydenham, when petitions had been forwarded from the Natural History Society of Montreal, and the Literary and Historical Society of Quebec, the former presented by Mr. Holmes, and the latter by Mr. Black-it was only then that the Hon. Mr. Harrison was induced to recommend to the government the first grant bestowed upon the geological survey [cheers.] In this way, the act of this Society has, in some degree, been the cause of my opportunity; and on being elected a Fellow of the Royal Society of England, it was with great satisfaction that in enrolling myself among its members, I designated myself as a member of the Natural History Society of Montreal [cheers.] It has been a source of great satisfaction to me, that there has never yet been a single dissentient voice raised against the support given to the geological survey of the Province. The position in which the liberality of the Legislature, and the good will of the community has at present placed the survey, is a worthy object of congratulation, and will enable me to extend its usefulness. It will give me an opportunity of publishing a map of the Geology of Canada, so far as it is known-similar to that published and exhibited in France. It will, by means of illustrations, enable me to make our annual reports much more intelligible than hitherto, and afford me the means of attracting much attention to science in Canada, by publishing those new organic forms which may be found in a fossil state, while prosecuting our studies [applause.] Of these still unrepresented forms, a large collection has already been made, many of them of great interest. And in classifying and describing them I hope to have the occasional assistance of Professor Hall, Palæontologist of the State of New York, and to secure the permanent aid of Mr. Billings, of Ottawa, who has recently shown so much attachment to the science, and such an anxious desire to promote its diffusion. And I am sure, my Lord, I shall never find wanting the advice and assistance, or when his occupations will permit, the active co-operation of a distinguished member of your Society-Mr. Principal Dawson-whose researches in geology are so well and so favorably known, and whose advent among us I consider a great and sure benefit to the advance of Canadian science [loud cheers.]

His Lordship then said, it now only remains for me to quit the Presidental Chair, and the Office which, as far as I have been able, I have endeavoured to make efficient for the Society's objects, during the last twelve months. And while I look back with no small satisfaction to the efforts which have been so successfully made during the past year, by several members of this Society for the promotion of its efficiency, and the advancement of Natural Science, I cannot but rejoice that I shall close this my year of office with so graceful and appropriate an act, as the presentation of this address to Sir Wm. Logan, giv-

ing him a hearty welcome amongst us. I could have wished that it had been compatible with his other duties for him to have acceded to the request made to him on behalf of a large number of the members of the Society; and that he could have given us the aid of his counsel, and the strength of his name, if chosen as our next President. But the important business connected with the Geological Survey of the Province, which is about to be renewed under his superintendence, will make such demands upon his time and attention, and cause him to be so constantly absent from Montreal, that he informed us he would be obliged to decline the office, if it were offered him. But I feel sure that he will at all times be ready to give us his best advice and co-operation. as far as circumstances will permit; and possessing as he now does, so high a reputation for scientific knowledge-a reputation not confined to this Province or this hemisphere -he will be no small aid in promoting the efforts, which this society is now making, to place itself in connection with other learned bodies and professors of Natural Science in all parts of the world. The improvements in these premises, for the purpose of rendering them better adapted for the Society; the classified distribution of subjects, alluded to in the Report, to be made the special objects of investigation by different members in some regular order and system; and the large increase of members during the past year, lead us to hope that the forthcoming year will neither be unproductive in satisfactory results, nor uninteresting in its details; and while we trust that there will be, at the Meetings of the Society and in its Lectures enough of the popular element to attract the many, there will be also such enquires prosecuted, and advances made, as shall give evidence, that there are amongst us, some minds imbued with a true spirit of philosophy, and an ardent zeal for Natural Science. And this study is of great importance, indeed necessary, not only for the reputation of any country, but to enable it to compete with other parts of the world, and protect itself from injustice and fraud. It is only a tew days since, I read in the evidence given in London before the Committee of the House of Commons on the adulteration of Food, &c., that "a large drug grinder and manufacturing Chemist" stated that it was his belief that Rhuburb was universally ground pure. He believed it was true that there was some English Rhubarb mixed with the pure to be ground; but it was chiefly for Ireland and the Colonies." But why should the impure article be sent into the Colonial market rather than the London one, except it be that it is concluded the fraud will not be so easily detected; because Botany and Chemistry are not believed to be so actively or generally studied there, as in England? And not now to speak of "the wonders of Geology," on which subject many of us heard very recently a most interesting lecture in this room; or of the stupendous revelations which modern Astronomical Science has opened for the adoring contemplation of men, whereby, "in our day, indeed, within these few years, the scope of the material universe visible to man, has through Lord Rosse's great telescope been enlarged, as it is computed, no less than 125,000,000 times, and has brought to our view stars, worlds, systems, without number,

whose existence had scarcely been suspected before." Without enlarging upon facts like these, I will only observe, that there is no branch of trade or commerce, scarcely any amusement or means of sustaining life, where, in some way or other, scientific knowledge and scientific investigation will not be most essential to our comfort, our progress and our success. Many branches also of science necessarily require simultaneous investigation and experiments to be made, in a variety of places at the same time, in order, by general induction, to arrive at any definite conclusion; particularly, for instance, those connected with Meteorology. So that every fresh location of a well-ordered observatory, and every fresh record of any Philosophical observer, is a help towards perfecting the experiments and observations of all.

But I will not detain you any longer with more lengthened observations of mine on this occasion, when there are other and better means devised for your instruction and entertainment this evening. And since I believe it is an admitted fact that "nature abhors a vacuum," that every space within the bounds of creation, when relieved from the occupation of any one substance or portion of matter, must immediately be taken possession of by some body of some kind or other that immediately fills up the void, so it is with this our Society. True to the laws of Nature, this our "Natural History Society" has provided that on my leaving this chair, there shall be no vacancy unoccupied - for our Society in this respect, like Nature, abhors a vacuum; but it will be immediately filled by my successor, and one far more able than I can pretend to have been, to do justice to the office, and add strength and reputation, by his own scientific knowledge, to the position which he has been elected to fill. I have now only, therefore, to take my leave of you, as your President, to thank the various officers of the Society, and other members, for the kindness and attention I have received from them, and to introduce to you Mr. Dawson, F.G.S., and Principal of McGill College in this city, as the President of the " Natural History Society of Montreal," for the ensuing year. (Loud cheers.)

His Lordship then left the Chair, which having been taken by Principal Dawson, he rose and said,—I regard as a very high honor, the position in which I have been placed. I look upon it as a tribute not to myself, but to the subjects of scientific investigation to which I have devoted myself. And I hope and trust that the place of President of the Natural History Society will not during my incumbency be found a vacuum; at least, it shall not be want of exertion or pains on my part, if it be But on referring to the programme I find that I am not now to make a speech, but to announce to you what perhaps you will listen to with more pleasure, that in about twenty minutes from this time refreshments will be on the table below, and that until then we shall adjourn and inspect the collection of specimens and curiosities in the other apartments; or view the wonders and beauties of Nature through the Microscopes which Dr. Barnston and others have provided for our amusement and instruction.

The company then adjourned below, and examined with the greatest interest the collection in the Museum. Dr. Barnston and Mr. E. Murphy had three

powerful Microscopes on the table which attracted numbers of the fair visitors, and many of the gentlemen. The refreshments were prepared in the Library by Mr. Alexander, of Notre Dame Street. After an adjournment of about three quarters of an hour, business was again proceeded with in the Lecture Room.

The President (Mr. Principal Dawson) took the Chair and said :-

Ladies and Gentlemen,—It is not my intention to deliver a formal address, but merely to bring before you, perhaps in a somewhat desultory manner, a few thoughts that have occurred to me as suitable to a social meeting of this kind; and at the same time, having some bearing on the functions and policy of this Society. And in the first place, I would remind you that Science does not always appear, as on the present occasion, in holiday attire; nor does it confine itself to the lecture room or the library; but that it often toils severely and imposes on itself hard fare and self-sacrifice. It scales every mountain, gropes in every mine, toils through every wilderness, boils its camp kettle by all streams, pores over the minutest objects, anatomises the least agreeable creatures, stifles itself in laboratory fumes, breaks stones like a road maker, and carries loads like a porter. In short, when you see the scientific man in his working garb, you may well be pardoned for supposing, as a kind old lady once remarked of a Scottish geologist, that he looks like one "who has seen better days."

The true naturalist, animated by that enthusiasm which alone can furnish an adequate incentive to the work, delights in such labours, and combines them with the eager search for great general principles and natural laws. Such men must form the basis of a society like this. Without them there may be meetings and agreeable small talk, but no progress in original investigation. To such men, on the other hand, a scientific association offers great benefits. It gives them that encouragement which they often require; it gives them means of investigation which, individually, they could not command; it gives them influence by their union with one another, and with men who value science, though they may not themselves labour in its advancement as original enquirers. Above all, it gives opportunities for friendly discussion. Isolated enquirers, especially in a new country, where few can devote themselves wholly to scientific pursuits, are very liable to be satisfied with half truths, which are near akin to error, or to enter on unprofitable paths of enquiry. But if they bring their results before a society like this, they are subjected to the criticism of others who may have had superior opportunities of investigation, or who from the same facts, may have reached conclusions in some respects different. Free discussion of this kind is the life of science : and however hardly the author of a paper may be dealt with, if he is a true lover of truth, he feels satisfied that to have all defects and errors thoroughly exposed is best, not only for the interests of science, but for his own ultimate reputation.

To such free and fearless criticism every paper, however high the the reputation of its author, must be subjected in a scientific society; because the object is not to uphold any preconceived views, but to arrive at the pure and simple

truth. Many persons present must have read in the last of the late Edward Forbes's lighter productions, his review of Murchison's Siluria, the comparison of the discussions of the Geological Society, so fierce in their progress, yet so friendly in their issue, with the carousals of the deified heroes in the Scandinavian Valhalla, where the fabled gods of our ancestors were supposed, after their feasts, to hack and cut each other to pieces, only that by the vigour of their immortal nature, each fragment might be immediately restored to its fellow, and all reappear sound and unhart. You may also remember the anecdote, in the same paper, of a military gentleman, who having been present at one of these disputatious meetings, retired somewhat precipitately, under the conviction that if he remained he would infallibly be called on to act as second in some of the affairs of honour which must grow out of the discussion. The Report read this evening asks for original Papers, and I trust that we shall discuss them with this combination of the earnest love of truth with the most perfect good humour.

This Society may also render an important service to Science in Canada and elsewhere, by publishing such papers as may endure the test of its criticism. Hitherto, the Society has done comparatively little in this direction, while many British American papers have been published abroad; but if good papers be furnished, little difficulty will be found in having them printed, and widely circulated.

Another important function of this Society is, that of forming a depot for al. interesting objects of Natural History; and thus rendering them accessible to those who can appreciate their value; and at the same time affording facilities to Students. In this valuable department, this Society has done much, and we may hope will do much more.

It is also one of the functions of a Scientific Society to exert itself to popularize science in such a way as to extend its humanising influences, to make it generally attractive, and to enlist new workers in its varied fields of investigation. The success of the lectures of the past winter should encourage us to make still more energetic efforts in this direction in future.

Lastly, allow me to say, that though abstract science is our proper field, we regard it also in its utilitarian ends, and in its highest and holiest relations. This society has already, on several occasions, successfully labored in the development of the industrial resources of this country; and, more or less, all its labours tend in that direction. An excellent illustration of the utility of apparently small matters in science, lies before me in these beautiful engravings of Canadian fossils, which are exhibited by Sir W. E. Logan, as a specimen of the style in which he desires to publish the new forms of organic life, discovered in the course of the survey; and which, if so published, will greatly extend the scientific reputation of Canada. It may appear of little consequence that, in ages far bygone, certain little shell-fish, distinguishable from each other only by minute and sometimes almost microscopic characters, lived in this country and have left their remains in its rocks; yet by the study of these ex-

tinct forms of life, that arrangement of the rocks of the country which is necessary to the understanding of its mineral resources, may be accomplished in much shorter time and with far greater certainty than without their aid; and thus years of labour to the survey, and of expense to the Province, may be saved.

In like manner Natural Science, in all its departments, connects itself with our higher spiritual relations, by refining and enobling our minds, and by leading us from nature to its Divine Author. It is true that Natural History is in itself merely intellectual; it is not to be identified with either morality or religion, and is sometimes unhappily dissociated from them, yet it is akin to these higher interests. Like the sunlight, it shines on the evil and the good, and may sometimes light a bad man in the path of crime; but in its natural and its general consequences it is allied to good, and has no affinity with those social and moral evils which emphatically belong to the darkness.

Actuated by such views, and following out these paths of usefulness, I trust that our Society may steadily prosper; and as a favourable omen of our success in the ensuing year, it gives me much pleasure to state that our active and zealous Vice-President, Mr. Latour, has announced his intention of offering a gold medal for the best Essay on any Department of Canadian Natural History, to be read at the concluding meeting of next Session.

The Hon. Judge Aylwin being called upon by the President, said:-

Ladies and Gentlemen,— I should not undertake to address this meeting, if I understood that any thing I was to say should be connected with any one of the natural sciences. I must confess my utter ignorance of all the ologies—I am sorry to be obliged to confess my entire ignorance of geology. But just because of this, I can better appreciate the efforts of others, in founding an institution like the present, and contributing, by the accumulation of facts, to our present stock of knowledge. Facts, Ladies and Gentlemen, are always important. There is knowledge in stones, as there is knowledge of a higher kind. But without the knowledge of the art of reasoning all would be unavailing. And a man's reasoning may be faulty in the extreme, and calculated to mislead others; but if in his study of nature, and the observations he makes in the course of that study, he chooses to state merely facts, and state them truly,—whatever efforts he may make to mislead, the result must be necessarily unavailing, for the Baconian Philosophy controls and overrides all ologies.

The infidel Voltaire, boldly assumed to be an encyclopedia to himself; and, in the pride of his supposed science, to put down religion and its Divine Founder; but his puny efforts have long since been scouted by genuine philosophers. Others have attempted to follow in the same career, and will have the like success; for notwithstanding all the apprehensions created in timorous minds, the votaries of science work on, and the more they work on, the result is found to be only to confirm us the more, if ever a doubt we had, of the existence of a Creator and Redeemer. As to the advantages to be derived from institutions such as the present, I cannot flatter myself that here any very brilliant results will be obtained. But we have the power to accumulate fact after

fact, and so to state them, as to enable others by analysis to arrive at results useful to themselves and to the world. I am satisfied this institution has not languished in consequence of want of effort on the part of its members. It is no reason for discouragement that in every point of view it has not been so successful as its best friends could have wished. On the contrary it should induce the members to use greater efforts for the time to come. There is more expected from us now than ever there was before. I recollect the time when no man would have dared to admit he was a Canadian-or the admission would have been made with pain. Now we are proud to own our country; and not a little flattered at its progress and prosperity. And we have reason to be proud of our fellow townsman, Sir Wm. Logan, of the position he occupies, the fame he has attained. When he first commenced his scientific investigations, he could scarcely himself have hoped for such a result; for the very science in which he has now attained so much eminence, in its infancy, was rather disliked than otherwise. He might have entered the walks of trade and commerce, and therein attained to opulence or wealth. He might have attached himself to any one of the learned Professions, and no doubt, with his love of study, and habits of thought, he would therein have obtained eminence and distinction. But for the love of the science alone, he probably entered upon its investigation; and by this desire to investigate facts and accumulate them he has probably attained his well-earned honors in the way he least expected. And there is this to be said of Sir Wm. Logan. He has received these honors by universal assent. The honors conferred on him at Home have been confirmed by the unanimous voice of his fellow Colonists. [Cheers.]

It would be trespassing on the time of the meeting were I to make further observations. But I cannot conclude without congratulating the society on the acquisition which it made by electing the Bishop as President. His Lordship is not a Canadian born; but we must not draw invidious comparisons between the natives of this country, and those who possess the same claim as ourselves, acknowledging and loving the same Queen. To his energy and wise judgment Montreal is already indebted in many respects; and the members of the Society had never done a better act than when they appointed him to the highest office they had it in their power to bestow. I have no doubt that he will not be a stranger among us; that he will very shortly be thoroughly naturalized, and sympathise with us more strongly than any one who newly came from that England, which my grandfather left a century ago, and which I may be destined never to see. Let it be the object of this society, then, to accumulate facts, and though I shall be proud to see that science shall be directly benefitted thereby, as I have already said I can hardly expect, so limited is our sphere of investigation, that this will be the result. The persevering efforts of your new President are well known, and by a continuance of them, he will be enabled to arrive at conclusions, confirming others in the opinions they have formed, or striking out a new and better path for himself-(cheers.)

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Dr. Barnston then read the following Paper:-

On some of the forms of Snow Crystals and the different electrical states of the Atmosphere during their formation. By Charles Smallwood, M.D., L.L.D.

In taking a cursory view of the objects that surround us, the most casual observer must be often impressed with the beauty and variety of the forms exhibited in the three vast Kingdoms of Nature—the Animal, Vegetable and Mineral; and upon a closer and more minute inspection, we are almost led to adopt the Platonic doctrine, that Deity proceeds by Geometry.

The types and forms of matter which are every moment brought before us, have led some few to trace their different shapes, to generalize their outward features, and to reduce, as it were, to a standard, the vast number of objects,

organic as well as inorganic.

The Geologist has his primitive rock — the Naturalist his archtype skeleton—the Botanist his cell developement, all of which bear witness, that beneath the outward form there exists an unknown agency wielded by the Omnipotent Power of "Him who created all things."

The subject of our present investigation is one of those meteors, which all of us living in Canada, have had many frequent opportunities of observing, if not of admiring; but few of us, I dare say, have taken the trouble to look into the minute and perfect Geometrical structure of the evanescent Snow Crystal, which presents as distinct a mathematical form of crystalization, as that which characterizes the more lasting and indestructible gem that bedecks the Regal Crown.

The subject has been the study of Aristotle, Descartes, Kepler, Scoresby and others, but I shall not dwell on their investigations, because made in a climate different from our own, but shall at once proceed to give the results of my own feeble and unmerited efforts, and by so doing endeavour to enlist

others to labour in this, an interesting department of Meteorology.

For many years past my attention has been called to the different varieties of the snow crystals of our climate, which I found to depend upon well defined hexagonal or six-sided prisms, all the jacets or angels of which have an inclination of 60 degrees. This constitutes the primitive form or type; and so far as my observation goes, a combination of dises and prisms, of this simple and primitive form, gives rise to those of a more elaborate character. (Specimens of the crystal were put in and explained.) There are many and various forms not here described; but those now enumerated form the type of the whole. Snow falling when the Thermometer is only a few degrees below the freezing point, does not possess any distinct crystaline form, being merely frozen masses, irregular in shape, and scarcely even transparent, but the greater the degree of cold, the more distinct and well defined are the crystals. The size of the perfect crystal is from 1 to 2 tenths of an inch, only in diameter, and who does not but admire the handy-work of that Almighty Power, that made in so small a space so beautiful and distinct a crystal, possessing a true mathematical

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character, and what must be the immense numbers of these small bodies, that fall in the great snow storms of our Canadian winter, when we call to mind that during the winters 1854-5, no less than 86 inches deep of these small crystals fell.

"A shower of gems is strew'd around;"
The flowers of winter, rich and rare;
Rubies and sapphires deck the ground,
"The topaz, emerald, — all are there."

But to obtain a perfect view of these crystals it is necessary to submit them to examination immediately after their fall, for if allowed to remain for ever so short a time, the angles become rounded, and it is then difficult to define their true and distinct characters.

Intimately connected with this subject, and one to which I would draw attention, are the different electrical states of the atmosphere, during the formation and fall of these crystals.

During my observations on the different crystalline forms, my attention was at an early period drawn to the fact, that whenever the forms Nos. 1, 2, 3 and 4 were present, the electrometers indicated the presence of negative or resinous electricity, especially during the fall of those crystals marked Nos. 1 and 2. On the other hand the stellar or star form, No. 5 and its varieties, were always accompanied by electricity of a positive or vitreous character; and I have found from observation that snow storms, when the crystals are of a perfect form, are always accompanied by indications of atmospheric electricity of a negative character and high intensity; but whenever the crystals are imperfect, or are shapeless masses of ice, presenting no crystaline form, then the electrometers indicate electricity of a positive character, and of very feeble intensity.

The question now is, do the different electrical states of the atmosphere give rise to those different forms of crystals, or does the formation of those crystals excite a different electrical state of the atmosphere?

I trust shortly to be able to lay before you a solution of those interesting and scientific questions, for in the pursuit of this object it requires patient and attentive investigation during the most inclement season of our rigorous climate; but how happy should I be if these short observations should be the incentive to others to assist in this interesting branch of scientific research, and that to Canada should be awarded the claim of the discovery.

The apparatus that I have used in these investigations for collecting and examining the electrical state of the atmosphere, consists of a pole 70 feet high, upon which is twisted a copper rod, the lower part of which is fixed on a glass pillar; this glass pillar is kept warm and dry by a small lamp to preserve insulation. At the other or upper extremity is a copper lanthorn, also containing a lamp, to keep a current of dry air around it; this forms the collecting apparatus, which is lowered when required, for the purpose of trimming the lamps. From this descends a conductor, to which are fixed measures, or what are called electrometers, for measuring the amount or intensity. Other instruments are also used for indicating its kind, whether positive or negative. Great care is re-

quired in the construction and use of this apparatus, as results fatal to life have sometimes occurred. The unfortunate Professor Richman was, on the 6th of August, 1753, at a meeting of the Academy of Sciences, when the sound of distant thunder caught his ear. He hastened with his artist to his observatory, and while intent upon examining the electrometers, a spark passed through his body, instantly depriving him of life. A red spot was found on his forehead, his shoe was burst open, and the door of the apartment was torn to pieces.

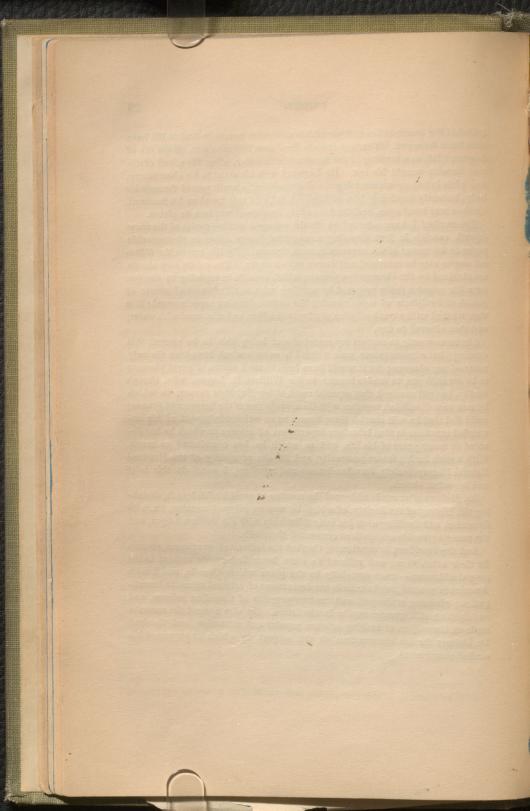
The method I have adopted to obtain enlarged outline copies of the snow crystal, consists in first throwing a magnified image either on photographic paper or by means of the common camera obscura. By this means the different angles may be measured and drawn out on paper. The copies now shown are obtained by the chromotype process, which consists in exposing to the sun for a few minntes paper prepared by washing with a solution of chromate of potash and sulphate of copper having the outline-drawing superimposed; it is then washed with a weak solution of nitrate of silver, and afterward with water, and then allowed to dry.

I have now only to express my regret at not being able to be present this evening; but circumstances, over which I have no control, have been the only cause of my absence; for it would have been to me a source of great pleasure to be one with you, to render honour to Sir William E. Logan, who, though tardily, has yet received that especial mark of her Majesty's favour, to which he was so well entitled, together with the approbation of the Emperor of France; and I feel that he will cherish these honors as an acknowledgment of his unwearied exertions in that laborious department of science to which he has devoted so many years of his life, and to which he has contributed so much. With a wish for his future prosperity, and for the prosperity of the Montreal Natural History Society, its office-bearers and members, I conclude this brief and imperfect sketch.

Dr. Holmes afterwards addressed the meeting at considerable length, sketching the History of the Society, of which he was an original member, since its formation, and dwelling upon his early friendship with Sir William Logan, and

the many agreeable associations connected therewith.

And the President, in conclusion, thanked the ladies and gentlemen present for their attendence; and referred to some interesting points noticed in the several addresses—more especially to the place which Canada, and British America in general, might take in the department of original scientific investigation; glancing at the past and present progress of Canadian science, and anticipating still greater results in the future. He also noticed the remarks made on the subject of making science popular and attractive, and thanked Dr. Holmes for his observations on this subject, in which he expressed his cordial concurrence.



#### TWENTY-NINTH

## ANNUAL REPORT

OF THE

# Natural History Society

OF MONTREAL,

### DELIVERED BY THE LATE COUNCIL,

AND

READ AT THE MEETING OF THE SOCIETY,
18TH MAY, 1857.

### MONTREAL:

PRINTED BY JOHN LOVELL, ST. NICHOLAS STREET. 1857.

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# OFFICE BEARERS AND COUNCIL

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E. CHARRAS

## ANNUAL REPORT

OF THE

## NATURAL HISTORY SOCIETY.

The Annual General Meeting of this Society was held in the Museum, on Monday evening, the President, J. W. Dawson, Esq., F. G. S., in the Chair. The members present were the Lord Bishop of Montreal, Rev. A. Kemp, Rev. A. D. Campbell, Rev. A. DeSola, Dr. Fraser, Dr. Jones, Dr. Barnston, L. A. H. Latour, J. T. Dutton, H. Rose, J. H. Joseph, W. H. A. Davies, D. Robertson, J. Ferrier, jr., N. S. Whitney, R. Scott, E. Murphy, Dr. Howard, Dr. Hingston, Dr. Fenwick, B, Chamberlin, A. N. Rennie.

#### REPORT FOR 1857.

Your Council in submitting the annual Report of the proceedings and progress of the Society for the years 1856-7, find no difficulty in discharging this duty from lack of materials, as the subjects which have engaged their attention have been both numerous and important. Our predecessors rendered an important service to the Society, by their concise sketch of its history contained in the last repor.—a proceeding often necessary, in order

to mark out the progress of any public Institution, and to call the attention of its supporters to its first principles and objects. Your Council, therefore, feel that they cannot do better than take up the subject as they received it, and continue the narrative down to the present time.

The first subject which engaged the attention of the Society during the past year, was the appointment of a Committee to be its representative at the Annual Meeting of the American Association for the advancement of Science, held at Albany in the month of August last, and to solicit the selection of Montreal as the locality for the next annual assembly of that distinguished Society. A Committee was also appointed to consult with the City Corporation and with influential citizens to obtain their concurrence and assistance in accomplishing this purpose. Your Council have much pleasure in reporting that the labors of both Committees have been crowned with complete success. Your deputation was received with the utmost cordiality by the Association. Their invitation was unanimously accepted. The representatives of other cities, especially those of Baltimore, seeing the general desire of the Assembly to meet in Montreal, in the most honorable manner withdrew their claims for the time.

A large local Committee has been organised for the purpose of making the necessary arrangements for receiving and entertaining the Association, and is now actively engaged in this work. Influential private individuals have come forward to assist in various ways to facilitate and complete the arrangements necessary for this important undertaking. The Society's sister Institution in Toronto has also most honorably offered to co-operate with us in carrying the project to a successful issue. The Government and influential members of the Legislature have taken a deep interest in the matter, as likely to promote the progress of science in the Province, and have indicated their purpose to do what lies in their power to render this meeting popular and beneficial. Some of the Railroad and Ocean Steamship Companies have granted valuable assistance in the form of free passages to scientific gentlemen invited by the Local Committee from different quarters, to take part in the proceedings of the Association.

Your council anticipate from the respectability, efficiency and zeal of the Committee to which the American Association have intrusted the necessary preparations for their meeting in August next, that the result will largely contribute to the interests of this Society, by stimulating its future efforts in the cause of science. Your Council therefore feel that it is unnecessary for them to urge upon the members of this Society the necessity of cordial unanimity and zeal in their exertions to contribute to so desirable an object. The Council entertain a confident hope that the contemplated meeting of the American Association for the Advancement of Science will be as successful as any that has yet been held.

With a view to promote the efficiency of the Society, and in compliance with the recommendation of their predecessors, Committees were last year appointed for the purpose of arranging the collection in the Museum, and of furnishing original investigations and papers in their several departments. Your Council are happy to report that, so far, this arrangement has been productive of good results; among which they would specially mention a valuable paper from the Committee appointed to report upon the method of rearing fish from the ova, the recommendations of which they trust, will be carried out as soon as practicable.

The Society at its meetings in the early part of the year having also taken into consideration the state of its building, and deeming it unsuitable for the present wants of the institution, resolved to take measures for the erection of new premises if a suitable site could be procured. A Committee was accordingly appointed to make enquiries. From the report of that Committee it was found that a sufficient sum of money to purchase an eligible site and to erect a suitable edifice could not be obtained from the sale of the present property. Enquiry was therefore made whether the grant of a free site might not be obtained. As the result of this, your Council feel great pleasure in being able to report that the Governors of the McGill College have made a very handsome offer to the Committee, of a lot of land on University and Cathcart Streets, 90 feet by 50, on terms which are equivalent to a donation, and which the Committee reported as the most eligible site that could be obtained. Your Council, under

this impression, adopted the Report, and proceeded to make arrangements for the disposal of the present building, and the erection of a new one, hoping that this might be effected before the meeting of the American Association. Plans of a new building were accordingly prepared and submitted to a special Meeting of the Society. However it was found that the sum of £2000, for which the Council were authorized to dispose of the building, would not be sufficient for the purpose contemplated; it was, therefore, determined to raise £500 in addition, by private subcriptions, amongst the members and friends of the Society. Your Council are happy to report that £250 has already been subscribed, and they entertain a lively hope that the balance will be obtained by their successors so as to complete the work they have had the honor to commence. In order to obtain sufficient means to cover all the expenses of removal, and to enable the Society to open its new erection, with their Natural History collection arranged and perfected, your Council drew up, and presented through H. H. Whitney, Esq., M. P. P., a petition to Parliament, for a more liberal annual grant to the Society. They are happy to report, that their petition has been so far successful, and that a sum of £500 has been granted by Parliament to meet the extraordinary expenses of the Society on account of the approaching convention. Your Council further expect that should the decision of her Most Gracious Majesty in Council be that Montreal shall be the seat of the Provincial Government, property will so increase in value as to enable their successors to dispose of the premises to greater advantage than could be done at present, and thus enable them more fully to realize the wishes of the Society. In connection with the new erection, the Council recommend the establishment of an Observatory if at all practicable and if sufficient means can be got to maintain it. Your Council have to regret that the revision of the Constitution and Bye laws, which have been effected at the cost of much labor, yet waits the confirmation of the Members. They are, therefore, obliged to leave so important a work, in its unfinished state, to their successors. The Society has been favored with several valuable donations during the year, for which thanks have been conveyed to the honors.

The Council have great pleasure in announcing that there has been a large increase in the number of members—eighteen corresponding and thirty ordinary members having been elected during the past year. It is with regret that they are called upon to record the loss, by removal to Toronto, of Dr. Workman. His departure from the city has deprived the Council of a painstaking treasurer and a most efficient member, and the Society of one of its oldest and firmest supporters. They beg also to note that the services of Dr. Wright, Curator for a period of three years, in arranging the Museum and the Library, are worthy of the thanks of the Society.

The title of honorary member has been conferred upon the Lord Bishop of Montreal, Sir Wm. Logan, Knt., L.L.D., F.R.S., F. G. S., Charles Smallwood, Esq., M.D., L.L.D., F.M.S., &c., &c., Professor Mitchell, of Cincinnati, ProfessorHall, Albany, Professor Dunglison, Philadelphia.

The course of lectures annually delivered under the auspices of the Society commenced on the 22nd January, and were remarkably well attended by the public generally.

The Introductory Lecture was delivered by Principal Dawson-2nd Lecture—Thursday, 29th Jan.—by E. Billings, Esq. Subject: "The Geology of the Ottawa Region."

3rd Lecture—Thursday, 5th Feb.—By T. S. Hunt, Esq. Subject: "Natural History of the Alkalies."

4th Lecture—Thursday, 12th Feb.—By Rev. A. DeSola. Subject: Scripture Zoology."

5th Lecture—Thursday, 19th March.—By Jas. Barnston, M. D. Subject.—"General view of Vegetable Life"

6th Lecture—J. P. Dutton, Esq. Subject: "Balænus Mysticus."

The Council feel greatly indebted to those gentlemen for their valuable services on those occasions, and congratulate the Society on the interest taken in the lectures by the public. They hope that the next Course may be on a larger scale, held in a more convenient room, and attended by a still larger number of persons.

The Council regret that from various reasons they have not been able to carry out so fully as they could have wished the recommendation of their predecessors, to obtain the reading and discussion of Monthly Essays or Papers, one paper only having been submitted; but they trust that the Meeting of the American Association and the greater facilities for acquiring a knowledge of Natural Science now enjoyed in this city, will have the good effect of calling forth greater scientific exertions in future.

The Council have much pleasure in reporting that L. A. H. Latour, Esq., 1st Vice-President, has during the year offered a Gold Medal as prize, for the best Essay in French or English on any subject of Canadian Natural History. They beg to recommend to their successors the appointment of a Committee to receive the Essays that may be offered, and to adjudge the Prize on the 1st August next. This measure, your Council trust, will call forth much latent talent, and advance the objects of the Society, while it rewards with honor the successful candidate, and realises the liberal and praiseworthy intentions of the donor.

Your Council also report that Mr. Billings, late of Ottawa, a Corresponding Member of the Society, having come to reside permanently in Montreal, has expressed a wish that the Society should take a part in the publication of "The Canadian Naturalist and Geologist," so successfully conducted by him during the past year. This offer was favorably received by the Society, and a Committee was formed to carry out this object and to open a subscription list for the issue of the second volume under the title of the "Canadian Naturalist and Geologist, and Transactions of the Natural History Society of Montreal." Another Committee was appointed to superintend its publication, of which Mr. Billings himself undertakes a part. Your Council are happy to say a first number has been printed under very auspicious circumstrees, and they trust that this undertaking will meet with complete success.

Your Council have not considered it prudent at present to solicit from the Legislature a Copy Right Law, to compel publishers to contribute a copy of every publication to the several Literary and Scientific Institutions of the Province. The law as regards copyright is yet in an undecided and unsettled state, and they recommend that the matter receive the consideration of their successors.

The Council are sorry to announce that Mr. Broome, so long the Janitor of the Society, died after a brief illness a few months ago, and they have from various considerations deemed it proper for the present, to continue the services of his widow, as keeper of the premises, which they trust will meet with the approval of the Society.

The accompanying Reports of the Treasurer, the Librarian and the Cabinet Keeper, will present an account of the concition and prospects of the Finances, the Library, and the Museum.

In view of the meeting of the American Association in August, and of the necessity of arranging and presenting the subjects of the Museum in the best and most scientific order, the Council have engaged the services of J. M. D'Urban Esq., a young Naturalist of considerable attainments and ability, for six months as Assistant Curator. As however the collection cannot be rendered complete or properly arranged without considerable expense, which the present ordinary income of the Society will not sufficiently afford, it has been resolved to meet the additional expenditure by applying to this purpose any special funds that may be obtained.

In surrendering the important interests which have during the past year been confided to them, your Council experience much satisfaction in reviewing the activity and energy of the Society. A measure of progress has marked the history of this valuable Institution—an accession of scientific talent has been acquired, and much important literary and other labour has been undertaken. As the coming year appears destined to be one of considerable promise in promoting the aims of the Society, your Council beg to express a hope that its zeal and energy in the cause and promotion of Science may be crowned with complete success, and may largely contribute to foster that spirit of earnest investigation into the phenomena of nature which so eminently distinguishes the present age.

In conclusion, the Council have to express their gratitude for the liberal aid given by the Government in consideration of the invitation extended to the American Association. The Council recommend that a portion of this sum be expended in arranging and improving the Museum, in providing an entertainment for one of the evenings of the meeting, and that the balance be reserved for any aid that the Society may be called upon to contribute towards the success of the meeting.

A Report from the Treasurer showing a balance in hand of over ten pounds was also read; as was a Report from the Curator of the Museum, on the state of the Society's collection, and the donations made to it during the past year.

On motion of Dr. Barnston, seconded by Dr. Jones, it was resolved that the Reports now read be received and adopted, and referred to the Council for early publication.

#### ELECTION OF OFFICE-BEARERS.

The President having appointed Drs. Fraser and Barnston as Scrutineers, the meeting proceeded to ballot for Office Bearers and Council. The following was declared the result:—

President, J. W. Dawson; 1st Vice-President, L. A. H. Latour; 2nd Vice-President, Sir W. E. Logan; 3rd Vice-President, E. Billings; Corresponding Secretary, W. Hingston, M. D.; Recording Secretary, A. N. Rennie; Treasurer, James Ferrier, jr.

Cabinet Keeper and Librarian-Jas. Barnston, M. D.

Members of Council.—Rev. A. F. Kemp, Dr. Fraser, Rev. A. DeSola, Dr. Jones, and H. Chapman.

Library Committee.—Dr. Wright, D. A. Poe, H. Rose, N. S. Whitney.

Mr. J. M. D'Urban was appointed Assistant Curator to the Society; and the following gentlemen named as the Editing Committee of the Canadian Naturalist; Messrs. Dawson, Billings, Poe, Hunt, Hingston, Barnston, and Rennie.

On motion by Dr. Jones, seconded by Mr. Billings, it was resolved:—

That the thanks of the Society are hereby given to the retiring Office-bearers and Council, for their valuable and efficient services during the past year.

On motion by the Rev. A. D. Campbell, seconded by Mr. Dutton, it was resolved:—

That the best thanks of this meeting are due to H. H. Whitney, Esq., M.P.P., for his kind and valuable services in further-

ance of the Society's Petition, for a supplementary grant, and that the Recording Secretary be directed to forward a copy of this resolution to the Honorable Member.

It was also moved by the Rev. A. D. Campbell, seconded by L. A. H. Latour, and resolved—That the sum of twenty-five pounds be granted to the Recording Secretary for incidental expenses, and obtaining the necessary assistance connected with the approaching Scientific Convention.

The President having left the chair, which was taken by Dr.

Barnston,

The Rev. A. F. Kemp, in a highly complimentary speech, proposed a cordial vote of thanks to Prof. Dawson, for his able, efficient and zealous services during the past year. The motion was seconded by the Rev. A. DeSola, and carried by acclamation. The President briefly but appropriately acknowledged the compliment, and the meeting broke up.

A. N. RENNIE, Rec. Sec.

### REPORT OF CURATOR.

In accordance with the usual custom, I beg to submit a short Report in reference to the Library and Museum. It is a matter of regret that during the past year nothing has been done to place the Library and Museum in a better condition than they formerly were. This has been owing to a difficulty in the practical organization of the Special Committees appointed to arrange the books in the Library and classify the objects of Natural History in the Museum. Your council of the past year have wisely adopted a much more satisfactory and efficient means of effecting so desirable an object, by securing the services of Mr. D'Urban for the ensuing year, who, besides undertaking to arrange the Museum, will take every opportunity of adding to its collections. He commenced his labours on the first of the present month, and his enthusiasm and ample practical knowledge of Natural History justifies the belief that he will prove of valuable service to the Society. It is intended that the arrangements in the Museum will be more or less completed previous to the session of the American Association for the Advancement of Science next August in this city.

The donations to the Library and Museum, though not very numerous, may be taken as a fair criterion of the interest exhibited by various individuals and institutions in the Society's welfare.

I herewith submit a list of the donations during the past year, and subscribe myself respectfully,

Your obedt. servt.

JAMES BALNSTON, M.D.

Curator.

Montreal, 18th May, 1857.

## DONATIONS &c., TO THE LIBRARY AND MUSEUM.

1856-7.

	PRESENTED BY.
Bombay Magnet and Meteorological Observa-	East India Company.
tions, 1852–53,	
An Ancient English Law-Book, 1663,	J. J. Pelton Esq., N.P.
New York Meteorology, by Hough, 1826-50,	7,
New York State Library Catalogue, 1 & 2, 1855,	mi D
Geological Survey of Missouri,	The Regents of the Uni-
Physiologique de la Terre, 1 & 2,	versity of the State of New York.
Filche's Noxious Insects of New York,	of New Tork.
Various Pamphlets,	10 10 10 10 10 10 10 10 10 10 10 10 10 1
Agriculture of Nova Scotia,	.J. W. Dawson, Esq.
Statutes of Canada, 1856, with Index,	
Transactions of American Institute, 1854-55,	
Rapport du Surintendant de l'Education pour le Bas-Ganada,	
Description of the Frank Institute well 1	TEST I F
Proceedings of the Essex Institute, vol. 1, 1748-56,	
Transactions of the Medical Faculty of Maryland	
Statutes of Canada, 1856,	
Catalogue of all the Graduates of Jefferson	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Medical College, Philadelphia,	
Canadian Naturalist and Geologist, Montreal,	<b></b>
Canadian Naturalist and Geologist, Montreal,	Service and a se
The Sandstone Fossils of Connecticut River	James Deane, M.D.
2 Pamphlets,	.L. A. H. Latour.
Portrait of the late William Evans,	Cent J F Dutton
Fossil and Rock from Niagara Falls,	Capt. Dutton.
Lycopodium from Thousand Islands,	. Capt. Dutton.
2 Moths and Chrysalis,	.M. Cockburn & Brown.
Mineral from the Balaclava Railroad, with Fossi	1, Major Hudson, 39th Rg.
Pearl Spar, Niagara Falls	
Talc, Statue Island, Niagara,	J. H. Kemp, N. Y.
Ashestus Status Island Niegara	
Russian Cannon Ball from the Trenches before	Major Robertson, 4th
Sebastopol,	Sir Wm. Eyre.
Helmet Ornament of a Russian Soldier, Russian Soldier's Forage Cap from Sebastopol,.	Do.
Indian Arrow Point,	A. Easton, Esq.
Indian Stone	. A. N. Itelline, Loq.
Box containing several articles taken from an	(D Rusteed Esa
old wroods of a ship of War.	THE RESIDENCE OF THE PARTY OF T
Indian IIm found by Mr Gosling, near Clarendo	n, Lord Bishop of Monte.
Piece of Steamhoat boiler which exploded at	(IR Meilleur MD.
Longuoud little little 1800,	
Piece of Marble from late Christ Church,	· · WISS DILLIUM.
Coins	Miss Smith.
Coins	19 1

Natural History	Society of	Montreal, in	Account	with.	W.	H. A.	Davies,	Acting	SecTr	reasurer.
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m ( 1	: 1 6-	r Salaries during the past year,	£ 37	19	0
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"	"	Gas,	3	0	0
"	66	Water, "	3		
"	"	Express Charges, "	1	0	9
"	"	Postages, " "	0	17	$4\frac{1}{2}$
		Printing, " "	12	1	3
- "		Advertising, "	7	4	6
	: "	Interest, " "	15	11	8
***		Commissions, "	26	17	9
6.		Repairs, " " "	11	18	9
25		Contract for repairing house,	55	0	0
- 11	"	Insurances during the past year,	12	10	0
"	"	Furniture, " "		15	0
- 46	44	Incidental, "	12	7	8
			10	15	0
Balance	to new	Account,	10	10	
			£272	11	21/2

By Balance in Treasurer's hand from last account. £ 51 14 3½
By Cash from subscriptions and diplomas,..... 168 12 3
By Cash from Government Grant,...... 50 0 0
By Interest from Montreal Savings' Bank,..... 2 4 8

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£272 11 21

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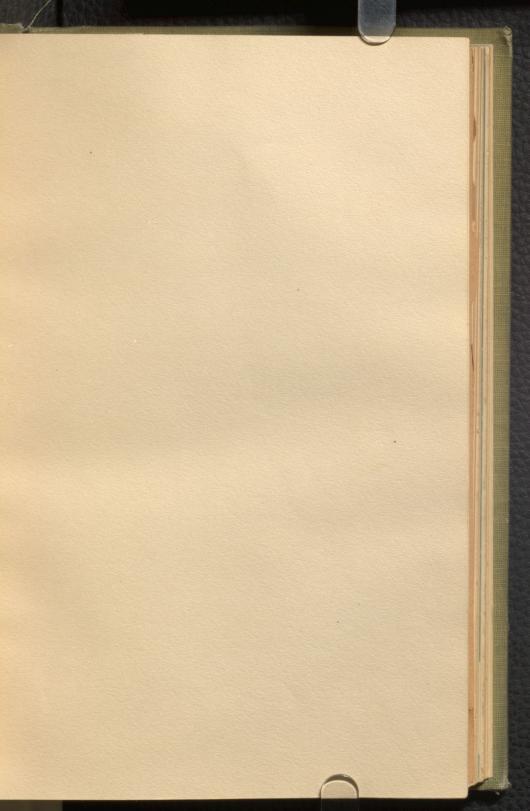
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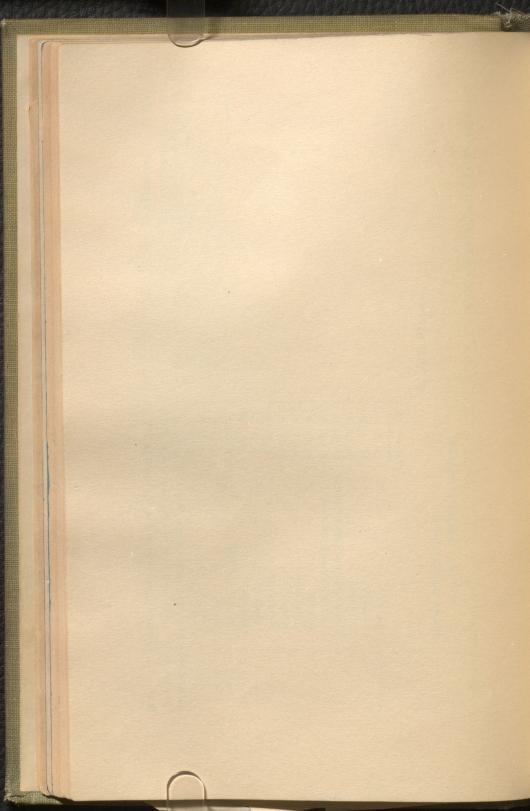
(Signed) JOSEPH P. DUTTON.

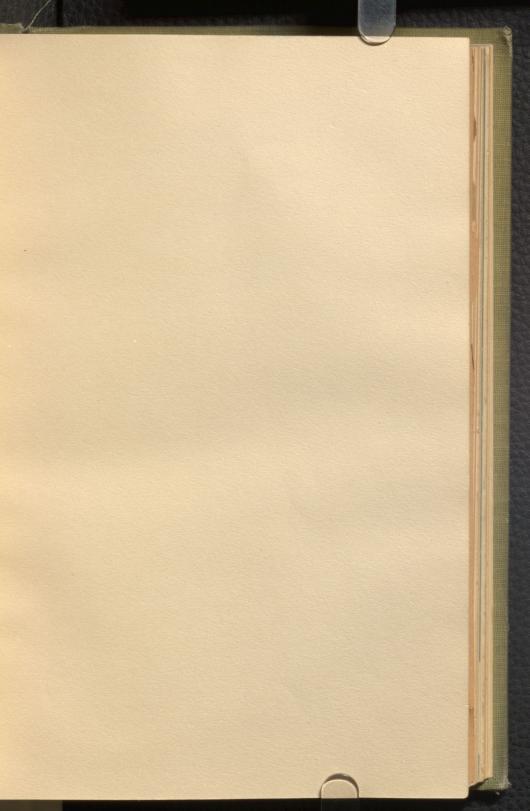
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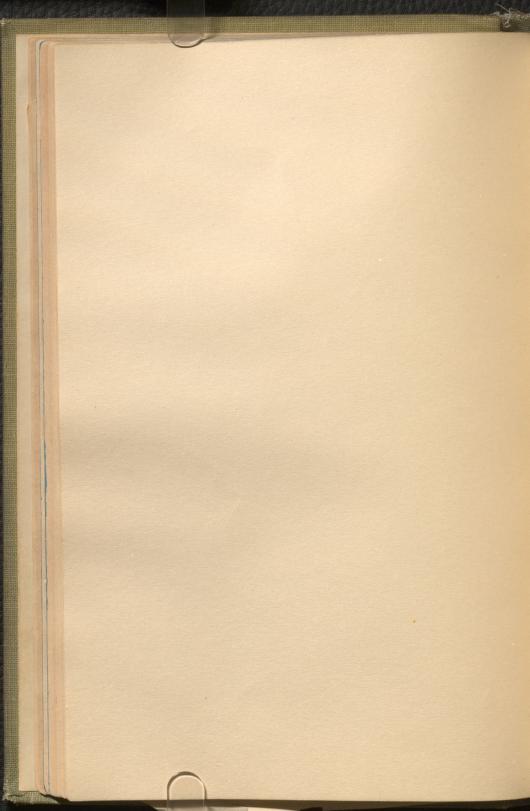
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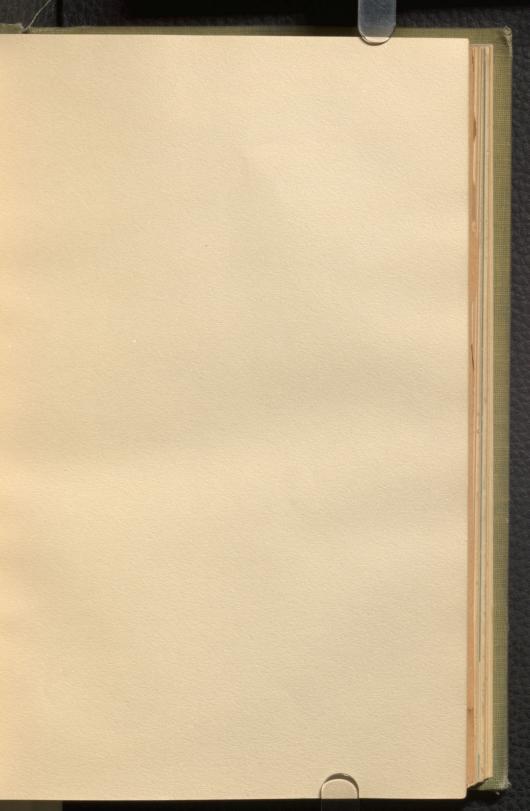
W. H. A. DAVIES, Acting Sec.-Treasurer.

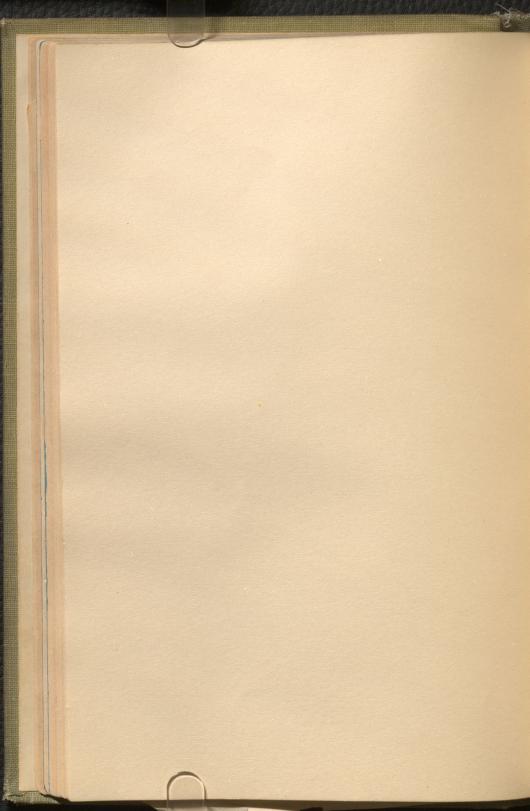


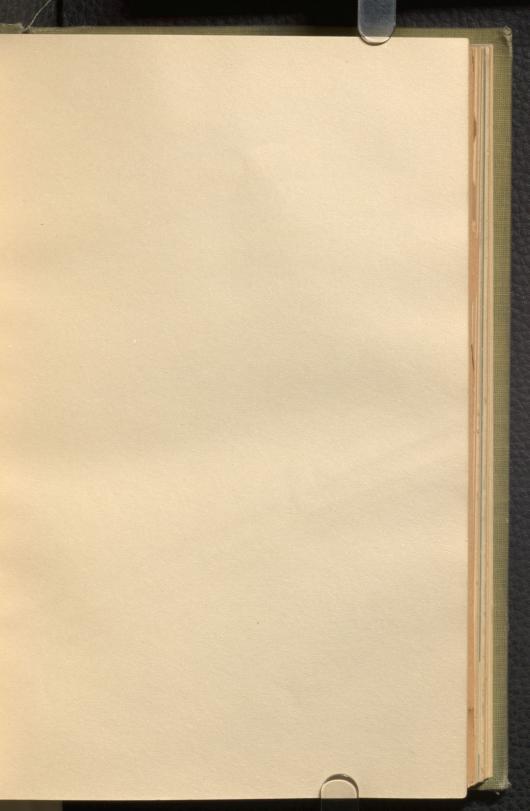


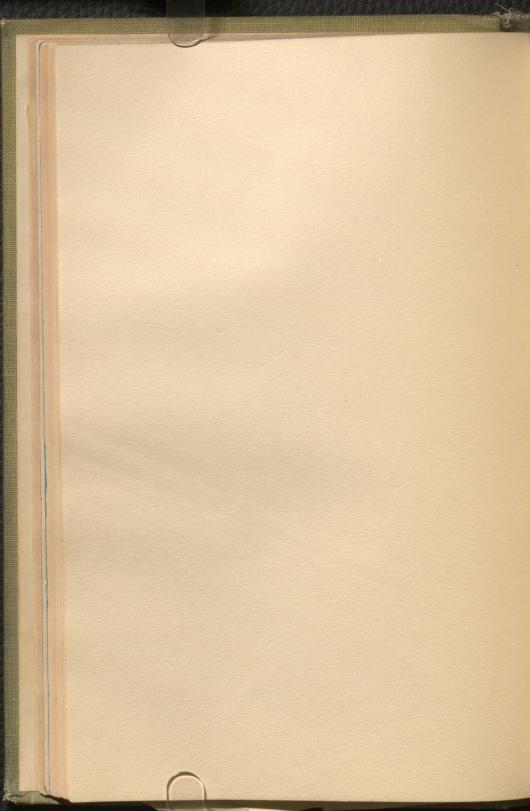


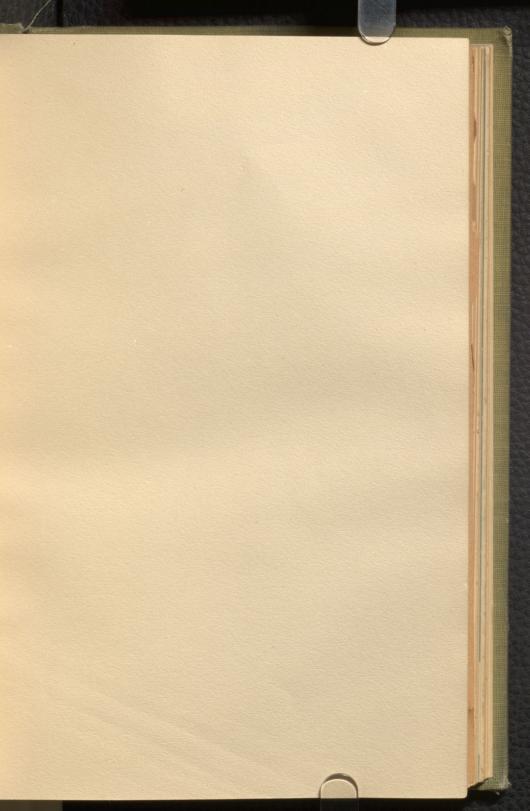


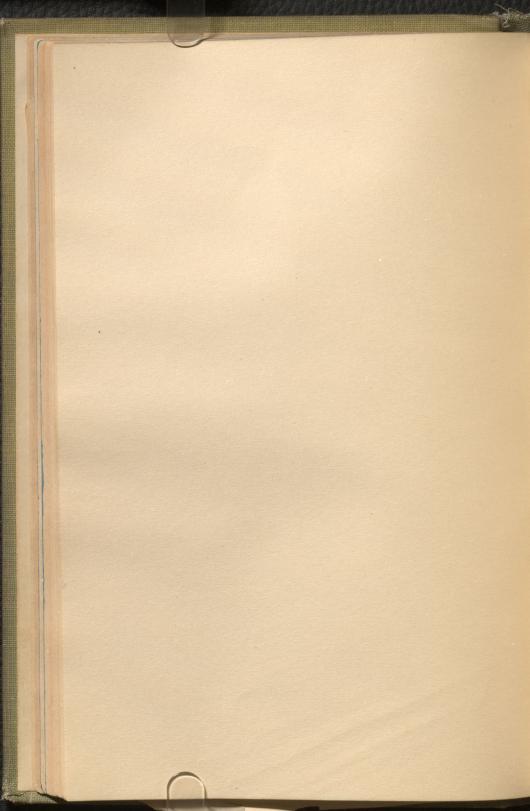


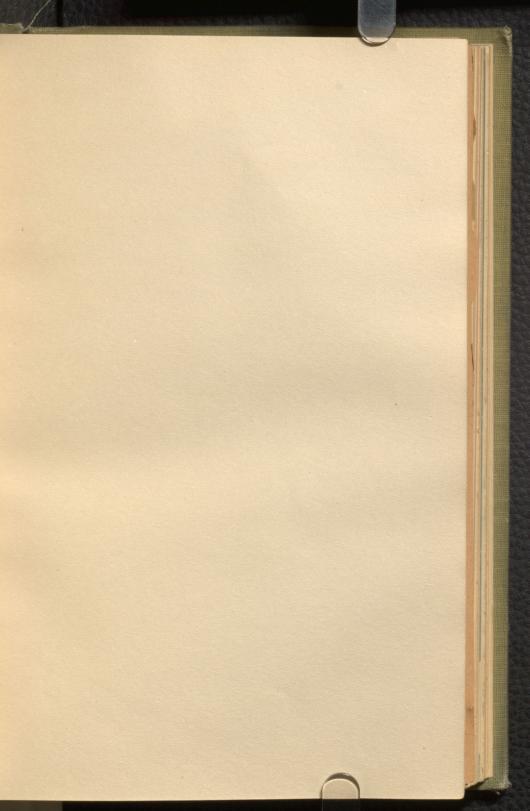


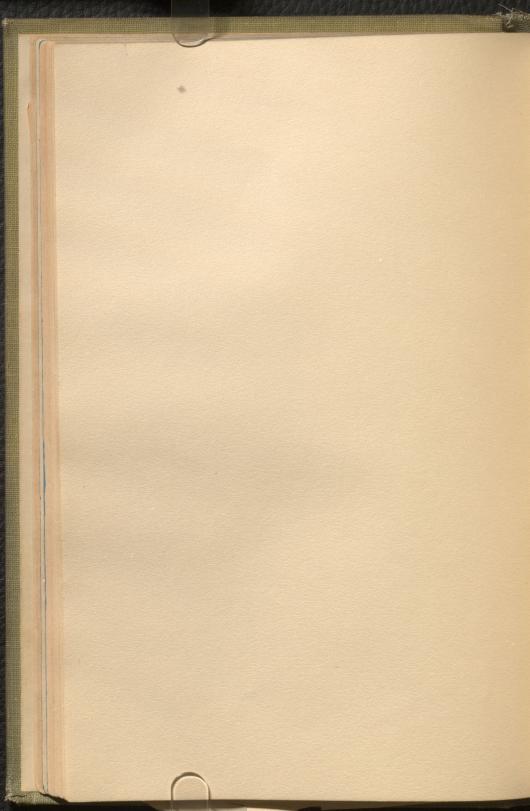


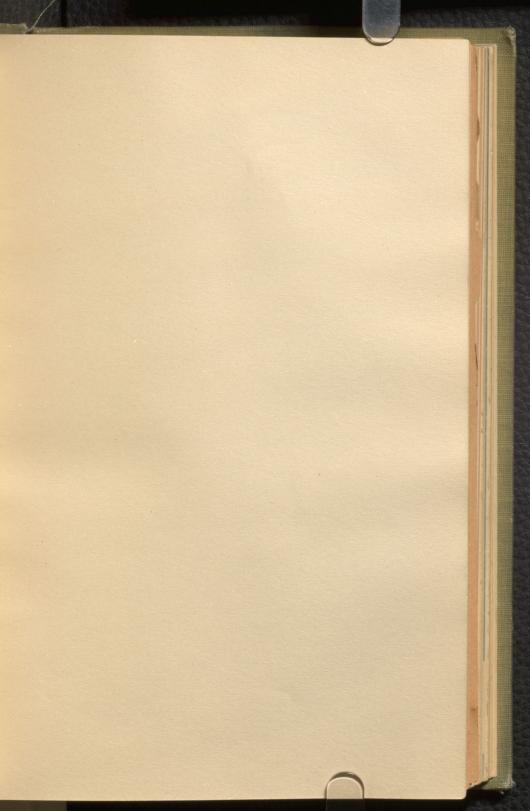


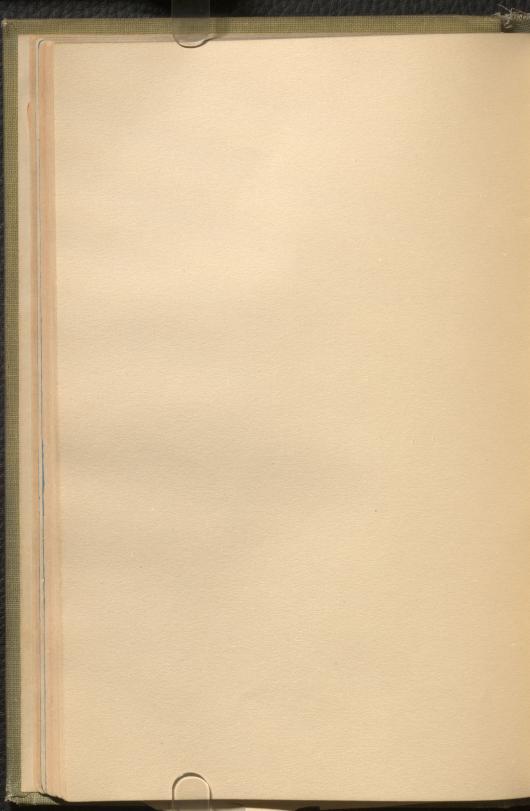


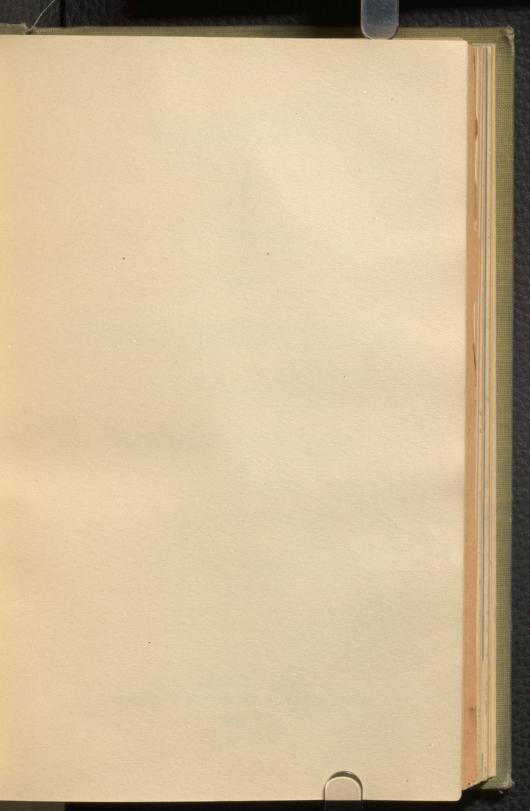


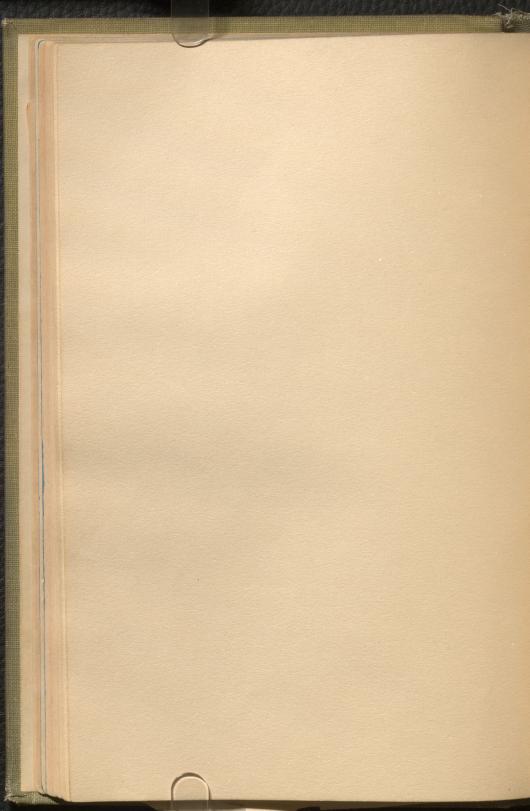












## REPORT

OF THE

### COUNCIL

OF THE

# NATURAL HISTORY SOCIETY

OF MONTREAL,

FOR THE YEAR 1859.

#Hontren1:
PRINTED BY JOHN LOVELL, ST. NICHOLAS STREET.
1859.

## REPORT

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VATURAL HISTORY SOCIETY

OF MONTBEAL,

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#### REPORT OF THE COUNCIL

OF THE

### NATURAL HISTORY SOCIETY,

FOR THE YEAR 1859.

THE revolving year having again brought round the period for the annual meeting of this Society, your Council have, in accordance with custom and constitutional requirements, to report:

That, during the past year, the Building in Little St. James Street, occupied and owned for so many years by the Society, has been sold, and the proceeds applied towards the erection of a more suitable edifice, on ground acquired on advantageous terms from the Governors of McGill College. The new building is situated in the most rapidly increasing part of the city, and conains an extensive Museum, Lecture room, Library, and Keeper's apartments.

By the Report of the Curator and Librarian, it will be seen that the specimens and books were removed to the new building in February last, and that, on the 23rd of that month, it was formally opened to the public by a conversazione, at which many of our most distinguished citizens were present. The specimens have since been more perfectly arranged, and are now undergoing cleansing and repairing by the Cabinet-keeper, Mr. Hunter. Owing to the increased accommodation which the

Museum affords, your Council recommend that steps be taken for increasing the contributions to it. Similar Societies ought to be communicated with, respecting an interchange of duplicate specimens, of which there is a large number in your collection, and corresponding and ordinary members be advised that donations will be acceptable and publicly acknowledged. Among the additions now being made to the Museum, your Council deem the Aquarian and Microscopic departments deserving of special notice.

By the Treasurer's Report, it appears that the cost of the new building has been \$10,553.75; and that the debt still due upon it is about \$3,600, of which \$2,400 is secured by mortgage, and the balance, \$1,200, including some accounts not yet settled, exists

as a floating debt.

The assistance and countenance afforded to similar institutions by European Governments, led your Council to believe that, in a new country like this, the natural resources of which require to be developed, and the tone and character of its society formed, the Legislature, to whom an application was made, would cheerfully have aided the efforts of your Society in effecting these desirable ends. But such has not been the case, and, therefore, your Council, impressed with the belief that the pursuits of the natural sciences and literature, are not yet fully appreciated here, take this occasion of directing public attention to the pleasure, instruction, and recreation to be derived from them.

Whoever has experienced the harass and fatigue of spirit arising from close application of the mental powers for any length-ened time to one absorbing and anxious object, must have felt the craving of the mind for some new occupation, which, by a healthful change, might relieve the fatigue and weariness of the overwrought and over-exerted mental organs. This relief is not always to be obtained by absolute rest. The mere cessation of exertion does not satisfy to fill the void created by long and tiring labor on an exclusive subject. Again, when from illness, misfortune, or any other couse, the laborious man of business, or the diligent student, is incapacitated for his accustomed pursuits, how depressing is the languor which attends him in his retirement, unless he has some intellectual resources on which to

exercise his otherwise inert and useless powers! Accustomed to other exertions in his ordinary avocations, if he be deprived of these, and no substitute presents itself to take their place, the mind will become wearied and depressed from the very absence of healthy exercise and employment. And if still farther, through success in his avocation, the approach of age finds him retiring from his wonted stirring occupation, and hoping, after a life spent in the exercise of active duties, to enjoy the blessings of a competency in that rest from labor, which to a mind well regulated and stored with intellectual resources, constitutes the height of earthly enjoyment, and a precious auxiliary means of preparation for the great change to which he is hastening; and if there be no store of intellectual treasure-no pursuit in science or literature to occupy the leisure days and years that remain to him, how listless, at the best, and how full of misery is the interval allotted to him between the cessation of his active employment and the end of his earthly career! These considerations show how important it is to provide a rational and intellectual amusement and relaxation in the intervals of business-in the time of illness or misfortune, and in retirement after the ordinary duties and avocations of life are over.

Of the desireableness of such a provision we have unhappily but too many proofs, in the sad and even fatal results of its neglect. The instances are not few, in which persons suddenly deprived of fortune fly to the stimulus of drink to drown their misery or become the prey of incurable dejection; -nor of those who retire from business with a competency, hoping to enjoy the remainder of their days in comfort and pleasure, but finding themselves disappointed, become equally afflicted with the tedium vitre. On the other hand many examples might be quoted to show how possible it is, without in any way interfering with the ordinary duties of life, to acquire such a knowledge of science or literature as will prove a healthful recreation, not only to the individual but, to those around him. Of all the studies calculated to effect that purpose, perhaps that of the natural sciences, and especially of those, usually designated by the term of Natural History, have the highest claim on a community like ours. The animal and

vegetable kingdoms, the rocks and the mountains, are open to the investigation of all. The fields and the forest—the lake and the river, as well as the atmosphere we breathe, teem with myriads of beings, the study of whose beautiful forms, structures, functions, habits, modes of formation and distribution is full of interest and instruction, and clearly indicate the endless design and boundless power of the Creator. The Animalcule, whose dwelling is the leaf of a plant, is as perfect in its organization as the most gigantic monster that ploughs the deep or roams the forest. The historiology of the most tiny plant is equally complicated with that of the aged oak. Of no less interest is the study of the rocks that constitute the crust of our earth. The study of both the organic and inorganic kingdoms is indeed a never failing source of instruction and rational amusement in times of leisure, depression or real sorrow.

The Course of Lectures annually delivered under the auspices of the Society commenced on the 1st day of March and were well attended by the public.

The Introductory Lecture was delivered by the President,—Principal Dawson.

2 Lecture—Tuesday, 8th March—By Rev. Dr. De Sola. Subject: "Scripture Zoology."

3 Lecture—Tuesday, 15th March—By W. H. Hingston, M.D. Subject: "Climate of Canada."

4 Lecture—Tuesday, 22nd March—By Rev. A. F. Kemp. Subject: "Fresh Water Algae."

5 Lecture—Tuesday, 29th March—By Professor S. P. Robins. Subject: "Force."

6 Lecture—Tuesday, 5th April—By the Lord Bishop. Subject: "State and prospects of Science and Literature in Montreal."

The Council feel deeply indebted to these gentlemen for their valuable services, and congratulate the Society on the growing interest taken in the lectures by the public, as evinced by the large attendances. They have also much pleasure in referring to the unusually interesting papers which have been read at the ordinary monthly meetings.

The Council have likewise to make special mention of the services of Dr. Fenwick, the Curator and Librarian, in superintending

the removal and arrangement of the Library and Museum, and of the exertions of the Recording Secretary, Mr. John Leeming, and the Treasurer, Mr. James Ferrier, jr., more especially in the erection of the new building.

The Council report with pleasure that, during this session of Parliament, the Society has been able to secure such amendments in its charter of incorporation as have long been desired, and which will enable it to act with freedom and energy in carrying out its legitimate purposes; and the thanks of this Society are due to C. Dunkin, Esq., M.P.P., for his very able and disinterested action in this matter, and in superintending the progress of the Bill through Parliament.

The Council have resolved that the By-Laws, with as correct a list as can be made out of Honorary and Corresponding Members, shall be published with the Annual Report.

Finally, the Council, in resigning their charge, beg to express their sanguine expectations respecting the future progress and usefulness of your Society as a scientific and literary institution. They feel assured, that its utility and position only require to be properly explained to this liberal and enterprising community in order to obtain that support which it really requires and undoubtedly deserves.

#### REPORT OF THE LIBRARY COMMITTEE.

We beg to submit for your consideration the Annual Report on the Library and Museum. The Librarian reports, that in the month of August last, he inspected the journals, transactions of societies, and other loose papers, the property of this Society, and on the occasion of the August meeting, submitted for consideration a hastily drawn up report of the many missing numbers of periodicals, and also recommended that all periodicals and papers worth preserving should be bound at the termination of each year.

It is actually necessary that the by-laws regarding the removal of books be strictly enforced. Members have hitherto been in the habit of taking books from the library, and retaining them in their possession for months, if not years, and, as a consequence many works of great value have been lost. Early in February, the library and museum were removed to this building. During this removal, Mr.D'Urbain, the sub-curator, rendered efficient service, and in the subsequent arrangement of the specimens and library, much assistance was rendered by our President, Principal Dawson, Mr. D'Urbain, and other gentlemen, who gave considerable time towards that desired end.

Since the occupancy of this building, the Society have secured the valuable services of Mr. William Hunter, who has, since his appointment, opened all the cases of birds and animals, thoroughly cleansed the specimens, and re-arranged many of them. He has also set up between 90 and 100 new specimens which have been added to our collection.

The Curator further draws attention to the many duplicate specimens of birds, both American and foreign, fossils, minerals, &c., which, by judicious exchange, would secure many objects which are not in our collection.

The accommodation afforded in the spacious hall of this building is, for the present, more than sufficient, there being room for a much larger collection than we at present possess.

It is to be hoped that members interested in the welfare of this Society will not neglect any opportunity of sending specimens for preservation, so as to render, as far as possible, the collection in the various branches of Natural History complete.

These views would be more fully carried out were the members of this Society to form themselves into sub-branches, each being devoted to some special department of Natural History. This would tend to augment our collection and increase the usefulness of the Society as a whole.

#### REPORT OF THE EDITING COMMITTEE.

The third volume (1858) of "The Canadian Naturalist; and proceedings of the Natural History Society of Montreal," the editing of which was entrusted to this Committee, has been completed. It has been published in numbers every two month's with much regularity. It contains twenty-five original articles, presented to the Society by its members or correspondents, and prepared expressly for the magazine. These articles, for the most part, per-

tain to scientific affairs within the Province of Canada, and embrace original investigations and discoveries in the departments of Geology, Zoology, and Botany. Thirteen articles on topics of interest to the Science of this country have been selected from the valuable reports of the Geological survey of Canada, and from the Scientific Journals of Britain and the United States. The chief scientific books which have been published during the year have been either reviewed or noticed, and described with discrimination and care. Numerous scientific gleanings and communications have also been published, which, though not ranking as articles, were yet in great part original. The volume is illustrated with two steel engravings and many original wood cuts of much interest and virtue. For the engravings the editors are indebted to the geological survey, and they desire to acknowledge with thanks, the valuable assistance they have ever received from Sir Wm. E. Logan and his staff.

The number of copies published of each issue is eight hundred and fifty. Free copies are sent to most of the Scientific Societies of Europe and America, for which several exchanges are received and will be acknowledged in their proper place. The editors would, however note, that the number of copies published is greater than the number of subscribers, and therefore urge upon the members and friends of the Society to do what they can to extend the circulation of the magazine. It is quite indispensable to the promotion of science in this province, and its discontinuance would be felt as a great loss and discouragement. The Society is much indebted to our excellent publishers, Messrs. B. Dawson & Son, for the uniform liberality with which they have provided for the printing and illustrating of the magazine. The editors are also happy to say that the publishers intimate their present determination to undertake all the risks of publication, so long as the Society will provide the editors and contribute the articles.

The first two numbers of vol. iv. have been issued, and the third number is in course of preparation. The editors cannot conclude this report without thanking the contributors for their past services, and expressing a hope that the interest and excellence of the magazine will be sustained in the year to come, and will meet with

increased encouragement from the educated people of this province.

# PARTICULARS OF COST OF NEW BUILDING IN UNIVERSITY STREET.

Carpenter Work,	\$4300	00
Carpenter Work,	2700	00
Stone and Brick Work,	742	70
Bricks,	585	
Plastering,	508	
Painting,		
Iron Pillars, Castings, and Iron Pipes,	519	
Gas and Water Fixtures,	400	00
Excavating,	203	73
Excavating,	85	60
Piling,	210	00
Seats,		33
Stoves and Fixtures,		
Labor, watching, and sundry small accounts,	241	
Superintendent's commission,	235	00
Fuel,	208	45
Fuci,		_

Montreal, 2nd May, 1859.

\$10997 20

THE NATURAL HISTORY SOCIETY OF MONTREAL IN ACCOUNT WITH JAMES FERRIER, JR., TREASURER.

Dr. Cr.

		MI CHIL	1011
May 2, 1859.			
To cash paid	salaries,	\$204	20
"	commissions,	30	00
"	fuel,	56	40
"	gas and water,	78	15
	interest,	616	00
"	express charges,	8	79
"	advertising and printing,	113	83
"	insurance,	58	00
"	notarial expenses,	47	00
"	incidental "	53	73
11	Mrs. Blythe's mortgage on building in		
	Little St. James Street,	1600	00
"	in erection of new building in University		
	Street, as per statement,	10997	20
		313863	30

May 2, 1859.	172	0 17
By balance in Treasurer's hands,	172	87
on account of building in Little St. James street, "cash received from William Nivin, sale of mortgage	2000	00
on building in Little St. James street,	2400	00
"cash received from Trustees Cunynghame, sale of balance of mortgage on building in Little St.		
James street,	3600	00
" cash received from Local Committee, American Association, on account, " do. William Nivin, on mortgage of	800	00
new building in University street,	2000	00
" cash, life-member subscription, new building,	1620	00
" cash donations to ditto,	60	00
" cash subscriptions and diplomas,	491	00
" balance due Treasurer,	719	43

E. and O. excepted.

Montreal, 2nd May, 1859.

Examined and found correct.

JAMES FERRIER, JR., Treasurer.

\$13863 30

Bachined and found correct.

W. H. A. DAVIES, Committee of Audit.

May 17, 1859.

#### DONATIONS TO THE MUSEUM

OF THE

### NATURAL HISTORY SOCIETY,

1858, 1859.

Large Egg; from Mr. Ewing.

Specimen of a Neuropterous Insect; by Charles Sharpley, Esq.

The following from Alex. Bell, of Euphemia, through Edward Little, of Newburg, C. W.:—

1. A Wart taken from the root of a soft-maple tree (Acer. dasycarpum) fully 26 feet from the living trunk, the root to which it was attached not exceeding one inch in diameter at its juncture in either end. 1856.

2. An Arrow nearly one yard in length, one of a full quiver of fifty from Upper California, now in possession of a gentleman who, after being pierced with two of them, despatched the Indian and brought the bow and arrow home. The quiver is made of tanned deerskin, with the hair on. The arrow is made of two different kinds of wood and spliced very neatly: it is also barbed with three feathers. The stone head is remarkably sharp and smartly made.

3. An Oak Deer-bleat, given to the donor by the Indian Shauriabee in 1846, and stated by him to be his own manufacture.

4. A Stone Arrow-head 1½ inches long, found ten feet under ground on Lot 21, Euphemia, C. W., shewing a stiking analogy between the Californian and Canadian weapon.

5. Pn Oval Stone Hatchet about 4 inches long by  $2\frac{1}{2}$  broad,  $\frac{9}{4}$  inch thick, well polished and perforated across its breadth, the aperture half an inch in width. The stone is a very jasperry slate, transversely marked with natural lines. This instrument was obtained in 1854 below the surface of the ground on the margin of the River Sydenham, Lot 12, First Concession, Brooke, C. W.

6. A Horse's Tooth. For particulars see page 317 of the Naturalist for August, 1858.)

7. A piece of fossiliferous limestone from Newburg, C. W.

A true specimen of Datura Wrightii Metalloides; from William Lunn, Esq.

Snout of a Sword-fish; from Captain Lafontaine.

A Thermometer; from Dr. Gibb, London.

Two portions of Strata from bed of the St. Lawrence; from Captain Dutton.

Two specimens of Coronula Diadema from whates in the Gulf of St Lawrence; from Principal Dawson.

Twenty-one Chinese Tiles; from Dr. Gibb, London.

Box of Ores; from - Wilgress, Esq.

A Box of Specimens from Pompeii; from Dr. W. Jones.

A Belt-plate of the Royal 60th Regiment; from ditto.

The Rattle of a Rattlesnake; from ditto.

Bamboo or Cane-stick, with curious knotted head (from the Mauritius); from ditto.

Fossil Plants from Devonian Rocks of Gaspé; from Principal Dawson, President of the Society.

Ancilopt Furcifer, from the plains of the Saskatchewan; from Geo. Barnston, Esq.

Tetrao Richardsoni, male and female, from the Rocky Mountains, lat. 65 degrees N.; from ditto.

Embryo Salmon; from James Ferrier, Jr., Esq.

A Concretion from the Caen stone used in the construction of the new English Cathedral; from Mr. Hutchinson, builder,

### DONATIONS TO THE LIBRARY

OF THE

### NATURAL HISTORY SOCIETY,

1858, 1859.

Translated Report of a recent Meeting of a Philosophical Society in Germany; by Mr. Gordon.

Description of New Fossils from Coal Measures of Missouri and Kansas; by T. Shumard and G. C. Swallow.

Pamphlet on Grape Culture in Missouri; by G. C. Swallow, Esq.

A set of Presidents' Anniversary Addresses, delivered before the Geological Society of London from 1846 to 1857 (the years 1847 and 1851 excepted); from Dr. Gibb, London.

Proceedings of the Essex (U. S.) Institute, Vol. II., Part I., 1856 to 1857; from the Institute.

Reply to the Statement of the Trustees of the Dudley University, U. S.; from Benjamin Aythorp Gould, Jr.

Relations des Jésuits; from the Government of Canada.

The Journal of Education; The Canada Official Gazette; Journals of Legislative Assembly; Medical Chronicle; The Statutes of Canada.

# ANNUAL REPORT

OF THE

# NATURAL HISTORY SOCIETY

OF

## MONTREAL

FOR THE YEAR ENDING MAY, 1860.

MONTREAL:
PRINTED BY JOHN LOVELL, ST. NICHOLAS STREET.
1860.

# ANNUAL REPORT

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# NATURAL HISTORY SOCIETY

TO

## MONTRULL

FOR THE YEAR ENDING MAY, 1809.

MONTREAL: PLINTED BY JOHN LOVELL, ST. NICHOLAS STREET 1860.

### THE

## NATURAL HISTORY SOCIETY

OF

### MONTREAL.

In presenting the customary annual Report, the Council have to congratulate the Society on the marked increase in its usefulness and prosperity in the past year, consequent, in part, on the present commodious and well-placed Building, and in part on the increased numbers and activity of its members.

In the past year the internal arrangements, and furniture of the building, have been completed; large additions have been made to the Museum; many important original investigations have been undertaken by members of the Society, and the results have been published in its proceedings. The annual Somerville course of free lectures has been successfully delivered. These lectures, as well as the ordinary meetings, have been even more largely attended than in former years.

The publication of the Naturalist has been carried on with its usual success; and the number of members has steadily increased, while the meetings have been occupied much more fully than formerly, by discussions of a scientific character. These successes have not been attained without much labor and expense; but we have the satisfaction of announcing that the Government and Legislature have, at length, adequately acknowledged the claims

and Provincial utility of the Society, by a grant in aid of its funds.

Of the points above briefly noticed, some require a more detailed mention, which may be given under the following heads:—

#### ORIGINAL PAPERS READ.

Of the different departments in which the Society endeavors to promote the cause of Canadian science this must be regarded as the chief. We do not desire to undervalue the important work of collecting specimens for our Museum; but it is to be regarded as, in some respects, merely amassing the material on which skilled labor must be expended. The popular exposition of scientific principles in our public lectures is also a valuable means of cultivating the love and pursuit of science. The original investigations, carried on by members of the Society and published by it, must, however, give it its standing among other scientific bodies, and it is by these that the value of its operations will be estimated abroad.

In this important department much has been done in the past year, and the Society has now connected with itself a zealous and constantly increasing band of laborers, who are daily extending the limits of our knowledge of Canadian Natural History and allied subjects.

In the department of Ethnology and social statistics, several valuable communications have been presented to the Society. One, by Principal Dawson, had reference to the art of Pottery, as practised by the aborigines of Canada, and evidenced by an ancient Indian vase in the collection of the Society. Another from an anonymous correspondent, is a very interesting notice of the manners and present condition of the Indian tribes of the McKenzie River, and the Arctic coast of America. Another, prepared by a committee of the Society, relates to certain points of interest connected with the Egyptian antiquities, presented by Mr. Ferrier, and especially to the antiquity and mode of preparation of the mummied remains contained in the collection. A fourth, the most important of the whole, is an elaborate investigation of the vital statistics of Canada, by Mr. P. P. Carpenter, a

paper which, it is hoped, will not be merely a contribution to knowledge, but will give a practical stimulus to the sanitary improvement, so much needed for the comfort and health of the laboring classes in our towns.

In Botany, the Society has received a number of catalogues, which must be regarded as important contributions to our knowledge of the geographical distribution of American plants. The principal are, that of the Holmes Herbarium of the University of McGill College, prepared by the late Prof. Barnston, that of Prescott plants, by Mr. B. Billings, that of the plants of the river Rouge, by Mr. D'Urban, and of the Algæ of the St. Lawrence, by the Rev. Mr. Kemp. In addition to these, we have had very interesting papers on the reproductive system of Vaucheria, and on the mode of studying the Algæ, by Mr. Kemp; on the genus Allium, as found in Canada, by Mr. G. Barnston; and we may properly add here an interesting biographical sketch of the Great Western explorer, Douglas, by the same author.

In Zoology Mr. Bell has given us the most complete list hitherto published of the marine and fresh-water mollusks and radiates of the St. Lawrence, beside a number of other facts, bearing on the Zoology of that region. Mr. D'Urban has done a similar service for the previously unexplored valley of the River Rouge. Both gentlemen, it is proper to state, are protegés of the head of the Canadian Geological Survey, and have done these services to science under his auspices. Dr. Gibb, of London, an old and valued friend of the Society, has contributed some curious notes on the sounds produced by American insects; and Dr. Dawson has presented to us a complete summary of the nautral history of the tubicolous marine worms of the Gulf of St. Lawrence, and the description of a new Canadian fish, the Gasterosteus gymnetes.

Geology is a department always likely to take an important place in the labours of this Society, more especially as the officers of the Geological Survey of Canada are among our most valued and active contributors. In this subject we have to notice three papers by Prof. Dawson, one of the microscopic structures of our Canadian limestones, and on the origin of these great sheets of

calcareous matter in the deposition of the comminuted fragments of shells and corals, another in continuation of the Geology of the tertiary deposits of the lower St. Lawrence, and a third which for the first time brings the Silurian rocks of the peninsula of Nova Scotia into comparison with those of other parts of America. To this last paper, Prof. Hall, of Albany, has added descriptions of the new species of fossils, characteristic of these rocks. Mr. Billings is, as usual, one of our most important contributors. His papers on American Trilobites, on new genera of Brachiopoda, on the fossils of the Chazy Limestone, and on new species of fossils from the middle and lower Silurian rocks of Canada, are all steps in advance in Canadian palæontology, of which any Society might be proud to be the medium. We have also to thank Mr. Hunt for contributions to chemical Geology, which if not first published by this Society, have at least through its means been more widely made known in Canada. Lastly, the series of original papers for this session has been fitly closed by the very interesting paper read by Sir W. E. Logan, at the April meeting of the Society, on the extraordinary impressions recently found in the Potsdam sandstone at Perth, C. W., constituting with the singular Protichnites, previously discovered by the same geologist, some of the oldest and most wonderful traces of life preserved in our Canadian rocks.

In addition to the original contributions above referred to, many abstracts and reviews of papers and other publications important to Canadian science, have been prepared by members of the Society, and published in the *Naturalist*.

It was deemed proper by the Council to present to His Royal Highness the Prince Consort, on the occasion of his presiding at the meeting of the British Association in Aberdeen, a copy of the Naturalist from the commencement. This duty was performed by the President; and the volumes bound in the best style by Mr. Lovell, were presented and graciously received. The correspondence on this subject is appended to the Report.

### PUBLICATION OF THE NATURALIST.

The editing committee report that since last annual meeting Vol. IV. has been completed. It consists of 504 pages, 8vo.,

being 24 pages larger than Vol. III., and contains twenty-two original articles presented to, or read before the Society, and written expressly for the Magazine, occupying..... Pages 217 Fourteen selected articles—many of which, though written for other purposes, were first published in its pages;

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Wood engravings have been as usual, freely furnished by the publishers, who still continue with great liberality to publish the Magazine at some loss to themselves. The Editing Committee regret that the proceedings of the Society have not been so regularly reported in the Naturalist as is desirable, and recommend that, in future, this duty be assigned to the Committee.

The circulation of the Naturalist has not materially increased: nor do the Committee anticipate any great improvement in this respect, until the Society shall be in such a position as to procure a copy for each of its members, and to distribute the work more extensively in Great Britain, and in foreign countries. The Naturalist is doing a most important work in Canada, in stimulating the taste for natural science, and in giving the means of publica. tion to observers; but its value as a medium of publication and as a means of extending the knowledge of Canada and of enlarging its scientific reputation, is much diminished by the restricted circulation abroad, necessitated by the narrow pecuniary circumstances of the Society. A vigorous effort should be made to remove this evil in the coming year, and to secure for the Naturalist, now by far the most important representative of the state of Natural Science in Canada, the circulation which its merits demand.

In thanking the Editing Committee for its services, the Council regard it as nothing more than an act of justice to make especial mention of the services of Mr. D. Allan Poe, on whom the immediate editorial superintendence of the Naturalist has de-

volved, and to whose skill and unwearied attention much of the success of the publication is due.

### MUSEUM AND LIBRARY.

The arrangement and improvement of the Society's collection, have been steadily advancing, and the cabinet-keeper, Mr. Hunter, deserves great credit for the zeal which he has displayed in this, as well as in adding to the collection by preparing and setting up numerous specimens of animals presented to the Society. The report of the Curator, Dr. Fenwick, shows that the number of donations has been very large. The most important of the whole is the Ferrier collection of Egyptian antiquities, which is one of the most attractive features of the collection. As at present arranged, the Society's collection of Canadian birds is remarkably complete and available for reference. The collection of Mammals, though containing a number of good specimens, is still very defective. It is much to be desired that members interested in these subjects, would bring up to the same degree of perfection with the birds, the collection of Canadian Invertebrate Animals, Plants, Fossils and Minerals. In all of these departments there is a great amount of material of little comparative value in consequence of the want of modern scientific arrangement. The aquaria, which we owe to the exertions of Mr. Leeming and Mr. Ferrier, now constitute a portion of our Museum of much interest and some scientific value.

The donations to the Library have been comparatively few, and the state of the Society's funds has not permitted the purchase of books. It is hoped, however, that something may ere long be done in this direction, as the library is now much in want of many of the more modern works on Natural History. There is also a prospect that the Committee appointed to organize a system of exchanges for the Naturalist, may be able in this way to procure for us some of the scientific periodicals, not now received by the Society.

It would be of much service to the students of Natural Science in Montreal, were there a mutual understanding between the institutions having libraries of reference on science, as, for instance, the McGill College, the Board of Arts and Manufactures, the Geological Survey, and this Society, that in ordering books the one should endeavor, as far as possible, to supplement the deficiencies of the others. The subject is worthy of the attention of the Library Committee in the coming year.

#### PUBLIC LECTURES.

The Somerville course for the past year consisted of the following Lectures:—

1.—On the uses and advantages of Foreign Travel, by the President, the Lord Bishop of Montreal.

2.—On Crystallization as a force in Nature, by Principal Dawson.

3.—On the History of Astronomy, by Prof. Johnson.

4.—On the Microscope, by T. D. King, Esq.

5.—On the Oyster, by J. Leeming, Esq.

6.—On Mountains and Volcanoes, by Prof. Hunt.

In addition to the ordinary Course, the exhibition of the Ferrier collection furnished the occasion of two interesting lectures on the present and ancient state of Egypt, for which we have to thank the Rev. Prof. Cornish and Mr. R. W. Ferrier.

### FINANCIAL POSITION.

The Treasurer's accounts for the past year still exhibit the effects of the increased expenditure attendant on the removal of the Society to its new building, on which there also remains a debt, secured by mortgage and note, of £850. The Society is now, however, owing to its improved accommodation, in a position much more efficiently to carry out its objects, to increase its membership, and to merit that support from the public and the Legislature, which there is now good reason to expect.

In the coming year the Legislative aid and members' fees will suffice to meet all the unpaid accounts and interest of the debt, and to provide for the current expenses; and it is hoped that in subsequent years, by economical management, some reduction of the debt may be effected, and means reserved for additions to the Library, and for more extensively promoting the circulation of the proceedings of the Society abroad.

### GENERAL RECOMMENDATIONS.

Toward the close of the last Session two important branches of the operations of the Society were initiated, in the organization of a Microscopical Section, and in the appointment of a Committee on adulterations of articles of food. They have not as yet reported to the Council, but they are warmly commended to the fostering care of our successors.

It is the practice in most Societies similar to this, that an address on the progress of science in connection with the Society should be prepared and delivered by the President at the Annual Meeting. This has usually been done by us in an imperfect manner in the report of the Council; but the operations of the Society are now so important that this can scarcely any longer suffice, and your Council, therefore, recommend that in future it shall be considered as a part of the duty of the retiring President, and, in his absence, of the 1st Vice-President, to prepare an address for the Annual Meeting, including notices of the papers read and of the other operations of the Society. The report of the Council will then be confined to the business affairs of the Society.

The approaching visit of His R. H. the Prince of Wales will demand on the part of our successors an effort to represent as effectually as possible those departments of Canadian science which specially belong to the Province of this Society. This especially merits attention, inasmuch as the Board of Arts and Manufactures has selected for its exhibition building the ground adjoining that occupied by the Society. Our collections will thus be brought under the notice of a much larger number of visitors than usual, and it is possible that some arrangement might be made for rendering our museum still more useful by opening it as a part of the Great Exhibition to be held on that occasion.

PRESENTATION OF THE "NATURALIST" TO H. R. H. PRINCE ALBERT.

SEE House, Montreal, May 6, 1859.

Sir,—At a recent meeting of the Incorporated Montreal Natural History Society, I was requested to forward to you the accompanying volumes of a bi-monthly periodical issued by that Society

entitled the "Canadian Naturalist," which they desire, through you, to be allowed respectfully to offer to H.R.H. the Prince Consort. The different articles in the magazine are written by the members of the Montreal Natural History Society, and the plates are executed and the work printed and bound in this city. It may, therefore, be considered as a specimen of the progress that is making here in Natural Science and in the Arts. And from the interest which His Royal Highness takes in receiving things connected with these matters, and as he is himself to be President at the ensuing meeting of the British Association for the advancement of Science, we are led to believe that these volumes will meet with a favorable reception.

I have the honor to be, Sir,

Very respectfully,

Your faithful Servant,

(Signed,)

F. MONTREAL.

Vice-President of the Montreal Natural History Society.

To the Right Hon.

Sir E. BULWER LYTTON, Bart., M.P., Secretary of State for the Colonies.

GOVERNOR'S SECRETARY'S OFFICE,

Toronto, July 23, 1859.

My Lord,—I am directed by His Excellency the Governor General to transmit herewith a copy of a despatch from the Secretary of State for the Colonies, acknowledging the receipt of your Lordship's letter of the 6th of May.

I have the honor to be, my Lord,

Your Lordship's obedient Servant,

(Signed,)

R. T. PENNEFATHER.

The Right Rev.

The LORD BISHOP of Montreal.

[Copy, Canada, No. 4.]

Downing Street, 27th June, 1859.

Sir,—My predecessor in this Department received from the Bishop of Montreal, as Vice-President of the Natural History Society of Montreal, a letter dated the 6th of May last, accompanied by volumes of a periodical issued by the Society, entitled the "Canadian Naturalist," which they desired to offer to his Royal Highness the Prince Consort.

His Royal Highness has requested that the expression of His Royal Highness's best thanks may be conveyed to the Bishop of Montreal, and to the Society over which he presides, for the valuable work which they have sent to him, and the assurance of the high value which he shall attach to these volumes as the sign of the cultivation of the Sciences and Arts in the important North American Colonies of Her Majesty.

I have, &c.,

(Signed,)

NEWCASTLE.

# STATEMENT OF LIABILITIES OF THE NATURAL HISTORY SOCIETY.

1st May, 1860.

		\$ 673	94
Sun	dry open accounts,	257	50
Inte	rest due on Mortgages		
Bala	ance due Treasurer,	1000	00
The	Society's note due July 11, 1860,	400	00
Mor	a vit Minim Dag	2000	00
	Do. do. Wm. Nivin, asq.,	主义即	

\$4457 75

JAMES FERRIER, Jr., Treasurer.

Montreal, 1st May, 1860.

# NATURAL HISTORY SOCIETY OF MONTREAL IN ACCOUNT WITH JAMES FERRIER, JR.

RECAPITULATION.  1859.  May 1.—To balance due the Treasurer,	200 00 ons, 31 00 49 61 129 96 67 30 221 32 38 00 38 00 58 50 147 08 495 52	1860. May 1.—By		Received from Annution Diplomas, Received from Life Special, Received from Admi Museum, Proceeds of Lecture From American Assomittee, balance, From L'Institut Carest to 1st July on Wm. Nivin, Esq., on	Members and ission fees to on Egypt, ociation Commadien, inter-£600, loan, loan,	110 46 64 271 108 1000	00 00 75 50 67 00	S
Montreal, May 1, 1860. Examined and found cor Signed, J. H. JOSEP	\$2,231 20 rect. DON, H,	E. & C. E.	1st M		S FERRIER, Treasurer	\$2,231 Jr. , N. H		

List of Donations to the Library and Museum of the Natural History Society of Montreal, from 1st June, 1859, to 3rd October, 1860.

Mr. James Milne, ..... The Annual of Scientific Discovery for 1851, 1852 and 1853.

G. D. Watson, Esq.,... Dictionnaire des Arbitrages des Changes, 2 vols.

Mrs. Ramsay, ...... Papers relating to the Nat. History Society. Geo. Molson, Esq.,.... Travels in Upper and L. Egypt, by Tourrens. Lady Franklin, ..... Fourth number of the Meteorological Papers published by the Board of Trade.

East India Company,... Bombay Meteorological Register for 1859. Essex Institute, ...... Series of their Historical Collections.

Society of Antiquaries, Transactions of the Societé Royale des Anof Copenhagen, ..... tiquaries du Nord.

Wm. Spink, Esq.,.... Geological Reports. Statutes of Canada, 1860.

Exploration of Red River, by Professor Hind. Appendices to the Journals of the Legislature. 5 vols.

The Authors, ...... The Lower Coal Measures as developed in British North America, by Dr. Dawson. On the Silurian and Devonian Rocks of Nova

Scotia, by Dr. Dawson. Description of Canadian Fossils, by Prof.

James Hall, Albany. Notes on the Coal Fields of Pictou, by Henry

New localities of Silurian Fossils in Nova

Scotia, by Rev. Dr. Honeyman.

The Natural History of Washington Territory from the Smithsonian contributions to knowledge.

Lyceum of Natural History, New York,..... Their Annual Nos. 1, 3, 8, 9, 10 and 13. Boston Nat. Hist. Society, Their proceedings.

The Publisher,..... British American Journal. Journal of the Canadian Institute.

S. Jones Lyman,..... Specimen of Striped Bill-Fish. (Lepidosteus.)

Do. Spider Crab. Do. Lepidosteus.

John Leeming, Esq., .... Do. the Peleated Woodpecker.

A live specimen of the Soft-Shelled Turtle. (Aspidonectes spinifer.)

James Ferrier, jr., Esq.,.. A Sebright Bantam. A Java Sparrow.

A Red-breasted Merganser.

John Leeming, Esq.,... Two Busts of Scott and Byron. Thomas Keefer, Esq.,... Three Silver Coins found in building the

Lock and Dam at St. Ours, in 1851.

A. Wurtele, Esq.,.... Specimen of wood gnawed by Beavers. Dr. Dawson, ..... Specimens of Lepas and Balanus found in dredging at Portland.

Dr. Fenwick, A Ground Squirrel.
Dr. A. Nelson, Geological Specimen.
Mr. A. G. Baynes, A Red-bellied Snake, (Coluber amvenus.)
Mr. Geo. Baynes, A Male Goldfinch.
John Learning For
John Leeming, Esq., A large specimen of the American Panther.
(Felis concolor.)
Mr. Irons, Kingston, A Limestone Concretion.
Mr. F. Carlisle, A handsome Gilt Frame for the Portrait of Sir
J. Kempt.
E. Wurtele, Esq A specimen of a Sea Urchin
Mr. Date, A Horse's Tooth taken up by the dredge in the
Harbour of Montreal.
J. A. Perkins, Esq., A Brazilian Nut.
Mr. Wm. Jail, A large Hen's Egg weighing 4; ounces.
W S D'Urbon For A large Hells Egg weigning 42 ounces.
W. S. D'Urban, Esq., A case of Coleoptera.
Mr. Donegani, A Black Hare. (Lepus Americanus var.)
Mr. Gough, Specimen of a Hawk.
A very large Claw of a Lobster found at Saco
Maine.
Wm. Martin, Esq Specimen of a Hawk.
Hugh Taylor, Esq., Specimen of the Summer Duck. (Anas sponsa.)
Rev. Mr. Robinson, A great Horned Owl. (Bubo Virginianus.)
Mr. Halliday, A Raven. (Corvus corax.)
Mr George Ross Pough Lorsed Downerd
Mr. George Ross, Rough Legged Buzzard.
Mr. C. C. Carpenter, Specimen of Solaster Papposa, cribella, ocula-
ta, and Uraster Polaris from Labrador.
Dr. Dawson, Specimens of Uraster rubens from Gaspé.
Do. do. violacea from Portland,
Maine.
M. C. Glen, Hoary Bat. (Vespertilio subulatus.)
Dr. Craik A Flying Squirrel
Dr. Craik, A Flying Squirrel.
Dr. Craik, A Flying Squirrel.  Mr. Esdaile, A Hawk Owl.
Dr. Craik, A Flying Squirrel.  Mr. Esdaile, A Hawk Owl.  Mr. Robert Wright, Do.
Dr. Craik, A Flying Squirrel.  Mr. Esdaile, A Hawk Owl.  Mr. Robert Wright, Do.  Mr. Joshua Bell A Pine Grosbeak
Dr. Craik, A Flying Squirrel.  Mr. Esdaile, A Hawk Owl.  Mr. Robert Wright, Do.  Mr. Joshua Bell, A Pine Grosbeak.  Mr. H. Vennor, An Indian Calumet found at Woodstock, C.W.
Dr. Craik, A Flying Squirrel.  Mr. Esdaile, A Hawk Owl.  Mr. Robert Wright, Do.  Mr. Joshua Bell, A Pine Grosbeak.  Mr. H. Vennor, An Indian Calumet found at Woodstock, C.W.  Specimen of the Teeth of a Seal.
Dr. Craik, A Flying Squirrel.  Mr. Esdaile, A Hawk Owl.  Mr. Robert Wright, Do.  Mr. Joshua Bell, A Pine Grosbeak.  Mr. H. Vennor, An Indian Calumet found at Woodstock, C.W.  Specimen of the Teeth of a Seal.  Do. Petrified wood from Bermuda.
Dr. Craik,

Duncan Robertson, Esq., Specimens of Native Cloth from Tahiti. R. S. Fowler, ..... Specimens of Shells from the Stomach of a Flounder.

George Buntin, Esq.,... A pair of Black Ducks. Specimen of the Eared Grebe. Wilson's Snipe. Do.

A young Duck Hawk.

Mr. Marler, ..... A Barred Owl. Mr. Cunningham,..... Specimens of Copper Ore from Acton. Thos. E. Blackwell, Esq., A large Bust of the late Dr. Buckland. Mr. W. Hunter,..... Specimens of the American Gold Fish.

French Notes and Coins.

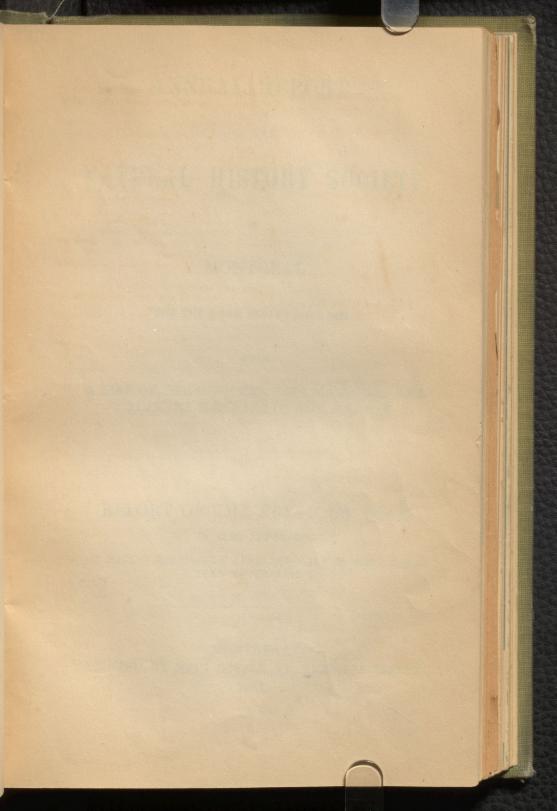
A pair of Golden-crowned Thrushes. A young Bittern caught near Lachine. Specimen of the Jumping Mouse. Meriones (jaculus) acadicus.

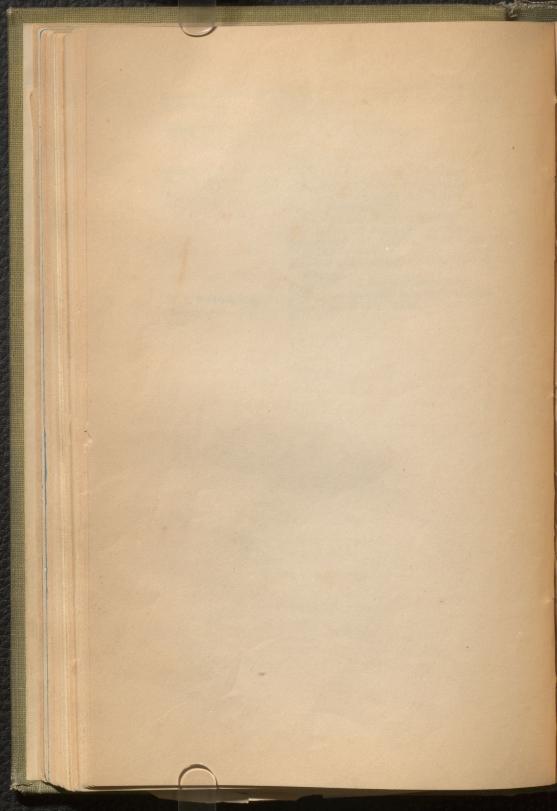
Specimen of Short Legged Pewitt Fly-Catcher

(Female.) Specimen of the Female Indigo Bird.

J. A. Perkins, Esq.,.... A large specimen of Mica from the Ottawa.

Anonymous,...... Three Vials of small Shells.





# ANNUAL REPORT

OF THE

# NATURAL HISTORY SOCIETY

OF

### MONTREAL

FOR THE YEAR ENDING MAY, 1861:

WITH

A LIST OF THE OFFICERS, LIFE MEMBERS, AND ORDINARY MEMBERS OF THE SOCIETY.

THE

# REPORT OF THE PREVIOUS YEAR

IS ALSO APPENDED,

(IT HAVING PREVIOUSLY APPEARED ONLY IN THE "CANA-DIAN NATURALIST.")

MONTREAL:

PRINTED BY JOHN LOVELL, ST. NICHOLAS STREET. 1861.

# NATURAL HISTORY SOCIETY

OF

## MONTREAL.

The annual meeting of the Society was held pursuant to public notice, at the rooms of the Society, on Saturday evening, May 18, 1861, when there were present the following members:—

The President, the Lord Bishop of Montreal; Principal Dawson, Chairman of Council; Dr. DeSola, 1st Vice President; Dr. Hingston, Corresponding Secretary; John Leeming, Recording Secretary; James Ferrier, Jr., Treasurer; Dr. Craik, Curator; Messrs. Davies, Kemp, Murphy, of the Council; and Messrs. Gordon, Gouldie, Weaver, J. C. Becket, Dr. Jones, J. J. Day, Douglas, H. A. Joseph, D. Mackay, Alex. Morris, Gibson, Henry Rose, S. C. Bagg, and other members of the Society.

The minutes of the last annual meeting were read and confirmed.

His Lordship the President of the Society then delivered the following address:

Gentlemen,—Before we proceed to the more special business for which we are assembled at this the Annual General Meeting of our Society, I will ask your patience while as President of the Natural History Society of Montreal during the past year, I endeavour to lay before you some brief statements of what we have been doing, and what are our claims to support. We have a charter of Incorporation, and we receive support from the

Legislature, upon the plea that we are promoting the study of Natural Science. It is very reasonable that such aid and encouragement should be given in a young country like this, but we can only expect it to be continued upon some good showing that we are accomplishing the work to which we are pledged. This I trust we can justly assert to be the case. But whatever help we may derive from the Legislature, it is rather upon the co-operation of our own members, that we must mainly and eventually rely, if we expect to advance our Institution or extend its usefulness. It is not however reasonable to anticipate any rapid accession of members who will devote themselves systematically to scientific pursuits; but I think there is every reason to believe that the efforts of this Society are really advancing the cause of Science, and that its influence is becoming extended, and its labours more and more appreciated by the public. There are several ways in which the Society seeks to advance its work, and bring its influence to bear upon the public mind. First there is the Museum which occupies all the upper part of this building, and has received some very valuable additions recently, which will be noticed more particularly in the Report. This offers many objects of great interest in various departments, and has been visited by far larger numbers than in any previous year. Then there are the Somerville course of lectures during the Winter free to the public, and which have attracted such immense crowds this year that great numbers of persons have been unable to gain admittance. These Lectures bear in general a popular character; while at the monthly meetings of the Society there have been a number of very able and scientific papers read on various subjects. And lastly in order to give permanence to its labours, and disseminate its usefulness, the Society superintends a bi-monthly periodical, under the title of "The Canadian Naturalist." As to the Lectures delivered during the last year, they were attended by such large audiences, and were so well appreciated at the time, that I will not now delay you by alluding to them in detail. But the monthly meetings of the Society, which are truly the periods of its really scientific work, are not so largely attended, nor I think appreciated, as they deserve. And I should wish to mention some of the many interesting papers which have been read and discussed by the members on these occasions; reminding you that these meetings are open to all members of the Society, and to all of their friends, ladies as well as gentlemen, whom they may wish to introduce.

#### GEOLOGICAL PAPERS.

- 1. Poole, on Coal Field of Pictou.—Giving many valuable new facts on a very important Coal district; a colossal specimen of the produce of which was exhibited in Montreal last summer at the great Industrial Exhibition.
- 2. Honeyman, on new Localities of Fossils in Silurian rocks of Nova Scotia.—Facts supplementary to, and extending those in Principal Dawson's paper of last year.
- 3. Billings, on Fossils from Point Levi.—This paper contained the discoveries on which the changes in the view entertained of the Quebec group of rocks were mainly based. It marks an era in the Lower Silurian Geology of Canada, and illustrates the pre-eminent value of fossils as guides to the ages of rocks.
- 4. Kemp, visit to Acton Copper Mine.—A good popular exposition of the Geology of this very interesting mining district.
- 5. Dawson, on the Earthquake of 17th October, 1860.—A collection of facts relating to the shock as experienced in Canada; with notices of the general phenomena of Earthquakes, and of former Earthquakes in this Province.
- 6. Billings, on certain theories of the formation of mountains.—
  A very good exposition of the prevailing views, with some valuable theoretical deductions.
- Bradley, New Trilobite from Potsdam Sandstones.—Supplementary to Mr. Billing's Paper, No. 3.
- 8. Bell, on Freshwater Shells, in the Tertiary deposits of Canada.
  —Interesting new facts respecting the fossils of the Pleistocene deposits; and tending especially to explain the peculiarities of those in Upper Canada, referred to in previous papers in the Canadian Naturalist.
- 9. Dawson, on the Geology of Murray Bay.—The local Geology of a very interesting region, showing the characters of several important formations in very good natural exposures.

10. Logan, on the Lower Silurian Rocks of Lake Superior and Quebec.—A lucid explanation of the new views entertained by Sir William Logan respecting the age of the Quebec group of rocks, and of the facts in the Silurian Geology of Lakes Huron and Superior, recently obtained by the Survey, with very important general deductions respecting the physical conditions of Eastern America during the Lower Silurian period.

#### ZOOLOGICAL PAPERS.

- 1. Saunders, on Menobranchus Lateralis.—Interesting observations on the habits of a most curious Batrachian reptile.
- 2. Vennor, on Birds wintering in and around Montreal.—Some good observations by a very promising young naturalist; and showing a much larger number of winter residents and visitors than most persons are aware of.
- 3. Ross, on Fur-bearing animals of the McKenzie River Settlement.—Full of curious new facts about the habits of North American mammalia.
- 4. D'Urban, on the valley of the River Rouge.—Giving catalogues of the animals of a district but little known.

### ETHNOLOGICAL.

Dawson, on aboriginal Antiquities in Montreal.—An interesting paper respecting some Indian remains found in excavating for buildings near Sherbrooke Street, and tending to prove the site of the original Indian Village.

### BOTANICAL.

D'Urban, on the Flora of the Counties of Argenteuil and Ottawa.

—A valuable Catalogue of the plants of that part of Canada.

Under this head may also be placed a very interesting memoir and account of the labours of Douglas the great botanical explorer of the West coast of America.—By G. Barnston, Esq.

These papers contain a great deal of most interesting matter on a variety of subjects; and many of them are full of new facts bearing upon Natural History and Geology, and though they may

be read afterwards in the pages of the "Naturalist," where, with many other valuable contributions, they are placed on record, yet to any young persons anxious to acquire any accurate knowledge, it would be far more profitable to attend the monthly meetings, at which they are read, because they might acquire much valuable information by conversation and enquiry, respecting details growing out of these subjects. And it is certain if a student once takes up a particular branch and follows it out systematically in detail, that an immense amount of interest is rapidly created; and by careful observation, without any great expenditure of time, he is soon able to contribute many useful facts for the enlargement or correction of our knowledge of Natural History. One great object of popular lectures, and public collections in Museums, is to excite such a taste for Natural Science, that in some persons at least a real interest may be created, and the study systematically pursued. Kindred Societies elsewhere in Canada are labouring in the same field, and each doing their part; let us rejoice with them in whatever success attends their efforts: such as the Canadian Institute of Toronto, the Historical Society of Quebec, and the Botanical Society of Kingston. And through the pages of the Montreal "Canadian Naturalist," our Society is now becoming known and valued far and wide by those who are well able to appreciate its worth. Many copies of every bi-monthly number are exchanged with other scientific Societies, and its papers have again and again been copied, and most favorably noticed in the scientific publications of this Continent, of Great Britain, and the Continent of Europe. During the visit of the Prince of Wales to this city, we presented His Royal Highness with an address, and a copy of three volumes of The Canadian Naturalist already published, and also with a very handsome volume of curious meteorological observations by Dr. Smallwood, one of our members, which were graciously received and acknowledged. I feel that I may thus freely eulogize the labours of our Society, because while I have constantly attended to all its proceedings for some years past, and for the last two years have filled the office of your President, yet I can lay no claim to the honor of having contributed to the scientific work that has been accomplished. I cordially give my help to encourage what others, far

abler in every department of science than myself, have achieved; and while such men as Sir William Logan, Principal Dawson, the Rev. A. F. Kemp, Mr. Billings, and others, continue to give their time and talents to its support, I am confident that it ought to receive cordial and liberal encouragement from the public of Montreal. It is an Institution which, though still in, what we may consider, an infant state, and with its Museum, as compared with those of the old world collections, only as it were commencing its existence, yet reflects credit upon this city, and I trust will continue to do so more and more. I certainly regret that we have not yet got in Montreal some regular and permanent building for carrying on Astronomical and Meteorological Observations. however now arrived at a time, when it is not unreasonable to expect occasional acts of well considered munificence amongst our wealthier citizens to enrich our city with useful Institutions, whether connected with Religion or Charity, Learning or Science; and I trust that the example recently set by one of them in connection with McGill College may lead to many similar instances. Perhaps amongst them we may some day find the means of establishing an Observatory in connection with this Institution, and carrying on a regular course of scientific observations. But at any rate whatever may be hereafter accomplished in any fresh departments, we must not allow the "Natural History Society of Montreal" to stop in its present onward progress, or to fail in making good its own special work, either for want of talent ready to labour in its cause, or a grateful public ready to support it.

Principal Dawson then read the following:-

### REPORT OF THE COUNCIL.

The past year has been characterised by steady progress and prosperity in the affairs of the Society. The papers read have been numerous and important, the publication of the *Naturalist* has been maintained with its usual vigour, the annual course of Somerville lectures has been delivered to crowded audiences, considerable additions have been made to the library and museum, the number of members has increased, and the legislative grant

and the increased amount of fees from members have much improved the financial position of the Society. Such details as are necessary under these heads may be stated as follows:—

#### PAPERS READ.

Since last annual meeting seventeen important papers have been read, all of which have been published in the *Canadian Naturalist and Geologist*, or are now in course of publication, and which have been noticed in detail in the address of the President.

Many other papers not read before the Society, especially a very valuable one by Mr. T. Sterry Hunt, and short notices on various subjects connected with Canadian Natural History, have been published. This Society may thus fairly take the credit of having been the medium through which in the past year many contributions of much importance have been made to Natural History and Geology.

### PUBLICATION OF THE NATURALIST.

A very important movement in connection with the Naturalist is the employment of a portion of the Provincial grant to the Society in organising a system of exchanges with the leading scientific publications of Britain, America, and the continent of Europe. This will in the ensuing year publish more extensively than heretofore the matter contained in the Naturalist. It will afford a wider range of material for comment and selection; and will tend materially to the increase of the Library. It will also much extend the reputation of this Society and of Canadian Science in general; since wherever it is known, the Naturalist is now regarded as one of the most important representatives of Natural History on this continent.

While all the members of the Editing Committee have exerted themselves on behalf of the *Naturalist*, it is due to Mr. D. Allan Poe to state, that on him has fallen as heretofore the chief burden of editorial supervision, and that the Society is very much indebted to his exertions in this important part of its work.

### MUSEUM AND LIBRARY.

The Reports of the Librarian and Curator and of the Library Committee are herewith submitted. The donations received have been numerous and valuable. The large collection of skins of birds and mammals presented by the Smithsonian Institution is especially deserving of notice, and will at an early meeting of the Society be made the subject of a special report by one of the members of Council. A very important contribution is also the deposit in our rooms through the kindness of Sir W. E. Logan, of a suite of specimens of the invertebrates recently collected by the Geological Survey. These are not a donation to the Society, but are placed in our rooms in order that they may be accessible to students, and that space may be made in the crowded apartments of the Geological Survey for its increasing collections of fossils. This is a gratifying proof of the public utility of the spacious Museum of this Society; and as the collection will be arranged for us by Mr. R. Bell, it will place within reach of the public, means of systematic study not previously enjoyed, in one leading branch of the Natural History of Canada, and will supply perhaps the greatest deficiency previously existing in our Museum.

It is due to Mr. Hunter, the cabinet keeper, to state that he has exerted himself most assiduously in the care of the collection, and also in preparing the numerous specimens presented to the Society.

#### PUBLIC LECTURES.

In pursuance of the requirement of the bequest of the late Rev. A. Somerville, the annual course of free lectures was opened on Thursday, February 21st, by an address on the objects and prospects of the Society, by the President, the Lord Bishop of Montreal. It consisted of the following lectures:—

- 1. By Principal Dawson, on the Aboriginal Antiquities of Montreal.
- 2. By the Rev. Dr. De Sola, on the Arts and Sciences of the Ancient Hebrews.
- 3. By Wm. H. Hingston, M.D., on the climate of Canada in its relation to life and health.

- 4. By Ed. Murphy, on the Microscope and Microscopic research.
  - 5. By Alfred Rimmer, on Sea Birds and their habits.
  - 6. By Dr. Wilkes, on Natural Heritage.

### GENERAL AFFAIRS OF THE SOCIETY.

Twenty-eight ordinary members, and six corresponding members have been added to our number during the year.

The usual petition to the Legislature having been prepared, and the Recording Secretary having personally called on members of the Government therewith, the Council have much pleasure in reporting that the sum of \$1,000 has been placed on the estimates as the annual grant to the Society.

The Treasurer's account appended to this report, shows a most gratifying condition of the financial affairs of the Society. The debt on the building has been reduced to an amount not greater than that on the old building of the Society, the liabilities having in the past year been reduced by \$755.19. All the minor accounts have been paid, and there is a prospect that the Society may be able still further to reduce the permanent debt, as well as to carry on its operations with increased vigour.

For the better securing of this last object, the Council would recommend, as necessary to the Society in its present stage of advancement, and as warranted by its financial position, the appointment of some gentleman of scientific tastes and knowledge, as Assistant Secretary and Curator, with a small salary. The great services of Mr. D'Urban in this capacity, are fresh in the memory of the Society, and there are now among our members, several young naturalists of ability and high promise, who could very much benefit the Society and the cause of science, if enabled in this way, to devote a part of their time to its interests. It would be the duty of such an officer to prepare the programme of scientific business for each meeting, to write out the proceedings in a form suitable for publication, to determine and arrange specimens presented to the Society, to take measures for the increase of the collection and library, and generally to work

out all the details of our scientific operations, which are now necessarily conducted in a very desultory manner. The Council would ask authority from the Society, to engage some person of the requisite zeal and scientific and business knowledge, as soon as possible, and at a rate of remuneration such as the resources of the Society could afford.

Signed, J. W. Dawson,

Pres. Council.

The Treasurer, James Ferrier, then presented the following statement:-

## THE NATURAL HISTORY SOCIETY OF MONTREAL IN ACCOUNT WITH JAMES FERRIER, JUNR., TREASURER.

				RECAPITULATION.		11			RECAPITULATION.
1861.					DR.	. 186	1.		CR.
					\$ cts.				\$ cts.
				ce due the Treasurer, May 1, 1860,.		May	1	-By	y cash received from annual subscriptions
May 1.				or salary to Mr. Hunter,					and diplomas, 557 00
"	"	"	6	C. McCormick, \$30, and G. Ap-			66	66	" received from Dr. Hingston for life
				pleton, \$30, commissions,					membership, 50 00
4.6		"		city assessment,	150 00		66	"	" received from admission fees to
44		"		gas and water rent,	44 70				museum, 66 25
"	66	"		fuel,	125 97		"	"	" interest returned on loan paid be-
"		"		advertising and printing,					fore maturity, 37 50
"	"	"		books and binding,	41 46		"		annual grant from government, 1000 00
	"	66		repairs and fixtures,	288 70		"	66	balance and the freezence, the first
"		"		interest,	482 50				
"	"	"		insurance,	38 00	TOTAL BOOK TO COMMON OF			
				incidental expenses,	66 33				
					P1004 00				\$1884 00
					\$1884 00	E. 8	- 0	Tri	\$100± 00
		Т	o b	alance due the Treasurer,	173 25		0.	E.	JAMES FERRIER, JR., Treasurer, N. H. S.

Henry Rose, Esq., then read the following

### REPORT OF THE LIBRARY COMMITTEE.

Your committee have held several meetings, throughout the year, and beg to submit the following report:—

Dr. Fenwick, the late Librarian and Curator, stated to the committee regarding certain volumes of the transactions of the Smithsonian Institute which are missing (vols. i. vi. vii. and viii.) that he had written to the Secretary of the Institute, wishing to know if they could be supplied so as to complete the set in our possession, and had been informed that the rules of this Institution did not allow deficiencies of this kind to be supplied.

Since the receipt of this letter Dr. Craik, the present Librarian, has informed the committee that he hopes, through the kindness of a friend, to be able to supply most of the missing volumes.

The following Nos of the Canadian Journal are missing, viz: No. 19 for 1859, and Nos. 28 and 29 for 1860, and No. 31 for 1861. It is extremely desirable that means should be taken to get these numbers, as without them a very valuable work is rendered incomplete and comparably useless.

The Society possesses only the first 6 Nos. of the supplement to Audobon's Birds of America, published by Lippincott, Grambo & Co., Philadelphia, and as Mr. Bagg, one of the members of your committee intended visiting Philadelphia this spring he kindly volunteered to ascertain if the continuation of this work could be had and at what cost. On Mr. Bagg's return he kindly furnished the committee with memoranda in regard to this and other works concerning which he made enquiry, as well as a list of donations he had received for the Society, which are submitted herewith.

The committee report that Audobon's splendid plates of the Quadrupeds of North America (3 vols.) have been bound in a manner suitable for so valuable a work.

Your committee deem it expedient that some means be adopted to increase the number of vols. in the Library of this Society, and would recommend that all gentlemen presenting valuable books to the Society to the amount of fifty dollars be elected life members. Mr. Ibbotson having presented nine volumes of the

Transactions of the Institute and Academy of Arts and Sciences of Bologne from 1731 to 1747, royal 4to; also the works of Manpertius, 4 vols. 8vo. 1768, a rare work, we recommend in consideration therefor that he be elected a life member of this Society.

Owing to the number of vols. which have disappeared from the Library, and of which no trace can be had, the committee deem it expedient to recommend that the locks of the cases be thoroughly repaired, and that a catalogue of the books be compiled, and the cabinet keeper instructed to see that no books in future be taken out without being entered in the Register kept for that purpose.

The whole respectfully submitted,

STANLEY BAGG, Chairman. HENRY ROSE, Secretary.

Memoranda presented by S. C. Bagg, and referred to in Library Committee's report:

Having stated at a meeting of the Library Committee last winter, that I purposed visiting Philadelphia, I was requested to ascertain for the benefit of the Natural History Society, if the following works could be obtained in that city, and at what price. In compliance with which request I ascertained that the remaining four numbers of Capell's supplement to Audubon's Birds of America, can be had of Lippincott & Co., 4th and Commerce Streets, for \$4. Schoolcraft's History and Future Prospects of the Indian Tribes of the United States, 6 vols., can be had of Hazard, 724 Chestnut Street, for \$55. Owen's Geological Survey of Wisconsin and Iowa, 2 vols., can be had at Henderson & Co's., 528 Arch Street, for \$30. Park's Exploration of Railroad routes from the Mississippi to the Pacific, 8 vols., Henderson & Co., \$96, and at Hazard's a more complete edition, 4 additional vols., \$24 more. Perry's United States Exploring Expedition, 3 vols., of Henderson & Co., for \$24. Making for the whole of the above mentioned works a sum total of two hundred and thirtyeight dollars. But the Vice President of the Philadelphia Academy of Natural Sciences was of opinion that if this Society applied by letter to Professor Baird, Smithsonian Institute, Washington, the United States government would supply us with nearly all these works gratis, and I think the application should be made without delay. While in Philadelphia, the authorities of both the Franklin Institute and Academy of Natural Sciences, expressed their willingness to exchange with this Institution, such duplicates as they may from time to time have. In conclusion, I am glad to have a few donations from Philadelphia friends to this Society, which I have much pleasure in presenting to it. 1st. From John C. Trantwine, civil engineer, a mandarin snuff box, made of nephrite, with cornelian stopper. 2nd. From the same gentleman, Trantwine's exploration for an inter-oceanic canal route by way of the River Atrato and San Juan in New Granada, South America. Also from M. J. Mitcheson, Esq., a corresponding member of this Society, a military map of the United States and Territories, showing the military posts, seceding States, &c.

Montreal, May, 1861.

These reports having been adopted, the following gentlemen were elected officers of the Society for the ensuing year:—

1861.

President, The Lord Bishop of Montreal.

1st Vice-President, Rev. A. De Sola, LL.D.

2nd Vice-President, W. H. A. Davies, Esq.

3rd Vice-President, E. Billings, Esq., F.G.S.

Corresponding Secretary, W. H. Hingston, Esq., M.D.

Recording Secretary, John Leeming, Esq.

Treasurer, James Ferrier, Esq.

Librarian and Curator, Robert Craik, Esq., M.D.

Council.—J. W. Dawson, LL.D., F.G.S., Principal of McGill College, Chairman; Rev. A. F. Kemp, Ed. Murphy, Esq., Al. Rimmer, Esq., S. C. Bagg, Esq.

Editing Committee of the Canadian Naturalist.—Principal Dawson, Professor T. S. Hunt, F.R.S., E. Billings, Esq., D. Allan Poe, Esq., Rev. A. F. Kemp, Professor Robins, W. H. Hingston, Esq., M.D., John Leeming, Esq. Library Committee.—Henry Rose, Esq., F. D. Fulford, Esq., J. C. Becket, Esq., Alex. Gordon, Esq., George Fenwick, Esq., M.D.

Janitor resident at the Society's museum and rooms, corner of Cathcart and University streets, Mr. William Hunter. The following donations to the Society's Museum have been received during the past year, viz.

Jas. Ferrier, jr., Esq	Red-breasted Merganser.
Joseph Martin, Esq	Male Sebright Bantam.
Do. do	Nest of Mason Wasp.
A. G. Vennor, Esq	
Dr. Dunkes of Poster nor	Three specimens of Anodon Fluviatilis.
Dr. Durkee, of Boston, per	William of the law A
D. A. Poe, Esq	Cast of head of flat-headed Indian from Col-
-arth has saled south	umbia River.
Mr. Massey	Piece of Mexican gold ore.
Mr. Hilton	Tortoise.
Mr. Dickson	Two live Tortoises.
Mrs. Thomson	Four pieces of petrified wood from Egypt.
Do. do	Spoon from Ceylon.
G. D. Rolland, Esq	Specimens of copper ore from Acton mines.
Do	from Lake Superior
Do	" from Lake Superior.
	silver ore from Lake Superior.
M. J. Michison, Esq	A pair of canvas-back ducks.
Mr. Peter Tait	A pair of ducks hatched from one egg.
Mr. William Hunter	Female short-legged pewitt fly-catcher.
Do. do	Female indigo bird.
W. Robertson, Esq., M.D.	
per Duncan Robertson.	Male and female specimens of a stomapod
	crustacea from Tahiti.
Do	Specimen of native cloth from Tahiti.
R. T. Fowler, Esq	Plant growing from the larva of a beetle.
Do	Rare shells obtained from the stomachs of
median founds in Money	flounders at Portland.
Geo. Barnston, Esq., Mi-	The state of the s
chipicotan, L. Superior.	
Total meaning for	Eared greel (Podiceps auratus.)
	Marsh Hamer (Circus cyanus.)
	Wilson's snipe (Tringa Wilsonii)
W. Winter	A falcon (Falco anatina.)
Mr. Marler	Barred owl.
Mr. Cunningham	Specimens of copper ore from Acton.
Mrs. Blackwell	Bust of Dr. Buckland.
A. Gough, Esq	Water lizard (Menobranchus) from Lachine
	Canal.
Thos. Dryden, Esq	Female grey squirrel.
Jas. Ferrier, jr., Esq	Male Canada grouse.
Mr. W. Hunter	Male and female red squirrels.
Edmond Dorion, Esq	Two human skeletons and a variety of pottery
ty planta of M. Carolica.	and numerous small articles found near
	Sherbrooke St., Montreal, supposed to be
	remains of the Indian village of Hochelaga
	described by Jacques Cartier, 1603.
W S McFerlana Far	
W. S. McFarlane, Esq	Wild turkey (male.)
James Ferrier, jr., Esq	" (female.)
Samuel James, Esq	White partridge from Labrador.
John Bell, Esq., Amherst-	
burgh	Six meadow larks.

J.Bell, Esq., Amherstburgh, One quail. One barred owl. One blue jay. Wm. Hunter..... Hudson Bay titmouse. J. J. Day, Esq. ..... Skin of great ant eater (Myrmecophoga.) from the Brazils. John Leeming, Esq..... Male and female pencilled Hamburgh fowls. A. S. Packard, jr. Brunswick, Maine ..... A valuable collection of shells from Labrador. A valuable collection of specimens of Natural History from Great Slave Lake and Fort Bernard R. Ross, per Simpson. Smithsonian Institute. Principal Dawson..... Numerous Indian relics. John Leeming, Esq.... A large specimen of Lepidosteus Oxyurus.

James Ferrier, Esq.... A smaller ditto.

J. C. Trantwine..... Curious Snuff Box, used by a Mandarin. The following donations to the library of the Society have been received during the past year, viz: Silas Durkee, Esq...... Volume of specimens of Algæ. Principal Dawson...... A paper on the Silurian and Devonian rocks of Nova Scotia. Prof. Jas. Hall, Albany Annals of Lyceum of Nat. His. Soc. of New York. Society ..... Nos. 1, 3, 8, 9, 10, 13. Henry Poole, Esq ..... Notes on the coal fields of Pictou. Rev. D. Honeyman.... New locations of Silurian fossils in Nova Bombay meteorological register, 1857. W. Spink, Esq. Geological Reports. Statutes of Canada, 1860. Historical collection of Essex Institute. From the Authors Pub. Natural History of Washington Territory. Smithsonian contributions to knowledge. British American Journal, No. 8. Van Voorst...... The Geologist, No. 217. Lady Franklin. ..... Proceedings of Nat. His. Soc. pp. 288 a 320. Meteorological papers published by Board of Trade, No. 4. Prof. Hind ..... Explorations of Red River. Appendices to Journals of Legislature, 5 vols. Rev. M. A. Curtis, D.D.. Pamphlet on the woody plants of N. Carolina. A. A. Currier ..... List of shells. Canada Gazette and other periodicals. Dr. McAdam, Hon. Sec.. 3 vols. Transactions Philosophical Institute of Victoria. Canada Gazette, Journal of Education, and a number of pamphlets. Arthur Ross, Esq ..... Costumes of Aborigines of America. H. G. Vennor, Esq..... Travels in Greece. M. J. Mitcheson, Esq.... Map of the United States, shewing the Seceding States. J. C. Trantwine, Esq... Exploration for Canal Route in New Granada. LIST OF

### LIFE AND ORDINARY MEMBERS

OF THE

# NATURAL HISTORY SOCIETY OF MONTREAL, MAY, 1861.

Tife Members.

HUGH ALLAN, ESQ. THOS. E. BLACKWELL, ESQ. STANLEY C. BAGG, ESQ, HENRY CHAPMAN, ESQ. A. H. DAVID, ESQ., M.D. W. H. A. DAVIES, ESQ. WM. EDMONSTONE, ESQ. HON. JAMES FERRIER, M.L.C. G. H. FROTHINGHAM, ESQ. WM. FRASER, ESQ., M.D. IRA GOULD, ESQ. HON. L. H. HOLTON. W. H. HINGSTON, ESQ., M.D. WM. HOBBS, JR., ESQ. HENRY J. IBBOTSON, ESQ. J. H. JOSEPH, ESQ. SIR WILLIAM E. LOGAN. JOHN LEEMING, ESQ. WILLIAM LUNN, ESQ. HENRY LYMAN, ESQ. BENJAMIN LYMAN, ESQ. L. A. H. LATOUR, ESQ. FRED. McCULLOCH, ESQ. HON. GEO. MOFFATT. THE RIGHT REV. THE LORD BISHOP OF MONTREAL. WILLIAM MOLSON, ESQ. ROBERT MUIR, ESQ.

## Nife Members-Continued.

JAMES MITCHELL, ESQ.
J. G. MACKENZIE, ESQ.
WILLIAM NIVIN, ESQ.
THOMAS PATON, ESQ.
DUNCAN ROBERTSON, ESQ.
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N. S. WHITNEY, ESQ.
J. H. WINN, ESQ.

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#### Ordinary Members-Continued.

ESDAILE, JOHN. EVANS, EDWIN. ESPLIN, CHAS. FROTHINGHAM, JOHN. FAIRBAIRN, JOHN. FENWICK, DR. G. E. FULFORD, G. D. GRIFFIN, F. GLENNON, JOHN. GIBSON, T. A. GREENSHIELDS, W. J. Gordon, Thos. GORDON, ALEX. GOUDIE, JAMES. GREENSHIELDS, J. B. GALARNEAU, P. M. HUNT, THOS. STERRY. HAMILTON, R. H. HIMSWORTH, C. J. HAGAR, GEORGE. HOPKINS, J. W. HILTON, WM. HOWARD, DR. R. P. HILL, BENJ. HUTTON, JAMES. HENDERSON, ALEX. HART, THEO. HALL, WM. H. HIBBARD, WM. R. HAMILTON, PROF. MARK. HENDERSON, JOHN. JONES, DR. WALTER. JOHNSON, F. G. JOHNSON, PROF. ALEX. KINNEAR, DAVID. KEMP, REV. A. F.

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### Ordinary Members-Continued.

McIntosh, Neil. NELSON, DR. WOLFRED. OSTELL, JOHN. PLIMSOLL, JOHN. POE, DAVID ALLAN. PENNY, EDW. GOFF. PECK, THOS. PANTON, T. C. Рорнам, Јони PICKUP, EDMUND. PHILBIN, RICHD. RAMSAY, T. K. RAMSAY, M. M. Roy, L. K. REDPATH, PETER. RIMMER, ALFRED. RIMMER, THOS. RINTOUL, HERBERT. ROBINS, L. P., PROF. Rose, Henry. Ross, Donald. Rollo, Hon. Col. ROBERTSON, MAJOR. ROBERTSON, ANDREW. SUTHERLAND, DR. WM. STARNES, HY., M.P.P. SIMPSON, ALEX. SKAKEL, WM. SPRINGLE, J. H. SHELTON, E. E.

McDowgrat, D. Long.

SCOTT, DR. W. E. STEVENSON, A. A. STEPHENS, WM. SANBORN, M. H. SMITH, JOHN, Alexander St. SCOTT, GILBERT. SLACE, REV. G. STEPHENS, GEO. W. TRUDEAU, ALEXIS. THOMAS, HENRY. TAYLOR, EDW. F. TAYLOR, T. M. TAYLOR, JAS. W. TORRANCE, F. W. TYLEE, R. S. TAYLOR, DR. G. E. TORRANCE, JAMES. THOMSON, JAMES. THOMSON, REV. J. H., Lennox-VENNOR, HENRY. [ville WILKES, REV. H., D.D. WRIGHT, DR. WM. WHITNEY, H. H., M.P.P WALKER, ALEX. WATSON, G. D. WRIGHT, EDW. WALKER, Jos. WHYTE, JOHN. WATSON, WM. WILLIAMSON, JAS.

## ANNUAL REPORT

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OF THE

## NATURAL HISTORY SOCIETY

OF

### MONTREAL

FOR THE YEAR ENDING MAY, 1862:

WITH

THE AMENDING ACT RECENTLY PASSED:

ALSO,

A LIST OF THE OFFICERS, LIFE, CORRESPONDING, HONORARY, AND ORDINARY MEMBERS OF THE SOCIETY.

MONTREAL:
PRINTED BY JOHN LOVELL, ST. NICHOLAS STREET.
1862.

## ANNUAL REPORT

THT TO

## NATURAL HISTORY SOCIETY

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### MONTREAL

FOR THE YEAR EVERYG MAY, 1892 :

HTIW

THE PARK REMEMBING ACT RECENTLY PASSED:

OBIA

THE COLERSPONDING, HONOLARY, AND ORDINARY NEWBERS OF THE SOCIETY.

MONTREAL: PHINTED BY JOHN LOVELL, ST. NICHOLAS STREET. 1862.

## REPORT.

The Annual Meeting of this Society was held in their rooms yesterday evening, the President, the Most Reverend the Lord Bishop of Montreal and Metropolitan, in the chair. A large attendance of the members was present. The Recording Secretary, Mr. John Leeming, read the minutes of the last meeting; after which his Lordship the President said:

Gentlemen,—It becomes my duty once more, on this occasion of the Annual Meeting of our Society to give some account of our proceedings during the past year. I confess that it is with no small consciousness of my own unworthiness for the post I occupy, that I now again address you as your President; because I cannot but feel that I have myself been able to do so very little for the advancement of those objects, which it is the business of such a Society to investigate and illustrate. I can, however, most truly lay claim to a warm interest in its success, to an anxious desire to encourage in every way I can, the learned and useful labours of others; and I do most sincerely rejoice in being able to congratulate you on the success of those labours, and the steady advance which the Society is making in general usefulness, and in the estimation of the public. The more direct and systematic work of the Society is that which is done at the regular monthly meetings of the members; where papers are presented and read upon any of those subjects which come at all within the purvieu of this Institution; and discussions and conversations take place respecting them. As will necessarily be the case, where science of any kind is the subject matter, these may not always be equally interesting to the million, but are sometimes, as Hamlet says, "caviare to the general;" yet they have been valuable, as contributions to the cause of Natural Science, in almost every department, and have been afterwards preserved and widely disseminated in the bi-monthly numbers of the *Canadian Naturalist*, edited in this city by some of our members. These may be classed under seven different heads, numbering altogether about 35 original papers, exclusive of Dr. Smallwood's valuable meteorological tables; viz:—Geology, 13; Zoology, 12; Botany, 5; Ethnology, 1; Meteorology, 1; Philology, 1; Chemistry, 2.

List of original papers read before and presented to the Natural History Society of Montreal, from May, 1861, to May, 1862:—On the Pre-carboniferous Flora of New Brunswick, Maine, and

Eastern Canada. By J. W. Dawson, LL.D., F.G.S.

On the origin of some Magnesian and Aluminous Rocks. By T. Sterry Hunt, M.A., F.R.S.

Considerations relating to the Quebec Group, and the Upper Copper-bearing rocks of Lake Superior. By Sir W. E. Logan, F.R.S.

Notes on the History of Petroleum or Rock Oil. By T. Sterry Hunt, M.A., F.R.S.

List of recent Land and Fresh-water Shells collected around Lakes
Superior and Huron in 1859-60. By Mr. Robt. Bell.

Catalogue of Birds collected and observed around Lakes Superior and Huron in 1860. By Mr. Robert Bell.

On the Mammals and Birds of the District of Montreal. By Archibald Hall, M.D., L.R.C.S.E. (A paper for which a silver medal was awarded by the Society to its author in 1839, but never before printed; it is now in course of publication).

On some of the Rocks and Fossils occurring near Phillipsburgh, Canada East. By E. Billings, F.G.S.

Recollections of the Swans and Geese of Hudson's Bay. By Geo. Barnston, Esq.

On the occurrence of Graptolites in the base of the Lower Silurian. By E. Billings, F.G.S.

A short review of the Sylviadæ or Wood-warblers found in the vicinity of Montreal. By H. G. Vennor.

Additional Notes on Aboriginal Antiquities found at Montreal. J. W. Dawson, LL.D., F.G.S.

- Mr. Barrande on the Primordial Zone in North America, and on the Taconic System of Emmons. By T. Sterry Hunt, M.A., F.R.S.
- List of Coleopterous Insects collected in the County of Lincoln, C. W. By D. W. Beadle.
- On the recent discoveries of Gold in Nova Scotia. By J. W. Dawson, LL.D., F.G.S.
- On the origin of the name "Canada." By Rev. B. Davies, LL.D., Member of the Council of the Philological Society of London.
- An account of the Animals useful in an economic point of view to the various Chippewyan Tribes. By B. R. Ross, H.B.C.S.
- On the Land and Fresh-water Mollusca of Lower Canada, with thoughts on the general geographical distribution of Animals and Plants throughout Canada. By J. F. Whiteaves, F.G.S., Honorary member of the Ashmolean Society of Oxford, &c., &c.
- On the Primitive Formations in Norway and in Canada, and their Mineral Wealth. By Thomas Macfarlane.
- On the Shore Zones and Limits of Marine Plants on the North-Eastern Coast of the United States. By the Rev. Alex. F. Kemp.
- Contributions to Meteorology for the year 1861 from observations taken at Isle-Jesus, Canada East. By Charles Smallwood, M.D., LL.D., Professor of Meteorology in the University of McGill College, Montreal.
- Note on the Taconic System of Emmons. By T. Sterry Hunt, M.A., F.R.S.
- Notes on the Flora of the White Mountains, in its Geographical and Geological relations. By J. W. Dawson, LL.D., F.G.S.
- On the failure of the Apple Trees in the neighbourhood of Montreal.—A communication to the Committee of the Natural History Society of Montreal. By John Archbold.
- On an Erect Sigillaria and a Carpolite from the Joggins, Nova Scotia. By J. W. Dawson, LL.D., F.G.S.
- The New Spectrum discoveries. By Professor Robbins.
- List of Diurnal Lepidoptera collected (unless otherwise specified)

in the immediate vicinity of London, Canada West. By W. Saunders.

An account of the Botanical and Mineral products, useful to the Chippewyan Tribes of Indians, inhabiting the McKenzie River District. By Bernard R. Ross, H.B.C.S.

List of Mammals, Birds, and Eggs, observed in the McKenzie River District, with Notices. By Bernard R. Ross, Corresponding Member, Nat. Hist. Soc., Montreal.

Notes on Chemical Subjects. By Professor S. P. Robbins, McGill Normal School.

On the date of the Report on the Geology of Wisconsin, noticed in this Journal, Vol. VI, p. 465.

Many of these papers combine great practical utility, with the scientific knowledge displayed in the manner in which the subjects have been handled. For example :- "Considerations relating to the Quebec Group, and the Upper Copper-bearing rocks of Lake Superior," by Sir W. E. Logan. "Notes on the History of Petroleum or Rock Oil," by Professor Hunt. "On the recent discoveries of Gold in Nova Scotia," by Principal Dawson. "On the Primitive Formations in Norway and in Canada, and their Mineral Wealth," by Mr. T. Macfarlane. (A series of exceedingly valuable papers.) "On the failure of the Apple Trees in the neighbourhood of Montreal," by Mr. John Archbold.-While others were of such a nature as to be of general interest to all Canadians; such as "Additional Notes on Aboriginal Antiquities found at Montreal," by Principal Dawson. "On the origin of the name of Canada," by Rev. Dr. Davies; and some others. But whatever may be the estimate formed, by those amongst whom we live, of the labours of this Society, and the proverb too often holds good that "a prophet hath no honour in his own country;" yet the Natural History Society of Montreal, is now a known and honoured Institution, not only on this continent, but in England, in all parts of the continent of Europe, and elsewhere. Besides its regular circulation, 50 copies of the Canadian Naturalist are distributed, on every issue of the bi-monthly numbers, amongst as many of the principal scientific societies throughout the world; and extracts therefrom are constantly being republished by them,

in their own journals and periodicals, with most honourable mention of our contributions to the cause of Natural Science in general, and the illustration of Canadian Natural History and Geology in particular. I wish, also, to direct attention to our Museum. which, in its Zoological Department, and indeed I believe I may say, as a general collection, is second to none now existing in the Province; and which we are anxious to see made useful, both as a means of assisting the labours of students, and creating a taste for Natural Science in the public at large. There is one department of which I would make special mention, both on account of its own value, and also because it is only very recently that it has been placed in a condition to be at all easily accessible by those seeking information from its stores. I allude to the Herbarium, respecting which I have received an interesting account from the Rev. A. F. Kemp, than whom there is no one amongst us better qualified to judge of its value, or describe its contents.

Some account of the Herbarium of the Natural History Society of Montreal.

"A Committee has been appointed to put this valuable Herbarium into such order as to render it henceforth more useful for the promotion of botanical research. Some progress has already been made in the work. It has been put into the hands of a gentleman well acquainted with the method adopted by the Botanical Society of Edinburgh in the preparation and arrangement of specimens. Less is known about the collection of dried plants, and less attention has been directed to it than its extent and value merit. It is understood that the late Dr. Holmes, whose Herbarium is one of the treasures of the McGill Museum, presented duplicates of most of his specimens, many years ago, to the Natural History Society. These form the original nucleus of our Herbarium. Additions have from time to time been made to it by other friends of the Society. Lady Dalhousie, who, while in Canada, was an enthusiastic botanist, presented a large collection of well prepared specimens of Canadian Flora, which it is understood forms part of the collection. The chief and by far the most valuable portion of the Herbarium, as well as the case in

which it is preserved, was however bequeathed to the Society by the late Mr. Macrae, who devoted some years to the study and collection of North American Flora. For this purpose he travelled extensively in the Northern States of America and in Canada East. He devoted much time and care to the preparation of his collections, and has left them in admirable condition and preservation. They have all been determined in accordance with the system of the latest American botanists; and comprise several valuable specimens from the Herbaria of Carey and Gray. Mr. Macrae fell into ill health and was long an invalid. An enthusiast in the science of botany, he deserves honourable mention and remembrance. Although he published nothing to attract attention, he yet is entitled, considering the extent and beauty of his collection, to be named along with the distinguished botanists of America. The collection should be entitled the Macrae Herbarium. If properly labelled and catalogued, it would form a good basis for a complete illustration of North American botany. It is hoped that before long, by the exertions of the Committee to whose care the Herbarium has been entrusted, it will be rendered easy of reference to the members of the Society, and that by a system of exchanges its lacunæ will be filled up."

"It is also worthy of notice that the Society has a considerable collection of marine algæ, carefully catalogued and determined, which might be useful to the students of this department of botany. The Society will be happy to receive additions to these collections from scientific friends."

The usual course of Somerville lectures were delivered during the last winter; as will be more fully noticed in the report of the Council, which will be read to you by-and-bye. I was only able to be present at two out of the six, having been absent from town when the rest were delivered, or else prevented by some unavoidable engagement elsewhere. But if the others were as interesting as those I heard, which I have every reason to believe they were, they will well have kept up the good name which the Society has earned in former years.

The first lecture, at which I was present, was that delivered by Rev. A. F. Kemp, "On minute forms of life, especially addressed

to the young." And it was matter of much regret to me and many others, that he so rigidly confined himself as to time, that he could not make use of half the very beautiful diagrams, which he had so carefully prepared to illustrate his subject. The other lecture was by the Rev. E. Wood, "A popular account of the Durham Coal-fields, with a brief narrative of a visit underground." This was, I should think, one of the most popular of the whole course; both from the graphic description given of those subterraneous regions-which, however, I own seem to me much pleasanter to hear of than to explore-and also from the circumstance that just at the time of its delivery we had received from England the heart-rending intelligence of the terrible catastrophe at the Hartley Colliery; the nature of which the lecturer most fully explained with appropriate diagrams. I think then that in various ways the Society is endeavouring faithfully to accomplish the objects for which it was incorporated, and to aid in which it receives an annual grant from the Legislature. And some indication that it is at length beginning to be better appreciated by the citizens of Montreal, may be gathered from the fact that 87 new members have joined us during the last year, more than one-third as many as our whole previous numbers. When I look back upon the state of the Society some ten years ago, at the time of my first becoming a member of it, when I think of the feeble efforts it was then making for the mere preservation of its actual existence, when I contemplate the names now on our list, both as to numbers, and, in so many instances, as to standing and well earned reputation, as men of science and learning, the good results of whose labours are acknowledged far and wide, wherever natural science is valued and cultivated; when I look at our present place of meeting with its well arranged museum, laboratory, library, and lecture room; when I see how and by whom I am now surrounded and supported, I begin with some confidence to realize the truth of the motto which the Society has adopted, and I feel that it is indeed becoming no idle boast to assert, "Tandem fit surculus arbor." And though our usefulness and progress are still very much crippled by the remaining debt due by the Society, incurred by erection of this building in which we are now assembled; yet I cannot but entertain a strong hope that, by the increasing support of our fellow-citizens, which it is our endeavour to merit by our labours, we shall, at no distant day, be entirely relieved from this incumbrance.

#### REPORT OF COUNCIL.

The period having arrived when it becomes the duty of your Council to lay before you the usual Annual Report, they have now the pleasure of presenting you their Report of progress during the past year, and such a statement of the affairs of the Society as they hope will meet with your entire approval.

The Society during the past year has steadily advanced and prospered. Many valuable and interesting papers have been read, the monthly meetings have been well attended, and the Somerville Course of Lectures delivered to large audiences. Important additions have been made to the Museum and the Library, the list of members has largely increased, and the amount of dues received from this source has improved the finances of the Society. The publication of the "Canadian Naturalist and Geologist" has been continued with increased efficiency, and its circulation much extended.

#### LECTURES.

The following Annual Free Course of Somerville Lectures was delivered under the auspices of the Society:

February 6th, 1862.—On the harmony resulting from apparent discords and anomalies in nature.—Charles Robb, Esq., C.E.

February 13th, 1862.—On the utility of birds to agriculture, and the desirability of endeavoring to prevent their destruction on the Island of Montreal.—Alfred RIMMER, Esq.

February 20th, 1862.—On minute forms of life, especially addressed to the young.—Rev. A. F. Kemp.

February 29th, 1862.—"A popular account of the Durham coal fields, with a brief narrative of a visit underground."

REV. EDMOND WOOD, M.A.

March 6th, 1862.—On some relations of the mineral, vegetable and animal kingdoms.—Dr. T. S. Hunt.

March 20th, 1862.—On the Geological History of a lump of coal.—Dr. Dawson.

#### MEMBERSHIP.

This department has been under the charge of a Committee of the Council of four members, whose labors have been most praiseworthy and successful.

The list of members compared with that of last year is as follows:—

	1860-61 1861-62
Life members, -	36 38.4
Ordinary members,	-0 180 261

Eighty-seven ordinary members having been elected during the year, and two only having resigned, and two died. Two corresponding members only were elected. Two ordinary members of the Society, C. Dunkin, Esq., M.P.P., and H. J. Ibbotson, Esq., have been elected life members on account of very munificent donations of books to the library.

#### PAPERS READ.

During the year twenty-eight papers have been read at the monthly meetings, and the more important of them published in the "Naturalist." These papers have been more fully noticed in the President's address.

#### PUBLICATION OF THE "NATURALIST."

In connection with the system of exchanges with scientific journals of other countries, your Council have to remark that the papers published in the "Naturalist" have been extensively reproduced in other journals, and the reputation of this society and its journal extended and increased, and the "Naturalist" obtained a wider and larger circulation and a foremost place as one of the representatives of Canadian science, very many valuable exchanges have thereby been added to our library, which when carefully preserved and bound will largely increase the number of volumes in charge of the librarian.

To D. A. Poe, Esq., of the Editing Committee, to whom was entrusted the editorial supervision, as well as the members of the

Editing Committee, the Society is indebted for their exertions and labors in connection with the "Naturalist."

#### MUSEUM AND LIBRARY.

The Reports of the Library Committee and of the Curator are herewith submitted. Very many valuable donations have been presented to the Society during the past year, both to the museum and to the library. There is still much to be done in the labelling and arrangement of the specimens in the museum; and it is hoped that this work will be pushed forward by our successors. The cabinet-keeper, Mr. Hunter, has assiduously attended to his duties, the interests of the Society and the care of the museum. The numerous additions to the latter have been carefully prepared and preserved by him.

#### GENERAL AFFAIRS.

The Council have to acknowledge with pleasure the receipt of the annual grant of \$1000 cy., from the Government in aid of the Society. The financial affairs, as detailed in the annexed Treasurer's Report, are highly gratifying. The actual debt of the Society has been lessened about \$300 cy., and all interest on the loans and the old accounts fully paid up. Negotiations to transfer the debt in mortgage, with a lesser rate of interest, are now nearly completed. There is every reason to hope that, by increased exertion, the burdensome debt now crippling the Society may in the coming year be decreased.

The notification of the monthly meetings is now made by circular to each member, and the charge for advertisements in the newspapers, which from the number of meetings formerly reached to a large sum, entirely done away with, and the attendance of members secured at little expense.

Petitions have been forwarded to the Legislature for legislative enactment for the protection of the smaller birds, similar to that which exists in other countries, and should action be therein taken by the Legislature, great benefit will be conferred on the farmer and gardener. An act for the amendment of the constitution is now under the consideration of Parliament, and, if passed, the efficiency of the Society will be thereby increased.

A committee of the members is now on deliberation concerning the "disease of the apple trees on the Island of Montreal," a subject of great and practical importance, and their report will be of great value to horticulturalists and to the Society.

From a review of the events of the past year, and the progress. of the Society, your Council have every reason to believe that their ardent wishes for the increase of the prosperity and usefulness of the Society will be realized, and that the Society may meet with still greater success, and obtain that support from its members and the public to which it is justly entitled, much, very much depends upon the zeal and activity of the members, and if they would see the Society rank more prominently as a public institution, its debt liquidated, and its membership augmented, they too must assist. It is upon the subscription that we are to depend in a great measure for funds not only to meet the current expenses, but to pay the old debts, and enable the Society to engage in furthering the study of Natural History. Let the members feel that a certain amount of responsibility rests upon them. The Council acting in conjunction would find additional motives for zeal and activity, and in promoting the legitimate objects of the Society. They should feel that the members are auxiliaries in their labors, and that their valuable counsel and assistance is afforded. The Society then will surely realize its important position.

Montreal, 15th May, 1862.

#### LIST OF DONATIONS TO THE MUSEUM.

Donors' Names.	Donations.
Mr. William Hunter	Specimen of a Bill-fish, (Lepidosteus Huronensis.) Do. do. Snuff-hox of a Mandarin, Map of the Seceding States of America. Piece of Christ Church Cathedral Bell. Piece of Magnetic Wire from Sebastopol. Rock Specimen from Cape Diamond, C. E. Do. Sault-aux-Recollets. Male Canada Porcupine, (Hystrix dorsata.) Nest of Indigo Bird, (Spyzia Cyanea,) 4 eggs.

## LIST OF DONATIONS TO THE MUSEUM.

Donors' Names.	Donations.
William Nivin, Esq	Rice Bunting, (Dolichonyx oryzevora.)
SECT SYNTHER OF LIDERS	Reltimore Creole, (Icterus Baltimore.)
prospertie and useful-	Red-winged Starling, (Aglaius Phæniceus.) Tyrant Fly-catcher, male and female, (Muscica-
	pa tyrannus.)
	Yellow-billed Woodpecker, male and female,
	(Picus varius.)
	Common Blue-bird, female, (Sialia Wilsonii.)
John Leeming, Esq	Three Purple Grakles, two males and one fe-
thy as a public inscitu-	male, (Quiscalus versicolor.)
	Red-winged Starling, (Aglaius Phæniceus.) Rice Bunting, (Dolychonyx oryzivora.)
	Purple Finch, (Erythrospiza purpurea.)
	Nest of Young King-fishers (1,) (Alceao alcyon.)
	Common Crow. (Corvus Americanus.)
S. J. Lyman, Esq	A pair of live Turtles for the Aquarium.
Alfred Baynes, Esq	A young female Fox, (Vulpes fulvus.)
Mr. John C. Struthers	Common Tree Frog, (Hyla versicolor,) from
I thom. The Council.	Darlington, C. W. Specimens of Conglomerate from Hamilton,
bus less to savibard	C. W.
Mr. Atcheson	
1000 1000 1000 1000 1000 1000 1000 100	(Columbus glacialis.)
enodel sions of comes	White-breasted Nest-hatch, (Sitta Carolinensis.)
F. D. Fulford, Esq	Specimen of Garter Snake, (Coluber sirtalis.)
Mr. David	Female Gos-Hawk, (Falco palumbarius,) from
Mr. Cal Danny	Three Rivers. Skin of a Flamingo from Carthage.
Mrs. Col. Denny Mrs. Harvey	A
H. G. Vennor, Esq	
George Barnston, Esq.	. Three Eggs of the Spotted Sandpiper.
	Four Eggs of the White-throated Sparrow.
John D. McCord, Esq	Garter-Snake and young, (Coluber sirtalis.)
Mr. William Hagar	Piece of the Cap of a Bell burnt by Confeder- ates at Harper's Ferry.
Mr. J. C. Swanston	Coin of the reign of Queen Anne, 1703.
Mr. Rowe	a in the transfer of the trans
Constitution and Alexanders in	ton Creek, C. E pad and and
Mr. Thomas Swanston	Specimen of Horned Frog.
Peter Redpath, Esq	Gorgonia pinnata from California.
	" Cray-fish from Mammoth Cave, Virginia.
Mr. Charles Robb	to a second of the tradient
mi. Charles Robb	relics found near Brockville, C. W., with
	explanatory notice.
Thos. Savage, Esq	
product frequency e eggs	Shefford, C. E.

## LIST OF DONATIONS TO THE MUSEUM.

Donors' Names. Donations.	
A. F. Brown, Esq Specimen of Fruit.  James Hempstead, Esq Collection of New Zealand War In Mr. G. H. Vennor Salmon Trout from Lake Magog, O. A Turtle from Constantinople.  Mr. James Thomson Pair of Gold Fishes for Aquarium.  Mr. John Sheppard Specimen of Scrub Pine.  "Fungus.  John Leeming, Esq Nine Busts and Statuettes.  Three Porcelain Jugs and Vases.  Collection of Plants from Mount V	mplements.

## LIST OF DONATIONS TO THE LIBRARY.

Donors' Names.	NAMES OF BOOKS.	int <sup>al</sup>			
Official	Canada Gazette.	THE O			
another will following	Journal of Education.	Tang.			
The Publishers	Canadian Naturalist and Geologist.				
Exchange for Naturalist.	Canadian Journal, Toronto.				
	Annals of Botanical Society of Canada	72			
oal. I vol. 8vo.	Proceedings of Lit. and Hist. Soc. Quebec.	000			
- lid quart of Devotane	Silliman's American Journal.	ATE			
	Journal Franklin Institute.	ed			
Rudopia, Loudon, 1822.	Proceedings of Essex Institute.	7 7			
t. Petar's, Westminster.	Entomological Soc. of Phila	1.50			
The Publishers	London Geologist.	lla			
	" Technologist.	Received regularly			
	" Phytologist.				
	Journal of Society of Arts.				
	British American Journal.				
	Scientific American.				
	Academy of Arts and Sciences, Philadelph	hia,			
Official Lette.	5 volumes, and Nos. 329 to 884.				
Omeran	Statutes of Canada, in English and French.				
	Historical Magazine, June, 1861. Explication du Zodiaque, Caen, 1861.				
The Anthor	Les Oiseaux du Canada, par J. M. Lemoine				
	Dundas or Early Canadian History by Jan	noa			
	Dundas, or Early Canadian History, by James Croil, Esq.				
	Pamphlets on Sanguinaria Canadensis, by Gibb.	Dr.			
J. A. Perkins, Jr	Smithsonian Contributions for 1856.				

## LIST OF DONATIONS TO THE LIBRARY.

Donors' Names.	Names of Books.
Mr. Hammond Royal Academy, Stock-	Smithsonian Contributions for 1856. Pamphlets on Nat. Hist. Konigsberg. Entomologiska Bidrag, P. III, 1859.
Dr. Dawson	Calendar of McGill University.
C. Dunkin, Esq., M.P.P.	California Agricultural Soc. Jour., March to May, 1861. 19 vols. Natural History of State of New York,
S. L. Goodale, Esq Dr. Gibb, London	Ray's Natural History.  Report of Maine Board of Agriculture, 1860.
Jules Marcou, Esq	3 copies.  Pamphlets on Taconic and Lower Silurian Rocks.
Hon. East India Co., Lon- don	Magnetical and Meteorological Observations for 1859, Bombay Observatories, 9 pam-
Geological Soc., Berlin John Leeming, Esq 35 Vols.	
	adelphia, 1855. Waddington's Visit to Ethiopia, London, 1822. Antiquities, &c., in St. Peter's, Westminster. 6 vols. Statistique Général de la France.
	2 vols. Bibliothèque des Mémoires. 1 vol. Algebra, M. Bourbon. 5 vols. Chimie, Thenard. 1 vol. Histoire des Etats Européens.
	de Moyen Age.  2 vols. Œuvres de Me. la Duchesse de Duras.  1 vol. Littérature et des Arts.  4 vols. Mulray's Chemistry.
	2 vols. Wilkinson on Galvanism. 2 vols. Outlines of Mineralogy and Geology. 4 quarto vols. Life of James the First of England.

## THE CANADIAN NATURALIST.

The Canadian Naturalist is sent to the following Institutions, and Societies:—

and Societies:	ne lollowing institutions,
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Victoria College,	Cobourg.
Queen's College,	Kingston
Botanical Society,	con Boolety and Layor
McGill College,	Montreal.
Bishop's College,	Lennoxville.
Laval University,	Quebec.
Literary and Historical Society	"
Natural History Society	St. John, N. B.
UNITED STATES.	
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Amherst College	Amharet
Yale College,	New Haven
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Lyceum of Natural History,	New York.
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GREAT BRITAIN.	
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Royal Society,	The Modlent Journal
Entomological Society,	London of to langual
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London.
Zoological Society, London.
Society of Arts,
Chemical Society
Geological Survey of Great Britain
Botanical Society, Edinburgh.
Royal Physical Society,
Royal Society,
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Geological Society,
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CONTINENT OF EUROPE.
Société Géologique de France, Paris, France.
Academy of Sciences
A and Amie des Sciences, Arts, &c., Dijon.
Transfermio Royale des Sciences, etc Lyous.
Andomia Car LeonJena, Saxe Welman.
Kaiserlichen Academie,Vienna, Austria.
T. Coological Institute
Deutsches Geolog. Gesellschafft,Berlin, Prussia.
Koniglichen Akademie der Wissenschaften.
Koninklijke Akademie van Wetenschappen. Amsterdam.
Konigl. Gesellschaft der WissenschaftenGottingen.
Société Hollandaise des Sciences
Konigl. Sachs. Gesellschaft der Wissen-
schaftenLeipzig.
Société Imperiale des Naturalistes Moscou.
Konigl. Bayerischen Akademie der Wissen-
chaftenMunich.
And to the following Periodicals:-
CANADA.
The Medical Journal,
Journal of the Board of ArtsToronto.

#### UNITED STATES.

Silliman's Journal, New Haven.
GREAT BRITAIN.
Annals and Magazine of Natural History, London.
The Geologist, "
The Phytologist, "
The Zoologist, "
The Ibis,
The Technologist,
London, E. and D. Philosophical Magazine. "
Natural History Review, "
Microscopical Journal, "
Chemical News, "
The Builder,
The Engineer, "
The Gardeners' Chronicle,
Edinburgh New Philosophical Journal, Edinburgh.
CONTINENT OF EUROPE.
Annales des Sciences Naturelles, Paris, France.
Archives de Musée, " " " "
Allgemeine Deutsches Naturh. Zeitung, Dresden, Saxony.
Archiv. fur Naturgeschichte by Weigman, Berlin, Prussia.
Leopoldina,Jena, Saxe Weimar.

Leonhard und Brohn Jahrbuch, ..... Stutgardt, Wurtemburg. Flora, ..... Ratisbon, Bayaria.

The following Act for amending the charter has been obtained during the Session of Parliament which closed June, 1862.

An Act further to amend the Charter of the Natural History
Society of Montreal.

WHEREAS the Natural History Society of Montreal have by their petition prayed that the Acts hereinafter mentioned, constituting their charter, may be amended in the manner hereinafter set forth, and it is expedient to grant their prayer; Therefore, Her Majesty, by and with the advice and consent of the Legislative Council and Assembly of Canada, enact as follows:

- 1. The tenth section of the Act of the Parliament of the late Province of Lower Canada, passed in the second year of the Reign of His late Majesty William the Fourth, chapter sixty-five, is hereby repealed.
- 2. The said Society shall from time to time for ever hereafter, have power to make and ordain all such By-laws, rules and regulations as they shall judge proper for prescribing the functions of their Council and officers, the amount, times and terms of payment of the contributions of their members to the funds thereof, the mode of enforcement of such By-laws, rules and regulations, whether by suspension or otherwise, and generally for the due conduct of the business and affairs thereof; and to repeal and amend the same: and by such By-laws, rules and regulations, or by any repeal or amendment thereof, to make any changes which they shall deem expedient in respect to the requirements of the third, fourth, fifth, seventh, eighth and ninth sections of the said Act, and also of the requirements of the second section of the Act of the Parliament of this Province, passed in the twelfth year of Her Majesty's Reign, and chaptered one hundred and eighteen, as touching the number and titles of their officers—the number and composition of their Council,—the time of the holding of their annual and other meetings, and of the election of their officers and Council,—the quorum for the election of members of whatever class, and for the transaction of other descriptions of

business,—and the formalities and mode of election of members of the Society, whether ordinary, corresponding, or extraordinary; but no motion for the repeal or amendment of any such By-law, or for the passing of any By-law in respect of any such matters, shall be finally put to the vote at any meeting of the Society, unless by virtue of an order to that effect made at a previous meeting of the Society, whereof due and sufficient notice shall have been given to the members of the Society.

3. This Act shall be deemed a public Act, and shall be construed as though it and the said two Acts formed together one and the same Act; and the expression "the charter of the Natural History Society of Montreal," shall be to all intents whatever a sufficient citation of the said two Acts and of this Act.

The business of the Annual Meeting was then proceeded with, and the

Reports of the Treasurer, Library Committee, Editing Committee, Curators, and Membership having been read, it was

Moved by David Mackay, Esq.; seconded by Prof. Cornish, That the various reports now presented be accepted, and with his Lordship's address be printed as usual, which was carried unanimously.

After other business

It was moved by the Rev. Canon Thompson; seconded by Captain Clarke, 47th Regiment, and carried unanimously:

"That the thanks of the Society be now given to the officers of the past year."

Moved by Mr. John Lowe; seconded by Mr. Clouston, and resolved unanimously:

"That the Membership Committee appointed last year be continued this year."

Moved by W. H. Hingston, M.D.; seconded by Principal Dawson, and resolved unanimously:

"That a donation of fifty dollars be made to Mr. Wm. Hunter, for his valuable services as Janitor during the past year."

William Skakel, Esq., one of the oldest members and original founders of the Society, was elected by acclamation an honorary member.

A vote of thanks was given to Mr. Stanley Bagg, for special services on behalf of the Society, after which the meeting adjourned until the last Monday in June.

At the meeting on Monday, 30th June; the amended act being in operation, the following were duly elected as the officers of the Society for the coming year:

#### OFFICERS FOR 1862-3.

President-The Lord Bishop of Montreal and Metropolitan.

Vice-Presidents
Sir W. E. Logan, LL.D., F.R.S.
Principal Dawson, LL.D., F.R.S.
Rev. A. F. Kemp.
Mr. W. H. A. Davies.
T. Sterry Hunt, M.A., F.R.S.
E. Billings, F.R.S.

Corresponding Secretary—W. H. Hingston, M.D. Recording Secretary—Mr. John Leeming.

Treasurer—Mr. James Ferrier, jr.

Curator—R. Craik, M.D.

Council—Rev. Dr. DeSola, Messrs. E. Murphy, Stanley C. Bagg, Alfred Rimmer, W. Fraser, M.D., D. A. Poe, Prof. P. J. Darey, M. A., Prof. A. Johnson, I.L.D., C. Robb, C. E.

Library Committee—Messrs. J. C. Becket, H. Rose, Professor Cornish, Dr. Fenwick, and D. Mackay.

Editing Committee of the "Naturalist"—Mr. D. A. Poe, Acting Editor; Principal Dawson, Prof. T. S. Hunt, Mr. E. Billings, Professor Robins, W. H. Hingston, M. D., and Mr. John Leeming.

THE NATURAL	HISTORY	SOCIETY	OF	MONTREAL IN	ACCOUNT	WITH	JAMES	FERRIER,	JUNR.,	TREASURER.
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1861.	RECAPITULATION.			1862.
May 1.				May 1.
	fue the Treasurer,		25	By cash
Cash paid	d, Mr. Hunter's salary,	200	00	By cash
44	J. A. Perkins, Jr	100	00	By cash
11	C. McCormick		20	
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"	Gas Account		60	
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"	Incidental expenses		90	
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Balance	in Treasurer's hands	10	40	H SE SA
		@ 1 hor	00	6 10 5 1
		\$1735	UU	F 2 2 3

1862.			RECAPITULATION.		
May 1.				-8.3	
By cash	received	for	subscriptions and diplomas	\$715	00
By cash	received	for	admission fees to museum	20	00
Ry cash	received	for	annual govern. grant	1000	00
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CR.

JAMES FERRIER, JUNE., Treasurer N. H. S.

Montreal, 1st May, 1862.

DR

REPORT OF THE CURATOR AND LIBRARIAN TO THE NATURAL HISTORY SOCIETY OF MONTREAL FOR THE YEAR ENDING 19TH MAY, 1862.

Gentlemen,—I beg respectfully to report that the collection in the Museum has been increased during the year by the addition of numerous specimens, a list of which is subjoined, and many of the older specimens, particularly among the birds and quadrupeds, have been cleaned and repaired.

Five new glass cases have been placed in the museum during the year, for the accommodation of new specimens, and such of the old as from their value and condition required more careful

preservation.

Some progress has also been made in relabelling a portion of the collection which has hitherto been defective in this respect, and such measures have been adopted as will secure a much more correct scientific arrangement of the specimens, and render the collection more useful to students of natural history.

The Library has also been enriched during the year by the large number of exchanges now on the list of the "Naturalist," as well as by donations of many rare and-valuable books, a list of which is also subjoined.

The whole respectfully submitted.

ROBERT CRAIK, M. D., Curator and Librarian.

#### REPORT OF THE MEMBERSHIP COMMITTEE.

At the annual meeting of the Natural History Society last year, it was deemed expedient to make an effort to increase the number of its members. It was therefore moved by A. Morris, Esq., seconded by Dr. Dawson, and resolved, That Messrs. Bagg, Craik, Rimmer, and Goudie, be a committee for the purpose of increasing the membership of the Society by such means as they may deem advisable. Acting upon the above resolution, Mr. Bagg requested the assistant secretary to call a meeting of the Committee, and a circular was issued in furtherance of the object of its formation. In canvassing for members it was ascertained that

several of the former members of the Society had withdrawn therefrom, and the names of others had for several years been omitted in the annual reports. Many declined being proposed anew, and others generously consented to assist again both by their presence and with their means, the Society in whose behalf it was our pleasure to exert ourselves. Since the last annual meeting eighty-nine members have been proposed, of this number fifty were proposed by the Chairman of this Committee, sixteen by other members thereof, and twenty-one by members of the Society, not on the Membership Committee. Large as the increase may appear, it is with regret we must admit, that had due diligence been done, one hundred members migh teasily have been obtained, but enough has been accomplished to shew the utility of again electing a Membership Committee, and it is to be hoped that a laudable ambition on the part of our successors in office to eclipse our efforts, may redound to the advantage of this important and interesting Society.

STANLEY C. BAGG, Chairman. ROBERT CRAIK, M. D.

Montreal, 5th May, 1862.

### LIFE, HONORARY, CORRESPONDING,

AND

#### ORDINARY MEMBERS

OF THE

## NATURAL HISTORY SOCIETY

OF MONTREAL.

#### Tife Members.

HUGH ALLAN, ESQ. THOS. E. BLACKWELL, ESQ. STANLEY C. BAGG, ESQ. HENRY CHAPMAN, ESQ. A. H. DAVID, ESQ., M.D. W. H. A. DAVIES, ESQ. J. W. DAWSON, LL.D., F.R.S. C. DUNKIN, ESQ., M.P.P. WM. EDMONSTONE, ESQ. HON. JAMES FERRIER, M.L.C. G. H. FROTHINGHAM, ESQ. WM. FRASER, ESQ., M.D. JAMES FERRIER, JR., ESQ. IRA GOULD, ESQ. HON. L. H. HOLTON. W. H. HINGSTON, ESQ., M.D. WM. HOBBS, JR., ESQ. HENRY J. IBBOTSON, ESQ. J. H. JOSEPH, ESQ.

SIR WILLIAM E. LOGAN. JOHN LEEMING, ESQ. WILLIAM LUNN, ESQ. HENRY LYMAN, ESQ. BENJAMIN LYMAN, ESQ. L. A. H. LATOUR, ESQ. FRED. McCULLOCH, ESQ. HON. GEO. MOFFATT. THE RIGHT REV. THE LORD BISHOP OF MONTREAL. WILLIAM MOLSON, ESQ. ROBERT MUIR, ESQ. JAMES MITCHELL, ESQ. J. G. MACKENZIE, ESQ. WILLIAM NIVIN, ESQ. THOMAS PATON, ESQ. DUNCAN ROBERTSON, ESQ. ALFRED SAVAGE, ESQ. N. S. WHITNEY, ESQ. J. H WINN, ESQ.

## Jonorary and Corresponding Members.

		Elected from 1849 to 1862.
Sept.	29, 145.	Major Kendall
June	26, '46,	Dr. W. Newcomb, Troy, N. Y Cor.
June	25, '47.	Jno. Patterson Cunningham,
		Mineralogist, Virginia, U. S Cor.
		Jos. Jas. Forrester, K.C.V.V.Oporto, Cor.
		J. W. Leaycraft, Cor.
Nov.	29. '47.	Hon. Adam Ferguson, Woodhill, C.W Cor.
	,	Henry Holmes Croft, Profes-
		sor of Chemistry, Univer-
		sity College, Toronto, Cor.
April	24, '48.	Major Lachlan, Cincinnati, Cor.
June	25, '49.	Dr. John Hillier Blount, Birmingham, England, Cor.
July	30, '49.	C. S. DeBleury, Cor.
ma II		Wm. Notman, Cor.
		Jean Chas. Taché, Rimouski, Cor.
		Chas. Payne, M.D
May	29, '50.	A. M. McWhinnie,London, England,Hon.
1000		T. J. Geoghegan, M.D Dublin, Ireland, Hon.
		T. McDonald, Jamaica, Cor.
Aug.		Dr. Sabourin, Longueuil, (elected '37) Cor.
Jan.	27, '51.	. Cecil Percival Stone (late of
		Montreal), Cor.
Jan.	27, '51.	George Barnston, Hon. Hud-
		son Bay Co Cor.
April	25, '52	. Samuel Kneeland, M.D., Prof.
		and Curator of Compara-
		tive Anatomy, Society of
		Natural History, Boston, Mass Cor.
Aug.	30, '52	Rev. Dr. Wm. Scoresby,Rochdale, England, Cor.
		Dr. Robert M. Huston, Philadelphia, Penn Cor.
		Wm. Rogerson,
		Wm. Andrews,Quebec,Cor.
		Wm. Andrews, Lonisiana Cor.
		J. Adolphus Thurberg,Louisiana,Cor. Rev. Andrew Bell,Dundas, C.WCor.
		T. Bouthillier, M.DSt. Hyacinthe, Cor.
-200.	6 170	D. I.C. Warren President
Sept.	8, 62	Dr. J. C. Warren, President of the Nat. Hist. Society, Boston, Mass
		Dr. James Deane, Greenfield, Mass Cor.
		M. C. Brodie, Beauharnois Cor.
	0.,	The production of the state of

		E. A. H. Allen, Co	
Oct.	25, '52.	Prof. Thos. McCulloch, Truro, N. S Co	or.
		Wm. Goodenough Wheeler,	
		M.D Chelsea, Mass Co	
and v		Rev. Wm. Scott, Sherbrooke, C. E Co	
Nov.	29, '52	. B. P. Johnson, Pres. Agric.	
		Society, New York, Co	or.
		Samuel Walker, Pres. Mass.	
		Horticultural Society,	or.
		Capt. H. Lefroy, R.A., F.R.S.,	
		Director of the Royal Mag-	
		netic Telegraph, Toronto,	n.
		Aimé Bouchard, M.D., Mem-	
		ber of the Academy of Me-	
		dicine, Paris, Ho	n.
199 4	busigni	Milne Edwards, M.D., Mem-	
-199		ber of the Academy of	
		Sciences, Paris,	n.
		Hon. A. N. Morin, Quebec, Co	r.
		Sir John P. Boileau, Bart.,	
		F.R.S., London, Co	r.
		John L. Leconte, M.DPhiladelphiaCo	r.
	*****	J. Eliot Cabot, Cor. Sec.	
		Nat. Hist. Society, Boston, Mass Co	r.
		John Cassin, Cor. Sec. of the	
		Acad. of Nat. Sci Philadelphia Co	r.
		John Gundlack, M.D., Cardenas, Cuba Co	r.
		M. Puyen, Prof. Chemistry,	
		and Member of the Insti-	
		tute of Paris, Co	r.
		Prof. W. Buckland, Co	r.
Feb.	28, '53.	Dr. Joseph Henry, Secretary	
		Smithsonian Institution, Washington, D.C Ho	n.
1000		Dr. Charles Huguet Latour, St. Rémi, Co	r.
Feb.	28, '53.	Dr. J. W. Salisbury, Chemist	
		and Mineralogist to the	
		New York State Agricul-	
		tural Society, Co	r.
Feb.	28, '53.	Geo. Webber Breton, Paris, Co	r.
		Geo. Jephson Rumley, Dublin, Co	r.
A STATE OF THE PARTY OF THE PAR		Archd. Cameron, Pointe du Chêne Co	r.
March	28, '53.	Jos. Cauchon, M.P.PQuebec,Co	r.
	11114	Benj. Franklin Niles, Washington, D.C Co	r.
		Francis Marker, Jr Washington, D.C Co	r.

	C	
	Samuel Dutton, Guernsey, Chan. Isl	Cor.
		. Cor.
	Frs. H. Garneau,Quebec,	. Cor.
	Charles Laberge, St. Mathias,	Cor.
	Rev. F. Pelote, College of	
	Ste. Anne de la Poca-	
	tière,	Cor.
	Dr. Rae,	Hon.
	Dr. Theophile Huguet La-	
	tour,Boucherville,	Cor:
April 27, '53	3. Vertue Edwards, M.R.C.S.L.London, England	Cor.
	Pierre Martial Bardy, M.D., Quebec,	Cor.
	Arthur Hill Hussull, M.B.,London	Cor.
	Thos. Wakely, Jr., F.R.C.S.L.London	Cor.
	Wm. Bell,London	Cor.
	W. H. Perley, Fredericton, N. B	Cor.
	Philip Claiborne Gooch, M.D. Richmond, Va	Cor
	Lieut. Col. Campbell, St. Hilaire,	Cor
	Eben Wright, M.D., Cor. Sec.	TANK
	Mass. Hist. Soc Boston, Mass	Cor.
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July 26, '53		Hon.
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	cherville,Sherbrooke, C.E	Cor.
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	Rev. Jean Langevin, Quebec,	Cor.
	Albert Baker, M.D Stancross, Devon, Eng.	Cor.
	John Gilson, Rome, Italy,	Cor.
Nov. 28, '53	. Cassimir Dessaules, St. Hyacinthe,	Cor.
	Hamilton D. Jessup, M.D Prescott,	Cor.
	M. Turcot, M.DSt. Hyacinthe,	Cor.
	Rev. J. B. Ferland, Quebec,	
	L. A. Dessaulles, St. Hyacinthe,	Cor.
	Rev. M. Laveillée, St. Vincent de Paul,	Cor.
Jan. 5, '54	. O'Bryan Bellingham, M.D	
000	F.R.S., M.R.C.S.L Dublin,	Hon.
	Robert Stephenson, M.P., England,	
June 30, '54.	Rev. M. A. Trudeau, Buffalo, N.Y	Cor.
.200	Edward Crisp, M.D., F.R.C.	
	S.ELondon	Cor.
	Edw. Smith, M. D., L L. B., O neival'd select var its	BigA
	Edw. L. Ounerod, M.B Brighton,	

Dainta Claire Car
James Spence,Pointe Claire, Cor.
April 24, '54. Rev. Michael Ashton, Adelaide, Australia, Cor.
June 26, '54. Rev. John Jenkins,Philadelphia, Cor.
Oct. 30, '54. Rev. Louis Ed. Bois,Maskinongé,Cor.
Dr. Amadé Weilbraim, Tournay, Cor.
Jan. 29, '55. Sir James Edw. Alexander, Cor.
Type 25 '55 André Cherrier
General Rowan, Cor.
Dr. Litchfield,Kingston, Cor.
Oct. 29. '55. Wm. Couper, Entomologist, Quebec, Cor.
Sir Edward W. Head, Bart.,
Gov. Gen
March 31, '56. Hon. G. E. Cartier, Cor.
Hon F Lemieux
A. Brunel,Toronto,Cor.
Rev. W. Brethour, M.A Ormstown, Cor.
April 28, '56. Hon. L. V. Sicotte, M.P.P. St. Hyacinthe, Cor.
Hon. E. P. Taché, Toronto, Cor.
May 19, '56. Asst. Com. Gen. Ibbetson, Cor.
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Charles Smallwood, M. D.,
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Jan. 28, '56. P. L. McDonald, Advocate, Toronto, Cor.
Jan. 28, 56. P. L. McDonald, Advocate, Toronto,
Rev. John Flanagan, Lachine, Cor.
J. C. Lee, M.DLondon, C.WCor.
Prof. J. P. Heyfelder, Finland, Cor.
Sept. 29, 56. Prof. Hall
Prof. Mitchell,
Prof. Dunglison,Philadelphia,
Dec. 29, '56. H. P. Gosselin, Clarendon, Cor.
Alex. Copland, Hinchinbrooke, Cor.
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mouth College, Concord, Ct Cor.
Prof. Bache, Sup. U. S. Coast
Survey,
Dr. Breed, Cor. Sec. Nat. Ins. Washington, Cor.
Rev. A. J. Tellier, President
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		S. Durkee, M.D	Boston, U. S Cor.
May	1860.	Rev. Louis Wurtele,	Lennoxville, Cor.
July	1860.	M. J. Mitcheson,	Philadelphia, Cor-
October	1860.	Henry Poole,	DaSona, Mar. A. Acard
		Rev. D. Honeyman,	Donalder Mandage as
		Ed. Bown, M.D	Brantford, Cor.
Nov.	1860.	Wm. Ross,	Fort Simpson, Rupert's
			Land, Cor.
Dec.	1861.	Whiteaves,	
Jan.	1862.	Thomas Macfarland,	Acton, C. E Cor.
May	1862.	Wm. Skakel,	

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## ANNUAL REPORT

OF THE

# NATURAL HISTORY SOCIETY

OR

## MONTREAL,

FOR THE YEAR ENDING MAY, 1863:

WITH

I Jist of the Officers, Tife, Fonorary, Corresponding, and Ordinary Members of the Society.

MONTREAL:
PRINTED BY JOHN LOVELL, ST. NICHOLAS STREET.
1863.

## ANNUAL REPORT

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> MONTHMAL: TRIVIED BY JOHN LOVINA, ST. MICHOLAS STREET. 1863.

### REPORT.

The annual meeting of this Society was held in their rooms on the evening of May 18th, Principal Dawson, one of the Vice-Presidents, in the chair. A large number of the members were present. Mr. J. F. Whiteaves, the Scientific Curator, on behalf of the recording secretary, Mr. John Leeming, read the minutes of the last annual meeting; after which the usual annual address of the presiding officer was read, as follows:—

#### THE PRESIDENT'S ADDRESS.

Gentlemen—I could have wished that the duty of preparing the annual address of the President had, on the present occasion, fallen on some other person, as I fear that the pressure of various official duties has scarcely left me time to do justice either to myself, or to the work of the Society—still less to enter on that wider survey of the progress of Natural Science to which we are invited on an occasion of this kind.

I find that, in the past winter, twenty-six original papers have been read at the meetings of the Society, in addition to a number of articles and reviews contributed by our members, and published in the *Naturalist*, without being formally read here. I shall not give a list of these papers, but shall endeavour to group them according to the subjects to which they relate, and to give in this way a general sketch, first of the amount of original scientific research represented by these papers; and secondly, of their bearing on the arts of life, and on the material improvement of this country.

To begin with Geology, which in our day sits justly enthroned as queen of all the natural history sciences, and with Canadian Geology which most nearly concerns us, we have had several elaborate papers on those ancient, disturbed, disputed, and until lately problematical rocks on which the oldest capital of Canada

stands, and which are consequently known to our survey as the "Quebec group." To the common eye, the ancient citadel of Quebec has been standing impregnable and secure, but in the minds of geologists it has been floating like a mirage, now here and now there, until many men have been at a loss in what terms to express their idea of its geological place. The officers of our survey have addressed themselves with much zeal and success to this formation, and deserve great credit, first for frankly giving up incorrect views previously maintained; and secondly, for establishing the true geological position of these difficult rocks on a sure basis. Mr. Billings has in the past year furnished us with an interesting view of the parallelism of these beds with the Llandeilo of England. Sir Wm. E. Logan has introduced to us a new and useful laborer on these fossils, Mr. Devine, of Quebec, and will himself publish in the next number of our proceedings an elaborate survey of the stratigraphical arrangement of the beds at Point Lévi. In the geology and mineralogy of the metalliferous deposits of this group, as they exist at the celebrated copper mine of Acton, Mr. MacFarlane's paper is a great step in advance, more especially in the large number of facts which he chronicles, and which, but for his careful collection of them in the progress of the workings, would have been forever lost. I ald to not appoint no feriver sta

Making a sudden leap from these ancient rocks to the most modern formations, our proceedings show several valuable contributions to the geology of the post-pliocene deposits. In this field, Mr. Billings' paper on the remains of fossil elephants found in Canada is of especial value, as for the first time giving accurate descriptions and figures of these remains, and identifying our species with that known to American naturalists as Elephas Jacksoni. In this paper, Mr. Billings has worthily followed up, with reference to the extinct elephantine animals of Canada, the able investigations of Dr. Falconer on the general distribution of these animals. The society has also received valuable contributions in the field of Canadian post-tertiary geology from Mr. Robb, Mr. Bell, and Mr. Whiteaves. We have not yet succeeded in Canada in tracing man back to the post-pliocene period, as is claimed to have been done in Europe; but, as I have pointed out in papers on this sub-

ject, read before the society on former occasions, the researches in the superficial geology of Canada, will have important bearings on many disputed questions as to the distribution and supposed changes of plants and animals which have survived from the postpliocene to the modern period.

On points of the geology of the United States connected with Canadian geology, we have had important contributions from Prof. Hall and Col. Jewett. The paper of the late lamented Moses Perley on Newfoundland, presents a valuable picture of the geology and topography of that island; and the paper of Mr. Matthews on the geology of St. Johns, New Brunswick, is an excellent piece of stratigraphical geology, bearing on the solution of some most important and difficult questions. In this connection I shall take the liberty to apologise for the great length to which my own papers on the Reptiles of the coal period have extended, and to mention the ray of light which the footprints of the modern King-crab have enabled me to throw on the Protichnites of the Potsdam sandstone.

In chemical and economical geology, I need merely mention the profound generalisations of Dr. Hunt in his paper on the chemistry of the earth; the practical information contained in the same author's paper on the gold-fields of Canada, and in that by Mr. MacFarlane on the extraction of cobalt from Canadian ores.

In zoology and botany, our work has perhaps been less extensive and important than in geology. In these fields, however, we may mention Dr. Lawson's paper on Aphis avenæ; Mr. Couper's on Saperda Candida; Mr. Scudder's on the Orthoptera of the northwest territory; Dr. Cobbold on a Canadian Tænia; Mr-Billings on Monohammus; Mr. Whiteaves on the land and freshwater shells of Canada; Prof. Bailey on the Diatoms of the St. John River; Mr. Barnston on the Otters of America; and the completion of Dr. Hall's elaborate paper on the mammalia and birds of Montreal.

All of these papers contain important new facts in natural history. One of them, that of Mr. Whiteaves, nearly exhausts the subject to which it refers, in so far as present material is con-

cerned; others add new species to the Canadian fauna; and several are of great practical value.

In their purely scientific aspect, the pursuits of the Naturalist should be highly esteemed, as widening our views of nature, enlarging our minds, and elevating the reputation of our country. They are, however, also of utility to the country in their economical applications. To this I would especially advert, in connection with our proceedings, as establishing a valid claim to consideration on the part of the public, independently of our merely scientific discoveries, or of the pleasure to be derived from our collections and lectures.

In 1862, Mr. Macfarlane of Acton gave us the results of experiments on certain varieties of iron pyrites occurring near Brockville, from which he showed that cobalt and sulphuric acid could be obtained in remunerative quantities. These experiments seem to have led him to further studies of the reactions of sulphuret of iron and common salt; and the result has been another paper, detailing a new mode of obtaining chlorine and soda, which has been patented in England, and promises to effect a revolution in the manufacture of these important substances, and to cheapen and render more accessible some of the most useful agents in the promotion of comfort, cleanliness and health.

A little striped beetle, Saperda Candida, burrows when in its larval condition in our apple trees, and soon blasts the results of much expenditure, and of years of labour. Mr. Couper of Quebec has shown us how the entomologist, by careful study of this creature's habits, can counteract its operations, and enable us to enjoy some degree of immunity from its ravages. Mr. Billings has explained to us the habits of another insect destroyer, of the genus Monohammus, which it seems can devour in a single season and on a single property, pine timber to the value of £10,000 Dr. Lawson has laid before us the habits of the curious little Aphis, which sometimes swarms in our grain fields; and has to some extent vindicated it from the charges brought against it, and which more properly lie at the door of the wheat midge. I have myself only been prevented by lack of time from bringing

under your notice some sketches of the habits of the Army-worm, and of some other of the more common insect pests, and may commend the subject to other observers as a most premising and valuable field of labor.

A committee of our society has been engaged in promoting measures for the more effectual protection of the smaller insectivorous birds, to which has been assigned by Providence the function of protecting us against insect ravages, and which, as a part of the unpaid police of nature, as well as for their beauty and their song, should be cherished and guarded from harm in every country truly civilized.

Another Committee has been engaged in the investigation of the causes of the decay of the apple orchards, for which the island of Montreal was once celebrated. Among the principal results of this inquiry, in addition to points well known to gardeners, may be mentioned the following:—(1) That old varieties of trees necessarily become delicate and unproductive, and should be replaced by new and hardy seedling varieties. (2.) That efforts should be made to supply to the soil the mineral matters required to constitute the tissues of healthy wood, and which in the process of culture become exhausted. (3.) That the habits of injurious insects, fungi, &c., should be carefully studied, and that the birds frequenting orchards should be more effectually protected.

Other kinds of trees have also attracted our attention, and among these the vine, which, notwithstanding the great success of its culture in vineries, and the zealous efforts of M. DeCourtenay, is not yet extensively cultivated in the open air. Observation and experience have convinced me that wherever, even in Lower Canada, there are gravelly or light soils, or stony hill-sides, with good exposure, some of the varieties of our native grapes could be ripened abundantly. Independently altogether of the manufacture of wine, the introduction of the grape as an article of food of a peculiarly agreeable and healthful quality, is well deserving of effort.

At some of our meetings discussions have arisen respecting

the use of Canadian fibres in the manufacture of fabrics and of paper. It would seem that the fibres of the stem and the silky coma of the seed of our common milk-weed, might be made available in this way, and that the culture of the plant might be profitably undertaken. A more important subject, perhaps, is the culture of silk. Efforts are now being made by the Botanical Society of Kingston, to introduce into this country from China, a species of silk-worm, Bombyx Cynthia, said to be hardy, and which feeds on the leaves of Ailanthus glandulosa, a wellknown ornamental plant, rather tender for this climate, but still capable of cultivation here. Dr. Lawson has kindly sent me a few of the eccoons, from which it is hoped that a small colony of the animals may be reared, as Mr. Sheppard of this city possesses a little plantation of the Ailanthus. Dr. Lawson has also furnished for publication a valuable paper on the subject, by Mr. Patterson of Leith. It appears to me, however, that the silk of some of our native moths might be rendered more available than that of any foreign species. The ubiquitous moths of the genus Clisiocampa, which devastate our forests and orchards, produce delicate silken cocoons, tons of which go to waste annually, and the amount could no doubt be greatly increased by the artificial culture of the animal. A still more abundant source of silk would be the cocoons of the great emperor moths of the genus Attacus, some of which, and especially the A. cecropia, yield cocoons supe. rior to those of many of the species cultivated in China and India. Harris, in his "Insects of Massachusetts," states that the silk of this moth is very strong and quite available for manufacture. The writer of an excellent article on this subject in the Journal of the Board of Arts and Manufactures for Upper Canada, adduces additional facts as to the easy breeding and culture of the moth. An esteemed correspondent and good entomologist, Dr. Morris of Baltimore, has naturalized there the Ailanthus moth, and is now engaged in experiments on the culture of the American species. There seems no reason why these creatures, instead of reducing our forests and orchards to nakedness, might not be employed in clothing the daughters of Canada

with fabrics equal to those of China and India, and in adding silk to our articles of export. In effecting this result, the naturalists must, in the first instance at least, take the lead.

An important part of the work of this society is that of popularizing natural science, in such a way that its results may be extensively known, and that new votaries may be attracted to its study. This end we seek to attain by our popular course of Somerville lectures, free to the public, and by throwing our museum open on easy terms. I should especially mention in this connection, the engagement of our scientific Curator, Mr. Whiteaves, under whose care large portions of our collections are being arranged in such a manner as to give education in natural history to any ordinary observer, and to aid the labours of the scientific student.

We are also reminded, in glancing at the proceedings of the past year, that we do not now labour alone. On one side, the Canadian Institute of Toronto, and on the other the Literary and Historical Society of Quebec are pursuing similar paths. The young but vigorous Botanical Society of Canada, established at Kingston, has availed itself of our journal for the publication of some of its papers and proceedings. The Natural History Society of New Brunswick has in like manner contributed some important memoirs for publication. The Literary and Scientific Society of Nova Scotia has sent us its constitution and regulations. Our proceedings have been enriched by valuable contributions from Rupert's Land, and there is now a natural history society in that region. Mr. Bethune has given us a catalogue of Canadian entomologists, and this has been followed by the organization in Toronto of an Entomological society. We have also to express our thanks to many individual contributors and correspondents in various parts of British America, and to many scientific institutions and associations abroad, which have in various ways recognized our humble labors. More especially in this regard should we state our obligations to the Smithsonian Institution of Washington for its frequent kindly offices. The society has further to congratulate itself that its relations with its two nearest neighbors—the Geological Survey of Canada and the McGill University—are at once intimate and mutually advantageous. The officers of the survey are among our most valued members, while through us they are sometimes enabled more readily to bring under the public notice important facts or discoveries. The prosperity of this society is an important stimulus to the study of natural science in the university; and, on the other hand, the graduates who are constantly going forth with a knowledge of the elements of natural science, and some degree of taste for its cultivation, must materially

strengthen the society.

The Council will report to the Society a regulation for the disposal annually of a silver or bronze medal to some gentleman distinguished for important services to science, and especially to science in Canada. I have further very much pleasure in stating that it is proposed that the first silver medal granted under this regulation shall be bestowed on Daniel Wilson, LL.D., of University College, Toronto. Dr. Wilson came to Canada with a high reputation, earned in the study of British archæology; and in this country he has pursued with much energy and success researches in the ethnology and antiquities of America, the results of which have appeared in many papers, published here and abroad, and more recently in his valuable work "Pre-historic Man." It is one of the most pleasant features connected with the institution of these medals, that they will thus enable us to testify our appreciation of the services of labourers in science not of our own body, nor resident here, but who are nevertheless fellowworkers with us in the objects which we have in view.

I have reached the limits to which an address of this kind should be restricted, without exhausting the topics suggested by our annual meeting, and perhaps without having noticed some important parts of our work; but I must now conclude, with the expression of the hope that the coming year may be still more prosperous than the last, and more fruitful of great results.

### REPORT OF THE COUNCIL.

The Council of the Natural History Society of Montreal, on the occasion of the 35th Annual Meeting of the Society, find it their duty to submit to the members generally a review of the proceedings and condition of the Society during the past year. And if their predecessors have had cause on former occasions to congratulate themselves on the steady progress of the Society, your Council have now the pleasure of announcing that no other year has excelled, or perhaps equalled, the one just closing in its history, either for the amount of scientific work done, or for the successful introduction of new valuable features, which it is believed will be sources of permanent benefit to the Society. Among these, two may be especially mentioned: first, the commencement of a series of annual social meetings open to the public; and secondly, the appointment of a scientific curator, a want which had grown into a reproach to the Society. It is deemed proper to exhibit the operations and progress of the Society under appropriate heads. And first of

#### THE MUSEUM.

During the past year the donations to the Museum have been more than ordinarily numerous and valuable. Without desiring to be invidious, your Council cannot but acknowledge the extreme liberality of some members of the Society who have very handsomely added to departments hitherto scarcely represented in the Museum. Through the kindness of Sir William Logan, the curator has been enabled to add to our collection some seventy-two specimens of marine shells, eighty-one of land and fresh water shells, ten echinodermata (sea urchins, and star-fishes), four crustaceans, four cirripdees, six annelidæ, in all 177 species, besides a number of bryozoa and sponges, nearly all new to science. Dawson, among many other valuable gifts, presented the Society several species of marine shells, echinodermata, &c., from the gulf of St. Lawrence, Labrador, Nova Scotia, and the United States. James Ferrier, jun., Esq., has presented a most extensive and valuable series of foreign shells, in which the Society's collection

was formerly very deficient. The number of species is about 410. and contains many rare genera. R. J. Fowler, Esq., has kindly enabled the Society to complete its collection of land and fresh water shells of Lower Canada, by contributing the missing species. Your Council invite an inspection of these valuable additions to the Museum, and trust that the considerate liberality of the donors may be imitated by others. Your Council regret that the number of quadrupeds is still so very small. They have, however, issued a circular inviting contributions to their mammalia, and adding a list of the specimens wanted. Of this circular one thousand copies were printed, distributed to each member, and extensively sent to kindred societies in Europe and the United States; so that your Council are sanguine the Society will soon be enabled to see some improvement in this department. Some interesting specimens have been added to the collection of birds. Mainly through the zeal of Mr. Whiteaves, the curator of the Society, a commencement has been made for a collection of the eggs of North American birds, and several donations have already been received. Your Council having authorized Mr. Hunter the janitor of the Society, to collect specimens of the fish of this country not in the Museum, a very creditable progress has been made in the work, which it is earnestly hoped will be further promoted by the members. In the miscellaneous department various contributions have been received; and your Council have had the pleasure of welcoming among the donors a new and promising organization—the Numismatic Society of Montreal. Your Council would offer as a suggestion to their successors the consideration of the expediency of uniting the Society's collection of coins with that of the new Society.

#### THE LIBRARY.

The additions to the library have consisted of donations from members and scientific societies, or exchanges of "the Naturalist," the financial state of the Society still forbid ling the purchase of scientific works much wanted.

### APPOINTMENT OF A SCIENTIFIC CURATOR.

One of the greatest difficulties with which the student of Natural History in Montreal has had to contend, was the impossibility of finding a trustworthy classified collection, especially in zoology. It were needless to remind the members, of the chaotic state in which the collection of this Society has been permitted to remain. And although a former sub-curator and some members had bestowed much time on the task of classification, still, all must be aware that the work required to be done could not possibly be effected by a few spasmodic efforts of individuals, having but little leisure to spare. Your Council therefore esteem it matter of much congratulation that they have been enabled to secure the valuable and zealous services of one so well and so favourably known as Mr. J. F. Whiteaves. It cannot be expected that all his labours should be specified within the limits of this portion of the Report; but your Council would beg leave to refer to the statements already made public, to Mr. Whiteaves' Report delivered last month, and finally to the Museum itself, where the members can judge for themselves, as to the expediency and necessity of the appointment.

#### ORIGINAL PAPERS READ.

In the past session, twenty six original papers in the departments of zoology, geology, botany, and ethnology have been read, the value and importance of which may be estimated by reference to "the Canadian Naturalist," in which they have nearly all been published. Many of them have been noticed in terms of the highest eulogy in the scientific periodicals of Europe and the United States.

### THE PUBLICATION OF THE NATURALIST.

This Journa! has been continued as heretofore; and the former liberality of its publishers, Messrs. Dawson Bros., has been exceeded during the past year, they having furnished its columns with an unlimited number of engravings at a considerable pecuniary loss. The volume for 1862 (the 7th) has been duly com-

pleted. Two numbers for 1863 have been issued, and the third is in progress. It is intended to commence a new series after the present volume is completed, with Scotch paper, expressly made for the Journal, and new type. Its circulation however is still much smaller than it should be, and it is hoped members will use due efforts to extend it.

### PUBLIC LECTURES.

The annual Somerville course of public lectures was delivered, as usual, and was well attended. The following is an enumeration of the lecturers and subjects discussed:

12th February, 1863.—First lecture, Dr. Dawson, On some novelties in Natural History.

19th February.—Second lecture, Mr. Rimmer, On the Fishes of the St. Lawrence.

26th February.—Third lecture, Mr. Robb, On the Rocks, Woods, and Waters of Western Canada.

5th March.—Fourth lecture, Mr. Gilbert, On the Climate and Products of Australia, and the Customs of the Inhabitants thereof.

12th March.—Fifth lecture, Professor Small, On the Natural History of the Old World compared with that of the New.

19th March.—Last lecture, Mr. Leeming, A Glance at Science as a Recreation.

#### CONVERSAZIONE.

On the evening of the 3rd of February the first Annual Conversazione of the Society was held. The rooms had been provided with a large collection of works of art, microscopes, &c., by the riends of the Society, and addresses were delivered by Principal Dawson, the Rev. A. F. Kemp, and the Rev. Dr. De Sola. The audience was the largest that had ever assembled in the city of Montreal for such a purpose; and your Council have great pleasure in believing that the experiment proved a decided success. The tendency of such social reunions must necessarily be beneficial to the Society; opportunity being afforded for general participation in the discussion of subjects connected with natural science.

#### BOTANIC GARDEN.

Your Council deemed it proper to appoint a committee\* to co-operate with the Montreal Agri-Horticultural Society for the purpose of establishing a Botanic Garden in this city, if possible in the grounds of the McGill College. Your Council are happy to state that the project has been most favourably received by the public; and the governors of McGill University having, in the same spirit of liberality which led them to present gratuitously the site of the Society's present building, offered their grounds at a nominal rent for the purposes of the garden, your Council trust that so important an auxiliary to this Society may soon be established.

#### MISCELLANEOUS.

Your Council are happy to announce a continued increase in the number of members. During the month of July his Excellency the Governor General visited the Museum, when an address was presented to him requesting him to become a patron of the Society. His Excellency was pleased to assent and to express great gratification with the appearance of the Museum. The number of additional ordinary members has been forty-eight, corresponding members nine, and life members two, in all fifty-nine. Your Council believe fully one half of these resulted from the favourable impression made by the Society's Conversazione, and they know that one other result was that a member liberally offered to commence a list with the sum of \$200, to pay off the remaining indebtedness of the Society. In this connection also your council deem it fitting to refer to the liberality of the Society's treasurer, James Ferrier, jun., Esq., who to save the payment of a high rate of interest, has advanced a considerable sum of money for the purpose of liquidating the Society's indebtedness. The usual government grant was received—an earnest, your Council trust, that the legislature will continue to appreciate the efforts of the Society and enable them to bring together the means by

<sup>\*</sup> The committee consisted of Rev. Dr. De Sola (Convener), Rev. A. F. Kemp, Messrs. S. C. Bagg, C. Robb and hn Leeming.

which scientific attainments can be acquired. As evincing their own desire and that of the Society's to extend as widely as possible the knowledge of natural science, your Council granted the use of their rooms to Mr. Denton during the month of October for the delivery of a course of five lectures on geology, being desirous more particularly that the younger and non-scientific portion of the community should benefit by them, and devote more attention to such subjects than they have been accustomed to give. Among other proceedings of the year, your Council would further report that a committee was appointed to prepare for a field day under the direction of the Society, but that it was found necessary to postpone it for a future occasion; that the services of an assistant secretary have been dispensed with; that the building and portico have been repainted, and the sign which has been placed thereon, has had the effect of increasing the number of visitors; that the Society's amended act has been printed, and that the election of additional members of Council under its provisions has been found to promote the efficiency of its operations; that correspondence has been opened with kindred societies occupying a very high place in European estimation, among them the "Société d'Histoire Naturelle et de Physique" of Geneva; and that these societies have come to look upon the organ of the N. H. Society, "the Canadian Naturalist," as one of the most valuable exponents of the scientific progress of this continent. The sympathy of societies and individuals with the aims of the Natural History Society of Montreal, has been shown by many generous donations both of books and specimens; but your Council would offer as a suggestion that many desirable objects, the products of foreign countries, might be obtained by enlisting in behalf of the Society the assistance of the masters of the various vessels trading to this port, who have so many opportunities of procuring valuable specimens, and who have so extensively benefitted the various collections in the United States. The senior members of the Society will gratefully remember the liberal and numerous contributions of their zealous friend Captain Stoddard, whilom of the ship "Thames."

Your Council would especially record its gratification at the

very efficient manner in which Mr. Wm. Hunter has discharged the duties of his office, combined as it has been with an obliging demeanor on all occasions.

A committee, appointed by the Council of the Natural History Society, at their meeting of the 23rd inst., to consider what disposition should be made of the medals of the Society, reported that after due consideration they would recommend that at least one bronze medal should be voted annually by the Society to some resident in the British provinces distinguished for attainments in natural science, or for special discoveries or active engagement in the same; and that the silver medals of the Society be presented occasionally to the same class of persons, whether resident in the British provinces or not.

The Council would now propose to the Society that the silver medal of the Society for the present year be given to Professor Daniel Wilson, LL.D., of Toronto, in acknowledgment of his services in American ethnology.

And now your Council would divest themselves of the trust with which they have been honoured, with the fervent hope that the onward steps taken during the past year may be continued and extended in the future, and that each succeeding anniversary meeting may witness an increase of prosperity and usefulness in the Natural History Society of Montreal.

ABRAHAM DE SOLA, LL.D., Chairman of Council.

Montreal, May 18th, 1863:

### REPORT OF THE SCIENTIFIC CURATOR.

It should be observed that this report refers to a period of time little exceeding six weeks, from the 1st of April, 1863, to the 18th of May in the same year. On entering upon my duties, one of the first things that struck me was the want of arrangement of the specimens in the side cases in the gallery. These contained a confused assemblage of marine shells, Echinodermata (sea urchins, star fishes, etc.), Crustaceans (crabs, lobsters, etc.),

Sponges and other marine organisms from the Gulf of the St. Lawrence, and a large series of the land and fresh water shells of Upper and Lower Canada. These were the property of the Geological Survey of Canada, and were collected principally by Messrs. J. Richardson and R. Bell. The cases containing the same, also belonged to the Geological Survey. After several interviews with Sir W. E. Logan, I was requested to go over the whole of this rather large collection and pick out as complete a series as possible, for the Natural History Society. Since that time I have carefully mounted, classified and named the collection thus formed, which will now be available for reference and study. The sponges, corallines, and other undetermined and, for the most part, minute objects have been temporarily grouped together in one case by themselves. The following is a rough estimate of this collection: No. of Species.

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Marine Shells, (from the lower St. Lawrence)72
Land and Fresh Water Shells
Echinodermata, (Sea urchins, star fishes, etc)10
Crustacea4
Cirripedes, (barnacles, etc.)4 Annelida, (marine worms, inhabiting, in this case, shelly
tubes.)
And towning

Sponges, (mostly species new to science.).....undetermined.

It should be stated that the tablets upon which these specimens are affixed were presented by the Geological Survey.

Among the marine shells are three species: Crenella nigra, Gray; Trochus occidentalis, Mighels; and Margarita obscura, Gould; which had previously been omitted in the lists of shells inhabiting the Gulf of St. Lawrence as published in the "Canadian Naturalist."

Dr. Dawson has presented to the Society several species of marine shells, echinodermata, etc., from Gaspé, Labrador, Nova Scotia, and the United States. Among them is the common edible periwinkle of Europe (Littorina littorea), discovered by Dr. Dawson at Pictou, Nova Scotia, where it is believed to have been for the first time detected on the North American continent.

Mr. R. J. Fowler has presented a series of specimens of eighteen species of those Lower Canadian land and fresh-water shells which were wanting to complete the Society's local collection. Some of these are rare species, for the first time described as inhabiting Lower Canada, in the April Number of the "Canadian Naturalist" for 1863. The specimens of the above mentioned series have been carefully arranged and named, with the donor's name attached to each species.

Mr. James Ferrier, Jun., has presented to the Society a most extensive and valuable series of foreign shells, including several rare and interesting genera. The number of species is as follows:

From the Bay of Mazatlan, Mexico:

Bivalves, 30 species. Univalves, 57.

Exclusive of these:

Bivalves, 87 species. Univalves, 228.

These have been mounted, named, and classified. The general collection of shells belonging to the Society has also been partly classified and arranged. The following is an estimate of the Society's collection of shells, previous to the above mentioned donations:

Bivalves, 74 species. Univalves, 340 "

As far as possible the names of the donors have been given with the name of each species, but in some cases this could not be ascertained.

To add to the interest of the Society's collection of birds, an attempt has been made to get up a collection of the eggs of North American birds. A few gentlemen have been seen, and the following donations received:

From J. Ferrier, Jun., Esq.,

15 species of eggs from Canada and the United States.

From G. Barnston, Esq.,

6 species of eggs from the Hon. Hudson Bay Company.

1 " egg from Lake Superior.

The eggs thus obtained have been named and carefully put away, until a proper cabinet be voted by the Society for their reception.

Prof. Baird, of the Smithsonian Institute at Washington, has been written to by me soliciting donations to this branch of our

natural history.

As Recording Secretary to the Society. I have endeavoured to make the newspaper reports of our ordinary and annual meetings more accurate and satisfactory. In my spare time I have attempted to call some attention, through the press, to what the Society is endeavouring to effect, by reviewing its journal, and by popular articles on local natural history. It has been my duty too, assisted by other members of the Society, to prepare the annual report for the year ending May 17th, 1863. Finally, it is hoped that reasonable courtesy and attention has been paid to visitors who have wished for any special information, and to strangers.

J. WHITEAVES, F. G. S.,

Honorary Member of the Ashmolean

Society, Oxford, England, etc.,

Scientific Curator and Recording Secretary.

CR

1863.		RECAPITULATION.	200 20	1 19
May 1.	9 5	五元日本 日子田子 日本		
To Cash		, Mr. Hunter's salary and note	\$250	00
"	"	Mr. McCormick's acct. commission	30	00
"	"	Interest	251	48
- "	"	City Assessment	40	00
"	44	Fuel	107	
"	"	Water Rent	42	
"	"	Gas Rent		
"	66		THE RESERVE	08
"	"	Insurance		00
		Books and Binding	179	96
"	" "	Advertising and Printing	18	70
"	"	Repairs and Fixtures	119	90
"	"	McNab, arranging Herbarium	40	00
- 11	"	Legal Expenses		40
11	"	The Society's note	1000	
	"			
300	"	Post Office account		73
70.1		Incidental Expenses	40	71
Balance	in Tr	easurer's hands	353	10
		2		
		光 音音 整理企业 10 00 00 00 00	\$2575	31

1863. May 1.		RECAPITULATION.		
By Cash rece	eived from	Government grant	\$1000	00
"		Life Members		
	"	Admission fees to the Museum.	45	00
		Proceeds of conversazione	27	05
	ug	Members' subscriptions	1357	00
By Balance i	n Treasure	er's hands May 1862	16	26

JAMES FERRIER, Jun.,

Treasurer, N. H. S.

\$2575 31

Montreal, 1st May, 1863.

It was moved by Dr. David, seconded by Professor Cornish: That the various reports now presented be accepted, and with the annual address printed as usual.

After which a vote of thanks to the officers of the past year was proposed by Mr. Mackay, seconded by Major Latour, and

unanimously carried.

The Society then proceeded to ballot for officers for the ensuing year, when the following were duly elected.

### OFFICERS FOR 1863-64.

President .- Principal Dawson, LL.D., F.R.S., &c., &c.

Vice-Presidents.—The Lord Bishop of Montreal; Rev. A. De Sola, LL.D.; Sir W. E. Logan, LL.D., F.R.S., &c.; T. Sterry Hunt, M.A., F.R.S., &c.,; Rev. A. F. Kemp, M.A.,; E. Billings, Esq., F.G.S.,; J. Leeming, Esq., and W. H. A. Davies, Esq.

Treasurer.—J. Ferrier, jun., Esq.

Cor. Secretary .- Prof. P. J. Darey, M.A.

Rec. Secretary and Scientific Curator.—J. F. Whiteaves, Esq., F.G.S., &c.

Librarian.-Mr. H. Rose.

Council.—Dr. Smallwood; Stanley C. Bagg, Esq.; A. Rimmer, Esq.; C. Robb, Esq., C.E.; E. Murphy, Esq.; D. A. P. Watt, Esq.; Dr. Hingston; J. H. Joseph, Esq., and J. Swanston, Esq.

Library Committee.—Messrs. J. C. Becket; Prof. Cornish; Dr.

Fenwick; Dr. David, and Dr. Mackay.

Editing Committee of the "Canadian Naturalist."—D. A. Poe Watt, Esq., Acting Editor; Dr. Dawson; Dr. Hunt; E. Billings, Esq.; Rev. A. F. Kemp, M.A.; Prof. Robins, B.A., and the Corresponding and Recording Secretaries.

Donors' Names.	Donations.	
The Paris of State and	May 26th, 1862.	
— Lambe, Esq Dr. A. H. Hall,	English silver two-penny piece. Skin of Star nosed mole, (Condylura cristata, Linnœus.)	
Miss Wright, B. Hall, Esq., N. Macintosh. Esq.,	Hen's egg within another. Two eggs joined together. Lop eared Rabbit.	
Mr. W. Hunter, J. Ferrier, Jr., Esq	Little Sandpiper, female, (Tringa pusilla, Wilson) Number of small Fish and water plants for the Aquaria.	
Mrs. A. Miller, Mr. R. P. Isaacson, Mr. W. Hunter,	Specimen lof Copper Ore from Lake Superior. Antler from the Cape of Good Hope. Muscicapa—? (Flycatcher, species undetermined.)	
ecies of Fish from the St.	June 30th, 1862.	
- Ramsay, Esq.,	4 Eggs of the spotted Sandpiper, (Tringoides	
Mr. W. Hunter,	macularius, Gray.) Geothylypis Philadelphia, Baird, male. (Mourning warbler.)	
Lesner, (Hock Buss.)	Dendroica Striata, Baird, female. (Blackpoll warbler.)	
	Helminthophaga ruficapilla, Baird, male. (Nash-ville swamp warbler.)	
	Maniotilta varia, Viellot, male. (Black and white creeper.)	
J. Ferrier, Jr., Esq	Vireosylvia —? species undetermined. Fish and aquatic insects for the Aquaria.	
	August 25th, 1862.	
- Ross, Esq Mrs. McIntosh,	Double hen's egg, grown together. Lop-eared rabbit in spirits.	
G. Barnston, Esq.,	Pelicanus erythrorynchus, Gmelin, (American Pelican.)	
	Accipenser carbonaria, Agassiz, (Long nosed Sturgeon.)	
	Salmo fontinalis, Linnæus, (Brook Trout.) Coregonus Artedi, (Fresh water "Herring.")	
Richardson, Clie Mad	Coregonus sapidissimus, (White fish.) Lota maculosa, Lesuer, (Loche.)	
Dr. Dawson, Mrs. Hamilton, Mr. Higgins, Côte S. Paul	4 Limulus Polyphemus, Latreille, (King Crab.) An antique pair of stays, 100 years old. Petrifaction, (Incrustation of carbonate of lime	
-00,	and oxide of iron around leaves and branches.)	

The second secon	Donney Visconey O
Donors' Names.	Donations.
	September 29th.
	out-out dearly length in hear gogget
Mrs. Peter Redpath,	4 young Limulus Polyphemus, Latreille. (King
	Crab.)
J. Ferrier, Jr., Esq.,	9 Gold fish and several Eels for the Aquaria.
H. G. Vennor, Esq.,	Salmo "namycush" Pennant. The Longe.
	Lake Magog, Georgeville.
C. F. Hill, Esq	Hen's egg of unusual size.
D. McKay, Esq.,	3 Flint arrow-heads from Burlington heights.
A. Rimmer, Esq.,	2 specimens of Gorgonia —? (Sea fan.)
W. Couper, Esq.,	Specimens of Saperda candida.
Mr. W. Hunter,	Perisoreus Canadensis, Bonaparte. (Canada jay.)
	Eggs of Emys picta. (The painted turtle.)
	Case containing 18 species of Fish from the St.
	Lawrence at Montreal, as follows:
	1 Perca flavescens, Mitchell. (Common yellow
	Perch.)
	1 Labrax lineatus, Bloch. (Striped Bass.)
	2 Lucioperca Americana, Cuvier and Valen-
	ciennes. (American Pike Perch.)
	1 Centrarchus œneus, Lesuer. (Rock Bass.)
	2 " fasciatus, Lesuer. (Black Bass.)
	1 Pomotis vulgaris, Richardson. (Sun fish).
	2 Gasterosteus gymnetes? (Stickleback).
	1 Pimelodus catus? Linnæus. (Common Cat
	fish.)
	Catastomus -? (Sucker, species uncertain.)
	1 Leuciscus pulchellus, Storer. (The "Roach
	Dace").
	Esox estor, Lesuer. (Common Pike.)
	1 Coregonus albus, Lesuer. (White fish.)
· Altagar by	l Hyodon clodalis, Lesuer. (Winter shad.)
	2 Lepidosteus oxyurus. (Gar pike.)
	Lota maculosa, Lesuer. (Common ling.)
	1 Anguilla tennirostris, DeKay. (Common Eel.)
	1 Accipenser oxyrynchus, Mitchell. (Sharp
	nosed Sturgeon.)
Stanford * Herring St.	1 Pteromyzon nigricans? Lesuer. (Blue Lamp-
	rey.)
	Also Amia ocellicauda, Richardson. (The Mud
	or Beaver fish, from Lake St. Peter.)
. Dio gener ton	October 27th, 1862.

Donors' Names.	DONATIONS.
J. Ferrier, Jr., Esq., G. Barnston, Esq.,	Fishes for the Aquaria.  2 Salmo "siscowet," Agassiz.  1 Salmo ursinus, Barnston, nov. sp. 1 Salmo amethystinus? Mitchell. 1 Salmo Hoodii, or nov. sp. (S. Bairdii, Barnston, M. S. S.) 1 Young beaver, (Castor fiber.)
Dr. Van Courtlandt,	Specimens of Gasterosteus gymnetes and Leu-
Mr. W. Hunter,	ciscus, new species. Picoides hirsutus, Gray. (Banded 3 toed Woodpecker.)
	November 24th, 1862.
P. Macfarlane, Esq., J. Ferrier, Jr., Esq.,	Minerals from the Giants Causeway.  Pair of Bucephala albeola, Baird. (Buffel headed duck.)
Mr. Gaven,	Fishes for the Aquaria.  2 Eutainia sirtalis, Baird, and Girard. (Garter Snake.)
Mr. Miller, J. S. Thompson, Esq.,	Specimens of Copper Ore from the Bruce mine. 1 Cygnus Buccinator, Richards. (Trumpeter Swan.)
G. Barnston, Esq.,	8 Percopsis —? nov sp. 3 Cottus —? 2 Rana —? 1 Salamandra —?
E. C. David, Esq., B. Gibb, Esq., J. O'Brien, Esq.,	Specimen of wild rice from the prairies.  Horn of African Rhinoceros.  Bubo Virginianus, Bonaparte. (Great Horned Owl.)
Mr. W. Hunter,	32 Specimens of the sternum (Breast bone) of Canadian birds.
	February 23rd.
R. Thompson, Esq.,	A silver, and copper coin of Napoleon III. 2 busts of Daniel O'Connell.
— Leslie, Esq.,	Model of the Great Eastern Steamship. Part of the stem of an Indian pipe found near Lake Ontario.
Mrs. Rollo,	Receptaculites occidentalis. English blackbird, (Turdus merula, Linnæus,) female.
— Boa, Esq.,	Columnaria alveolata. Scops Asio, Bonaparte. Mottled Owl.
Mr. W. Hunter,	Troglodytes Parkmanni, Audubon. (female)  Parkman's Wren.

Donors' Names.	DONATIONS. MAY 'SECONO.
N. W. Bethune, Esq.,	March 20th, 1863.  A Canada bank note of the year 1792
FA HISTORY T	16 specimens of electrotype casts of fossils from Point Levis.
Mr. Charlton, Laprairie,.	Fish for the Aquaria.  April 27th, 1863.
Geological Survey of Canada,	A large series of marine shells, echinodermata, crustacea, sponges, &c., from the Gulf of the St. Lawrence, and a collection of the land and fresh water shells of Upper and Lower Canada, of which the following is a rough estimate:
	No. of Species.
	Land and Fresh water shells
	Crustaceans
	Annelida
Dr. Dawson,	12 Species of marine shells and 3 of Echinodermata from Gaspé, Labrador, Nova Scotia, and the United States.
R. J. Fowler, Esq.,	15 Species of such Lower Canadian land and fresh water shells, as were wanting to complete the Society's local collection.
J. Ferrier, Jr., Esq	A valuable and extensive series of foreign shells, corals, &c., of which the following is an estimate.
	Shells from Mazatlan, Mexico, about 80 species. Exclusive of these:
	Bivalves 87 species. Univalves 228 "
	Cirripedes. (barnacles.)
stern Steamsbig. Indian pipe topod near	Acasta Montagui, Leach, Britain. Corals. 5 species.
	Foraminifera. Nummulites nummularia? (Fossil from the Pyramids of Egypt.)
G. Barnston, Esq	6 species of birds' eggs (named) from the Hudson's Bay Territory, and 1 from Lake Superrior.
J. Ferrier, Jr., Esq	15 species of birds' eggs from Canada and the United States.

### LIST OF DONATIONS TO THE LIBRARY.

Donors' Names.  Names of Books.  From the Publishers, in Canadian Journal, Toronto.  Exchange for the Naturalist  Transactions of the Literary and Historical Society, Quebec.  British American Journal.  Silliman's American Journal.  Proceedings of the Academy of Sciences of Philadelphia.  Annals of the Lyceum of Natural History of New York.  Boston Journal of Natural History, Proceedings of the Essex Institute.  Do. do. Franklin do.
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turalist ciety, Quebec. British American Journal. Silliman's American Journal. Proceedings of the Academy of Sciences of Philadelphia. Annals of the Lyceum of Natural History of New York. Boston Journal of Natural History. Proceedings of the Essex Institute. Do. do. Franklin do.
British American Journal.  Silliman's American Journal.  Proceedings of the Academy of Sciences of Philadelphia.  Annals of the Lyceum of Natural History of New York.  Boston Journal of Natural History.  Proceedings of the Essex Institute.  Do. do. Franklin do.
Silliman's American Journal.  Proceedings of the Academy of Sciences of Philadelphia.  Annals of the Lyceum of Natural History of New York.  Boston Journal of Natural History.  Proceedings of the Essex Institute.  Do. do. Franklin do.
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Philadelphia. Annals of the Lyceum of Natural History o New York. Boston Journal of Natural History. Proceedings of the Essex Institute. Do. do. Franklin do.
New York.  Boston Journal of Natural History.  Proceedings of the Essex Institute.  Do. do. Franklin do.
Boston Journal of Natural History, Proceedings of the Essex Institute. Do. do, Franklin do.
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Philadelphia.
Transactions of the Academy of Sciences of St
Louis.  Proceedings of the American Antiquarian So
The Technologist, London.
mi Di il
The Phytologist.  The Zoologist.
The Natural History Review.
Proceedings of the Linnæan Society.
Proceedings of the Dublin University Zoologica
and Botanical Association.
Edinburgh New Philosophical Journal.
Zeitschrift der Deutschen Geologischen Gesell
schaft, 1861 and 1862, (From the Geolo
gical Society of Berlin.)
Government of Canada, Canada Gazette.
Education Office, L.C Journal of Education.
Statutes of Canada.
Historical Magazine.  The Publishers The Canadian Naturalist and Geologist.
McGill University Calendar for 1862-3.  Toronto School of Medi-
cine, Annual Announcement.
Smithsonian Institute Smithsonian miscellaneous collections. Vols1-4
Result of Meteorological Observations.
From the Regents of the Supplement to the Catalogue of the N. York
N Vork State Library State Library.
Annual reports of the Trustees of do. 1858-1862
From the U. S. Patent
Office, Patent Office Report. Agriculture, 1861.
Harvard University Catalogue of Officers and Students.
J. S. Packard, Esq., 6th Annual report of the Maine board of Agri
culture, embracing the reports on the Scien
tific Survey, 1861.

### LIST OF DONATIONS TO THE LIBRARY.

Donors' Names.	NAMES OF BOOKS.
Royal Academy of Stock-	
holm	Eugenies.
John Leeming, Esq	Statistique générale de la France. 6 Vols.
	Bibliothèque des Mémoires. 2 " Algebra M Bourbon
	ingebra, in. Dourbon.
	Chimie, Thénard. 5 Vols. Histoire des Etats Européens. 1 "
	Histoire du Moyen Age. 1 "
	Œuvres de Mde. La Duchesse de Duras. 2 "
	Littérature et les Arts.
	Murray's Chemistry. 4 "
	Wilkinson on Galvanism. 2 "
	Outlines on Mineralogy and Geology. 2 "
To Visiona Laurgolomet	Life of James I. of England, 4to. 4 "
C. Dunkin, Esq., M.P.P	3 Vols, of the Nat. History of the State of N.
	York to complete the set already presented
W Classes	by him.
	3 Maps.
Dr. Dawson,	Pamphlet on the Carboniferous reptiles of Nova
Stanley C. Bagg, Esq	Scotia, by Prof. Owen. By-laws of the Numismatic Society of Montreal.
Dunie, C. Dagg, Esq	Notes on Coins, by Stanley C. Bagg.
T. Roy, Esq	Pictorial description of the Victoria regia.
	Japanese work on fishes, with coloured draw-
	ings.
Dr. Dawson,	Pamphlet on the Devonian flora of E. America.
W. S. M. D'Urban, Esq.	Rhophalocera Africæ Australis.
Stanley C. Bagg, Esq	Coins and medals as aids to the verification and
Povol Society of Chairt	study of Holy Writ.
iania,	"Om Čirklers Berring" af C. M. Guldberg. "Sygehuns on Syphilizazionen."
	"Om Kometbanernes Indbyrdes Beliggenhed,
	af H. Mohn.
	Meteorologische Beobachtungen aufgezeichnet
	auf Christiania's Observatorium. Vols. 1 & 2.
	"De la Syphilization, état actuel et statistique."
	par W. Beck.
	"Om Siphonodentalium vitreum" af Dr. Michael
eves collections, totals,	Sars.
Manager of the N. York	"Geologiske Undersogelser"&c., af Dr. Theodor
	Kjerulf. Synopsis of the vegetable products of Norway,
. \$281-5381 of to energy	by Dr. F. C. Schubeler.
W. Rennie, Esq	Transactions of the Royal Irish Academy, V.1-4.
	Grand prix d'Architecture. Vols. 1-4.
.clashutz ba	French translation of Dr. Dawson's papers on
right to bread establish	Indian Antiquities, by Hon. — Chauveau.
-notice and no standar and	Experiments on poisoning with vegetable alka-
	loids.

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And to the following Periodicals:-	
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#### CANADA.

Journal of the Board of Arts,.....Toronto.

#### UNITED STATES.

Silliman's Journal, ..... New Haven.

#### GREAT BRITAIN.

Annals and Magazine of Natural History, London.
The Geologist, London.
The Phytologist, London.
The Zoologist, London.
Journal of Botany, London.
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London, E. and D. Philosophical Magazine, London.
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Sept.	29,	<sup>7</sup> 45.	Major Kendall, Reshado ad all the
June	26,	'46.	Dr. W. Newcomb, Troy, N. Y.
June	25.	147.	J. W. Leaycraft,
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July	30,	'49.	William Notman, Town C forms?
	,		Jean Charles Taché,Quebec.
			Charles Payn, M.D., United States.
May	20.	<sup>'50</sup> .	T. McDonaldJamaica.
Aug.	26.	'37.	Dr. Sabourin,
	,		Ste. Anne de la Popatière.

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Oct. 30, '54.	Rev Louis Ed. Bois, Maskinonge.
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June 25,	General Rowan,
	D. Litchfield Kingston.
0-1 00 755	William Couper,Quebec.
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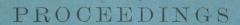
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AT THE

# ANNUAL MEETING

OF THE

# NATURAL HISTORY SOCIETY

OF

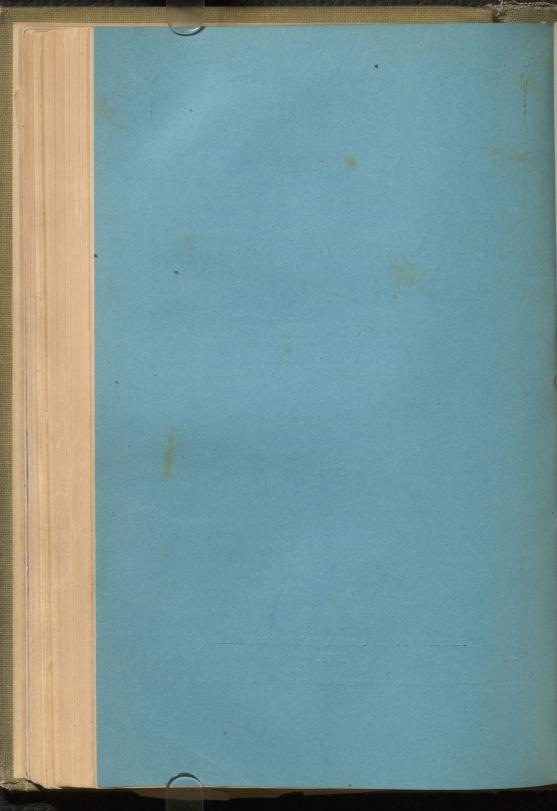
# MONTREAL,

FOR THE YEAR ENDING MAY, 1864:

WITH

I List of the Officers, Life, Ordinary, Youorary, und Corresponding Members of the Society.

MONTREAL:
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1864.



# PROCEEDINGS

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# PROCEEDINGS.

The annual meeting of this Society was held in their rooms on the evening of May 18th, the President, Principal Dawson, in the chair. A large number of the members were present. Mr. J. F. Whiteaves, the Recording Secretary, read the minutes of the last annual meeting; after which the usual annual address of the President was read, as follows:—

#### THE PRESIDENT'S ADDRESS.

GENTLEMEN,—I labor on this occasion under the disadvantage of having had twice in succession to prepare the annual address of the President; a circumstance which should not ordinarily occur in a society of this character, in which, following the usage of our older sisters, we should endeavor to have a new mind brought to bear on this work in each successive year. I shall however take advantage of this circumstance to deviate somewhat from the course usual with us on such occasions, and, after merely glancing at the scientific work of the Society, to direct your attention to some speculations of my own on subjects now attracting the attention of naturalists.

The scientific papers laid before this Society in its session just concluded, if not quite so numerous as in some previous sessions, are not inferior in point of interest and importance. In geology, Sir William Logan has continued in our journal the discussion of the age and distribution of the Quebec Group of Rocks. Dr. Hunt has given further and important facts in chemical geology. Professor Bell has illustrated certain portions of the superficial deposits, and has described one of our most important quarries of roofing-slate. Mr. McFarlane has contributed an elaborate discussion of the interior condition of our planet and of the mode of formation of Metamorphic and Igneous Rocks. Professor Bailey has elucidated an obscure portion of the Geology of New Brunswick, indirectly of much interest to Canadian geologists. Mr. Billings has contributed a paper on a disputed genus of Bra-

chiopods. Professor How has given us Analyses of Mineral Waters in Nova Scotia. Mr. Jones has sent us an interesting paper on the geological importance of Ocean Currents. I have myself occupied some space in our proceedings with my researches on Reptiles and Plants of the Coal-Period; and in connection with these, I would desire to say here that I regard the conclusions of Dr. Hunt in his short but valuable paper on the Climate of the Palæozoic period as of great importance. Whatever views we may adopt as to the original heated condition of the earth, if we take into account the enormous length of time required by the calculations of physicists \* for the reduction of the earth's temperature even one degree, it seems chimerical to suppose that any appreciable effect on climate could have been produced by internal heat in the coal-period. Yet the character and distribution of the flora of that period would appear to imply a comparatively high and equable temperature in the northern temperate and subarctic zones. Now if the experiments of Tyndall, cited by Dr. Hunt, can be taken to establish that a small percentage of carbonic acid and an additional amount of aqueous vapour diffused through the atmosphere would largely economise the solar heat by preventing radiation, and thus give conditions similar to those of a glassroofed conservatory, we have in this consideration, in connection with the known distribution of land and water in the carboniferous era, a sufficient cause for any difference of climatal conditions required by the flora. To appreciate more fully the value of this suggestion, it would be necessary to make experiments as to the amount of carbonic acid which might be beneficially present in the air, in the case of plants like those of the coal-period, for instance Ferns, Lycopodiacea and Cycadaca, and also to calculate the effect of such proportion of carbonic acid in impeding radiation.

Before leaving the work of the Society in the past year, I must not omit to mention that we have not neglected zoölogy and botany; and among contributions of this kind I could have wished to notice at some length those of Mr. Packard on the Marine Invertebrates of Labrador, and of Professor Lawson on Canadian Botany.

<sup>\*</sup> For example, those of Poisson and Hopkins, which would give 100,000,000,000 of years for a diminution of one to three degrees of temperature.

By far the most important publication of the past year, in the Natural History of Canada, has been the great Report of the Geological Survey, a work in which, as the achievement of members of this Society, we may very well take pride; and on which we may congratulate ourselves as facilitating the labors of those among us who pay attention to geology, either with a view to practical or scientific results, and as greatly raising the scientific reputation of this country.

The Report of the Survey has already been reviewed in the *Naturalist*, and I propose here not so much to say anything as to its general merits, as to refer to a few points in Canadian geology to which it directs our attention.

One of these is the discovery of fossils in the old Laurentian rocks, heretofore usually named Azoic, as being destitute of life, and much older than any rocks known to contain fossils. The oldest remains of living beings, until this discovery, had been found in rocks known as Cambrian, or Primordial, and equivalent in age to our oldest Silurian of Canada, or at the most to our Huronian. But the Huronian series in Canada rests on the upturned edges of the Laurentian, which had been hardened and altered before the Huronian series was deposited. Again, Sir William Logan has shown that the Laurentian system itself contains two distinct series of beds, the upper of which rests unconformably on the lower. There are thus in Canada at least two great series of rocks, of such thickness as to indicate two distinct periods each of vast length, below the lowest fossiliferous rocks of other countries. Yet in the lowest of these so-called Azoic groups fossils have now been found; Canada thus distancing all other parts of the world, so far as yet known, in the antiquity of its oldest fossils.

I have had the happiness to submit these remarkable specimens to microscopic examination, at the request of Sir W. E. Logan, and have arrived at the conclusion that they are of animal nature, and belong to the very humblest type of animal existence known, that of the *Rhizopods*, though they far outstrip in magnitude any known modern representatives of that group. The discovery of this remarkable fossil, to be known as the *Eozoön Canadense*, will be one of the brightest gems in the scientific crown of the Geological Survey of Canada.

In connection with this subject, it is to be observed that the

grand order of succession in the Laurentian system seems to be the same with that so often repeated in other parts of the geological scale,—coarse fragmentary beds represented by conglomerate and gneiss; calcareous and fossiliferous bands represented by the Eozoön limestones; and finer earthy deposits, represented by felspathic rocks. This brings the Laurentian into a cycle somewhat similar to that of the Potsdam sandstone, the Chazy and Trenton limestone, and the Utica slate and Hudson River in the Lower Silurian; or to that of the Medina sandstone, the Niagara limestone, and Lower Helderberg in the Upper Silurian; or to that of the Oriskany sandstone, Corniferous limestone, and Hamilton and Chemung groups in the Devonian; or to that of the Lower Carboniferous conglomerates and sandstones, the Carboniferous limestones, and the Coal-measures in the Carboniferous period. This recurrence of cycles of deposit cannot be accidental. It is more or less to be seen throughout the geological scale, and in all countries; and as I have elsewhere pointed out, it includes numerous subordinate cycles within the same formation, as in the coal-measures. Eaton, Hunt, and Dana have referred to it; but it deserves a more careful study as a means of settling the sequence of oscillations of land and water in connection with the succession of life. It will also be important in giving fixity to our geological classifications, and may eventually aid in establishing more precise views of the dynamics of geology and of the lapse of geological time. The progress of the earth has, like most other kinds of progress, been not by a continuous evolution, but by a series of cycles, of great summers and winters, or days and nights, of physical and vital changes, in each of which all things seem to revolve back to the place of beginning; only to begin a new cycle or new turn of a spiral, similar to the last in its general course, though altogether different in its details, accompaniments, and results.

There is another subject of great geological importance on which the publication of the Report enables strong ground to be taken. I refer to the conditions under which the Boulder-Drift of Canada was deposited. It has been customary to refer this to the action of ice-laden seas and currents, on a continent first subsiding and then re-elevated. But this opinion has recently been giving way before a re-assertion of the doctrine that land-glaciers have been the principal agents in the distribution of the boulder-drift, and in the erosions with which it was accompanied. I confess that I have stead-

ily rejected this last doctrine; being convinced that insuperable physical and meteorological objections might be urged against it, and that it was not in accordance with the facts which I had myself observed in Nova Scotia and in Canada. The additional facts contained in the present Report enable me to assert with confidence, though with all humility, that glaciers could scarcely have been the agents in the striation of Canadan rocks, the transport of Canadian boulders, or the excavation of Canadian lake-basins. In making this statement I know that I differ in some degree from many of my geological friends, but I know that they will be rejoiced that I should freely and frankly state the reasons of my belief.

The facts to be accounted for are the striation and polishing of rock-surfaces, the deposit of a sheet of unstratified clay and stones, the transport of boulders from distant sites lying to the northward, and the deposit on the boulder-clay of beds of stratified clay and sand, containing marine shells. The rival theories in discussion are—first, that which supposes a gradual subsidence and re-elevation, with the action of the sea and its currents, bearing ice at certain seasons of the year; and, secondly, that which supposes the American land to have been covered with a sheet of glacier several thousands of feet thick.

The last of these theories, without attempting to undervalue its application to such regions as those of the Alps or of Spitzbergen or Greenland, has appeared to me inapplicable to the drift-deposits of eastern America, for the following among other reasons:

1. It requires a series of suppositions unlikely in themselves and not warranted by facts. The most important of these is the coincidence of a wide-spread continent and a universal covering of ice in a temperate latitude. In the existing state of the world, it is well known that the ordinary conditions required by glaciers in temperate latitudes are elevated chains and peaks extending above the snow-line; and that cases in which, in such latitudes, glaciers extend nearly to the sea-level, occur only where the mean temperature is reduced by cold ocean-currents approaching to high land, as for instance in Terra del Fuego and the southern extremity of South America. But the temperate regions of North America could not be covered with a permanent mantle of ice under the existing conditions of solar radiation; for even if the whole were elevated into a table-land, its breadth would secure a suffi-

cient summer heat to melt away the ice, except from high mountainpeaks. Either then there must have been immense mountainchains which have disappeared, or there must have been some unexampled astronomical cause of refrigeration, as, for example, the earth passing into a colder portion of space, or the amount of solar heat being diminished. But the former supposition has no warrant from geology, and astronomy affords no evidence for the latter views, which besides would imply a diminution of evaporation militating as much against the glacier-theory as would an excess of heat. An attempt has recently been made by Professor Frankland to account for such a state of things by the supposition of a higher temperature of the sea, along with a colder temperature of the land: but this inversion of the usual state of things is unwarranted by the doctrine of the secular cooling of the earth; it is contradicted by the fossils of the period, which show that the seas were colder than at present; and if it existed, it could not produce the effects required, unless a preternatural arrest were at the same time laid on the winds, which spread the temperature of the sea over the land. The alleged facts observed in Norway, and stated to support this view, are evidently nothing but the results ordinarily observed in ranges of hills, one side of which fronts cold sea-water, and the other land warmed in summer by the sun.

2. It seems physically impossible that a sheet of ice, such as that supposed, could move over an uneven surface, striating it in directions uniform over vast areas, and often different from the present inclinations of the surface. Glacier-ice may move on very slight slopes, but it must follow these; and the only result of the immense accumulation of ice supposed, would be to prevent motion altogether by the want of slope or the counteraction of opposing slopes, or to induce a slight and irregular motion toward the margins or outward from the more prominent protuberances.

It is to be observed, also, that, as Hopkins has shown, it is only the *sliding* motion of glaciers that can polish or erode surfaces, and that any internal changes resulting from the mere weight of a thick mass of ice resting on a level surface, could have little or no influence in this way.

3. The transport of boulders to great distances, and the lodgment of them on hill-tops, could not have been occasioned by glaciers. These carry downward the blocks that fall on them from wasting cliffs. But the universal glacier supposed could have no such

cliffs from which to collect; and it must have carried boulders for hundreds of miles, and left them on points as high as those they were taken from. On the Montreal Mountain, at a height of 600 feet above the sea, are huge boulders of feldspar from the Laurentide hills, which must have been carried 50 to 100 miles from points of scarcely greater elevation, and over a valley in which the strize are in a direction nearly at right angles with that of the probable driftage of the boulders. Quite as striking examples occur in many parts of this country. It is also to be observed that boulders, often of large size, occur scattered through the marine stratified clays and sands containing sea-shells; and whatever views may be entertained as to other boulders. it cannot be denied that these have been borne by floating ice. Nor is it true, as has been often affirmed, that the boulder-clay is destitute of marine fossils. At Murray Bay and St. Nicholas, on the St. Lawrence, and also at Cape Elizabeth, near Portland, there are tough stony clays of the nature of true "till," and in the lower part of the drift, which contain numerous marine shells of the usual Post-pliocene species.

4. The Post-pliceene deposits of Canada, in their fossil remains and general character, indicate a gradual elevation from a state of depression, which on the evidence of fossils must have extended to at least 500 feet, and on that of far-travelled boulders to nearly ten times that amount. while there is nothing but the boulder-clay to represent the previous subsidence, and nothing whatever to represent the supposed previous ice-clad state of the land, except the scratches on the rock surfaces, which must have been caused by the same agency which deposited the boulder-clay.

5. The peat deposits with fir-roots, found below the boulder-clay in Cape Breton, the remains of plants and land-snails in the marine clays of the Ottawa, and the shells of the St. Lawrence clays and sands, show that the sea at the period in question had much the temperature of the present arctic currents of our coasts, and that the land was not covered with ice, but supported a vegetation similar to that of Labrador and the north shore of the St. Lawrence at present. This evidence refers not to the later period of the Mammoth and Mastodon, when the re-elevation was perhaps nearly complete, but to the earlier period contemporaneous with or immediately following the supposed glacier-period. In my former papers on the Post-pliocene of the St. Lawrence, I have

shown that the change of climate involved is not greater than that which may have been due to the subsidence of land, and to the change of course of the Arctic current, actually proved by the deposits themselves.

These objections might be pursued to much greater length; but enough has been said to show that there are in the case of northeastern America, strong reasons against the existence of any such period of extreme glaciation as supposed by many geologists; and that if we can otherwise explain the rock striation and polishing, and the formation of fiords and lake-basins, the strong points with these theorists, we can dispense altogether with the portentous changes in physical geography involved in their views, and which are not necessary to explain any of the other phenomena.

It is on these points more especially, that the Report of the Geological Survey throws new light; though Sir William, with his usual caution, has not committed himself to theoretical conclusions; and in one or two local cases he seems to favor the glacier theory. It has long been known to geologists, that in northeastern America, two main directions of striation of rock-surfaces occur, from northeast to southwest, and from northwest to southeast; and that locally the directions vary from these to north and south and east and west. Various attempts have been made, but without much success, to account for these directions of striation by the motion of glaciers; and while it is quite easy for any one prepossessed with this view to account in this way for the striation in a particular valley or part of a valley, yet so may exceptional facts occur as to throw doubt on the explanation, except in the case of a few of the smaller and steeper mountain-gorges.

In the Report of the Survey of Canada a valuable table of these striations is given, from which it appears that they are locally distributed in such a way as to throw a decided gleam of light on their origin.

It would seem that the dominant direction in the valley of the St. Lawrence, along the high lands to the north of it, and across western New York, is northeast and southwest; and that there is another series of scratches running nearly at right angles to the former, across the neck of land between Georgian Bay and Lake Ontario, down the valley of the Ottawa, and across parts of the Eastern Townships, connecting with the prevalent southeast

striation which occurs in the valleys of the Connecticut and Lake Champlain, and elsewhere in New England. What were the determining conditions of these two courses, and were they contemporaneous or distinct in time? The first point to be settled in answering these questions, is the direction of the force which caused the striæ. Now, I have no hesitation in asserting, from my own observations as well as from those of others, that for the southwest striation the direction was from the ocean toward the interior, against the slope of the St. Lawrence valley. The crag-and-tail forms of all our isolated hills, and the direction of transport of boulders carried from them, show that throughout Canada the movement was from northeast to southwest.\* This at once disposes of the glacier-theory for the prevailing set of striæ; for we cannot suppose a glacier moving from the Atlantic up into the interior. On the other hand, it is eminently favorable to the idea of ocean drift. A subsidence of America, such as would at present convert all the plains of Canada and New York and New England into sea, would determine the course of the Arctic current over this submerged land from northeast to southwest; and as the current would move up a slope, the ice which it bore would tend to ground, and to grind the bottom as it passed into shallower water; for it must be observed that the character of slope which enables a glacier to grind the surface, may prevent ice borne by a current from doing so, and vice versa.

Now we know that in the Post-pliocene period eastern America was submerged, and consequently the striation at once comes into harmony with other geological facts. We have of course to suppose that the striation took place during submergence, and that the process was slow and gradual, beginning near the sea and at the lower levels, and carried upwards to the higher grounds in successive centuries, while the portions previously striated were covered with deposits swept down from the sinking land or dropped from melting ice. It would be easy to show that this view corresponds with many of the minor facts.

Farther, the facts thus ascertained account for the excavation of the deep and land-locked basins of our great American lakes. Ocean currents, if cold, and clinging to the bottom, must cut out pot-holes, just as rivers do, though geologists are too apt to limit their function to the throwing up of banks. The course

<sup>\*</sup> The few exceptional cases appear to belong mostly to the later period of the stratified sands.

of the present arctic current along the American coast has its deep hollows as well as its sand-banks. Our American lakebasins are cut out deeply into the softer strata. Running water on the land would not have done this, for it could have no outlet; nor could this result be effected by breakers. Glaciers could not have effected it; for even if the climatal conditions for these were admitted, there is no height of land to give them momentum. But if we suppose the land submerged so that the Arctic current, flowing from the northeast, should pour over the Laurentian rocks on the north side of Lake Superior and Lake Huron, it would necessarily cut out of the softer Silurian strata just such basins, drifting their materials to the southwest. At the same time, the lower strata of the current would be powerfully determined through the strait between the Adirondac and Laurentide hills, and, flowing over the ridge of hard rock which connects them at the Thousand Islands, would cut out the long basin of Lake Ontario, heaping up at the same time in the lee of the Laurentian ridge, the great mass of boulder-clay which intervenes between Lake Ontario and Georgian Bay. Lake Erie may have been cut by the flow of the upper layers of water over the Middle Silurian escarpment; and Lake Michigan, though less closely connected with the direction of the current, is, like the others, due to the action of a continuous eroding force on rocks of unequal hardness.

The predominant southwest striation, and the cutting of the upper lakes, demand an outlet to the west for the Arctic current. But both during depression and elevation of the land, there must have been a time when this outlet was obstructed, and when the lower levels of New York, New England, and Canada were still under water. Then the valley of the Ottawa, that of the Mohawk, and the low country between Lakes Ontario and Huron, and the valleys of Lake Champlain and the Connecticut, would be straits or arms of the sea, and the current, obstructed in its direct flow, would set principally along these, and act on the rocks in north and south and northwest and southeast directions. To this portion of the process I would attribute the northwest and southeast striation. It is true that this view does not account for the southeast striæ observed on some high peaks in New England; but it must be observed that even at the time of greatest depression, the Arctic current would cling to the northern land, or be thrown so

rapidly to the west that its direct action might not reach such summits.

Nor would I exclude altogether the action of glaciers in eastern America, though I must dissent from any view which would assign to them the principal agency in our glacial phenomena. Under a condition of the continent in which only its higher peaks were above the water, the air would be so moist, and the temperature so low, that permanent ice may have clung about mountains in the temperate latitudes. The striation itself shows that there must have been extensive glaciers as now in the extreme Arctic regions. Yet I think that most of the alleged instances must be founded on error, and that old sea-beaches have been mistaken for moraines. I have failed to find even in the White Mountains any distinct sign of glacier action, though the action of the ocean-breakers is visible almost to their summits; and though I have observed in Canada and Nova Scotia many old sea-beaches, gravel-ridges, and lakemargins, I have seen nothing that could fairly be regarded as the work of glaciers. The so-called moraines, in so far as my observation extends, are more probably shingle beaches and bars, old coast-lines loaded with boulders, trains of boulders or "ozars." Most of them convey to my mind the impression of ice-action along a slowly subsiding coast, forming successive deposits of stones in the shallow water, and burying them in clay and smaller stones as the depth increased. These deposits were again modified during emergence, when the old ridges were sometimes bared by denudation, and new ones heaped up.

I shall close these remarks, perhaps already too tedious, by a mere reference to the alleged prevalence of lake-basins and flords in high northern latitudes, as connected with glacial action. In reasoning on this, it seems to be overlooked that the prevalence of disturbed and metamorphic rocks over wide areas in the north is one element in the matter. Again, cold Arctic currents are the cutters of basins, not the warm surface-currents. Further, the fiords on coasts, like the deep lateral valleys of mountains, are evidences of the action of the waves rather than of that of ice. I am sure that this is the case with the numerous indentations of the coast of Nova Scotia, which are cut into the softer and more shattered bands of rock, and show, in raised beaches and gravel ridges like those of the present coast, the levels of the sea at the time of their formation.

In conclusion, allow me to express my regret that the pressure of other occupations has allowed me so little time to discharge my duties as your president, and to hope that the course of the Society in the coming year may be still more prosperous and successful than in the past.

The Chairman of the Council (Dr. Smallwood) then read the following:—

#### REPORT OF THE COUNCIL.

The Council of the Montreal Natural History Society, at their thirty-sixth annual meeting, and in conformity with their prescribed duty and the yearly custom, beg to lay before its members an account of their proceedings during their tenure of office, which this evening brings to a close: and in so doing have much pleasure in congratulating its members on the steady and onward progress which has characterized the proceedings of the past year.

#### THE MUSEUM.

The donations to the Museum have been numerous and valuable; and your Council would more especially acknowledge donations from the University of our sister city, the Laval University; of some 418 species of insects from Mr. Saunders of London, C.W.; also donations from our worthy president, Dr. Dawson, consisting of fishes and shells; several birds, and three cases of insects from Mr. Ferrier, our treasurer; and some valuable donations from Mr. Barnston; besides several small donations from other parties, which though not so numerous, are not the less valuable. A list of these will be found appended to this report.

Your Council would beg to make special mention of the Scientific Curator, Mr. Whiteaves, who continues to give the most entire satisfaction. His work has been onerous and difficult. An inspection of the Museum will at once convince any one of the labor and care he has bestowed on the classification and labelling of the specimens in each department of Natural History. And your Council would congratulate the Society on this judicious and efficient appointment.

#### THE LIBRARY.

The donations to the Library have not been very numerous; the completion of Silliman's Journal (by purchase), and the usual exchanges from sister Societies form by far the greatest feature on the list of new books. The Council cannot but express its regret, that,

owing to the want of funds, few new purchases have been able to be made. Notwithstanding, valuable donations of some twenty-four volumes have been received from the Literary and Historical Society of Quebec; and your Council have again to record the generosity of Mr. Ferrier, our treasurer, who has also presented some eleven or twelve volumes.

#### ORIGINAL PAPERS READ.

During the past season twenty-four original papers have been read and discussed on the various departments of Natural History, viz., Geology, Zoology, and Botany. Most of these papers have been published in The Canadian Naturalist; which besides being the record of our own transactions here, is the means of disseminating and spreading an account of our proceedings to other countries; and your Council cannot but regard this publication as an important feature in our future progress and usefulness.

Owing to the liberality of the publishers, Messrs. Dawson Brothers, The Canadian Naturalist has become second to no other publication of a like nature, containing, as it does, a great amount of useful and scientific knowledge. The Editing Committee deserve from your Council special mention for their successful labors in this important department.

#### PUBLIC LECTURES.

The annual course of Sommerville Lectures was delivered in the Lecture Hall of the Society, to very large and respectable audiences. The following form the subjects of the course:—

First Lecture—18th February 1864, by W. Hingston, M.D., F.R.C.S.E., "On the Harmonies observed in Nature."

Second Lecture—25th February, by Charles Smallwood, M.D., LL.D., "On Terrestrial Magnetism."

Third Lecture—3d March, by H. B. Small (Lin. Coll. Ox.), "Lunar Researches, or a Trip to our Satellite."

Fourth Lecture—10th March, by James Pech (Mus. Doc.), "On Music and the People."

Fifth Lecture—17th March, by T. Sterry Hunt, M.A., F.R.S., "On the Correlation of Forces."

Sixth and concluding Lecture on the 24th March, by Dr. Dawson, F.R.S., F.G.S., &c., (the President,) "On Man's Place in Nature."

#### CONVERSAZIONE.

The second annual conversazione was held in the Society's rooms on the evening of the 2nd of February, and was, as on a former occasion, very well attended. Some works of art were exhibited, also several microscopes and other philosophical instruments. A variety of very successful chemical experiments was shown by Prof. Robbins; and dissolving views were also kindly exhibited by Mr. C. Hearn, optician. Addresses were delivered by the President, Dr. Dawson, Hon. Mr. Sheppard, and Professor Miles. Efforts on the part of your Council were made to secure several scientific and literary friends from a distance, but who, from various causes, could not be present. The Hon. Mr. Sheppard of Drummond-ville, and Professor Miles of Lennoxville College, were the only we gentlemen who kindly assisted on the occasion.

Your Council would also beg to mention, that, owing to the kindness of Col. Dunlop, the Band of the Royal Artillery performed some choice pieces of music during the evening.

The success of these re-unions has been very decided; and your Council fondly hope, that they have proved a source of great intellectual enjoyment to those persons present, and which they trust will tend to prove the increasing desire on the part of the citizens of Montreal generally for the attainment of a knowledge of Natural History and its kindred sciences.

In connection with this subject your Council would state, that a Course of twelve Lectures on Geology, and twelve on Botany, were delivered by Mr. Whiteaves in the rooms of the Society and under its auspices during the past winter, at a reduced charge to members of the Society. The results were satisfactory, and some additional members were thus obtained, and some few donations to the museum and library.

#### MISCELLANEOUS.

Your Council, in accordance with the desire of the Society, have caused their silver medal to be transmitted to Dr. Daniel Wilson of Toronto, bearing an appropriate inscription, to which Dr. Wilson has returned a very suitable and feeling reply.

And your Council, in furtherance of the objects of the Society, and in accordance with its constitution, would recommend that the Society's silver medal for this year be presented to Sir W. E. Logan, one of the earliest and most active members of the Society, one too who has solong and so well labored in developing the vast

geological and mineral resources of Canada; and your Council would suggest that the present time seems a very appropriate one, on the occasion of the publication of his general work on Canadian Geology.

Some defects in the chimneys (caused by the method of warming the rooms of the Society) gave rise to some necessary repairs; and it was deemed advisable to consult with Messrs. Prowse & McFarlane as to the cheapest and best way of keeping the rooms warm during the winter months. It was thought desirable to erect a hot-air furnace; but action in this matter was not taken until somewhat late in the season, which consequently incurred a somewhat large expenditure for coal, which will be obviated in future, by purchasing it at an earlier period. A contract was entered into with Messrs. Prowse & McFarlane, who, in a most generous and liberal spirit, offered to give a long credit if required, for the cost of its erection. Your Council fully believe that in the end it will effect a considerable saving. Double windows are also required, at a cost of about \$100. Your Council would respectfully urge this on the attention of their successors.

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New cases have been made for the reception of the mammals, and also a cabinet for the collection of insects. Some new cases have been set up for the reception of specimens of Canadian fishes, also four or five additional cases for birds. Much remains to be done in this department, and a still greater want of proper cases and cabinets for the reception of the numerous specimens already classified.

Your Council would beg to tender to Mr. Ferrier, the treasurer, the thanks of the Society for the liberality with which he has at all time made advances for the purposes of liquidating the more urgent demands of the current expenses of the Society. Your Council would also bear a willing testimony to the efficiency of Mr. Hunter, who has discharged his duties with satisfaction: and it is pleasing to be able to testify to his obliging and kind manner on all occasions, and also to make mention of many specimens of fishes and birds furnished by him to the Museum.

The Council would also report that they have received a grant of money (though of smaller amount than in any previous year) from the Government for the past year; and would also further state with regret, that no action has at present been taken to discharge the debt still due by the Society.

During the past winter your Council have permitted the Numis-

matic Society and the Montreal Literary Club to hold their meeting in their rooms on evenings not specially devoted to our own Society, and at a reasonable rate for fuel and light.

Your Council would further suggest, and in accordance with the amended act of Parliament, that the number of Vice-Presidents should not exceed nine, and that the Council should also consist of nine members.

Your Council would beg leave further to state, that they have received a communication from Mr. Leeming, calling attention to the fact that the remains of the late Rev. Mr. Sommerville are at present in the old Protestant burying-ground in Dorchester street, and calling on the Society to assist, conjointly with the Corporation of the Montreal General Hospital, the Trustees of St. Gabriel Church, and a clergyman now resident in Quebec, for the removal of the body to the Mount Royal Cemetery, and also the Monument at present erected over his remains. Your Council would therefore suggest that some action be taken in this matter at as early a period as possible.

They have also received a communication from the Board of Arts and Manufactures, in which it sets forth that it has "in its hands a considerable property, subject to a ground-rent, and burthened with hypotheques so large as to consume all its annual grant, and render the Board unable to carry on its proper operations, viz., to increase and maintain its free Library, to establish and keep up a Museum of Industrial Products, and to

promote the education of mechanics and artizans.

"The property thus held has been set apart for the use of scientific and literary bodies who might wish to erect buildings for their accommodation, having been acquired with a view to such uses. In fact the Board has considered itself, in some sort, a trustee for these other public bodies, either existing or projected. But the members of the Board, hitherto disappointed of relief from the Provincial Government, feel that they cannot continue to hold this property for a much longer period, at a cost so great as the abdication of their own functions under the statute, and are therefore desirous, as speedily as possible, to come to an arrangement—if it be possible—with your own and other societies, by which a building-site may be transferred to you on easy terms, and co-operation secured between the Society and this Board in promoting objects which we may have in common.

"Either by transferring a portion of the land around the Exhibi-

tion building, by assisting your Society to erect upon it a building adapted for its uses, or by securing your co-operation in the extension of the present building upon a plan adapted to your wants, we hope that this Board may be of assistance to you, and receive co-operation and support in return."

Your Council would recommend the consideration of this matter to the Society, in furtherance of the said object.

Your Council cannot but express its regret, that the report of the treasurer shows a balance against the Society; and would urge, that efforts be made by each individual member, to endeavor by all means to increase the funds so necessary for the support and furtherance of the objects for which it was founded.

Your Council must now resign their charge into the hands of others, wishing them a prosperous and increasing year of usefulness. One thing your Council would place on record, is the kindness and unanimity that has actuated the whole of the members, a sure prestige of increasing strength and usefulness; and they close their report with a fervent hope, that the Montreal Natural History Society may grow and prosper.

After this Mr. Whiteaves read his first Annual Report, as follows:

### REPORT OF THE SCIENTIFIC CURATOR.

In this account of the work done since the last annual meeting I propose to adopt a natural history order. A large case, divided into five compartments, has been erected (at a cost of \$120) for the reception of the Society's collection of mammals. A few species, viz., the moose, the white whale of the St. Lawrence, (delphinapterus) and two seals, are too bulky to be admitted into this case without much disturbing the general classification: these have accordingly been omitted. With these exceptions the rest of the collection has been arranged as far as practicable in accordance with Prof. Baird's elaborate monograph on North American mammals. Large printed labels have been attached to each species, the nomenclature adopted being that of the author just quoted. Several new specimens have been put up, and the collection now contains eighty-nine specimens illustrating forty-nine North American species.

The miscellaneous mammalia have been grouped in one compartment by themselves, and have been named according to the most recent authors. It would be very desirable if a small sum of money could be voted annually for the purchase of specimens of such of the wild animals of Canada as are wanting to complete our local collection. I propose in the annual report of this year to publish a list of all the Canadian species of mammals, birds, reptiles and fishes, contained in the museum, so that our friends may see what species we want. The collection of birds has been regrouped, and a number of additional cases full of specimens have been prepared The series of names printed by the Society some years ago is out of date, and it is proposed to substitute for them the labels issued by the Smithsonian Institute. The present arrangement of the species in small cases, and these not of uniform size, causes a great waste of room. Were each specimen mounted on a proper separate stand, as is usually done in large museums, the collection might be arranged in a much more accurate scientific order. We have now about 210 species of Canadian birds, but several species are wanting to complete our local series. A collection of the eggs of our local birds has been made; the series has been named and arranged in a glass case, with a covering of green baize, to prevent the injurious effects of light on the specimens. We have now the eggs of some fifty Canadian species carefully identified; and friends at Quebec have kindly promised to add largely to this branch of our collection during the summer. The reptiles have been arranged and named as far as our cases would admit, with the exception of several exotic snakes. Three cases of Canadian fishes have been prepared by Mr. Hunter, containing some thirty-one species: these I have named and labelled. Two cases of miscellaneous fishes have also been prepared, and have been named so far as the limited access to proper books of reference in Canada will admit. Our collection of Canadian fishes is still very imperfect, particularly as regards the marine fishes of the gulf, which are almost unrepresented in the museum.

In the invertebrate section of the animal kingdom progress has been made as far as our material would admit. We have now 25 cases of shells, all carefully arranged and named. Of species purely Canadian we have nearly 200. Five cases are devoted to the illustration of the land and fresh water shells of the U. S., and to the marine shells of the east and west coasts of the same country. The general series occupies thirteen large cases. This

portion of our collection has been considerably more than doubled during the past fourteen months. The crustaceans, barnacles, sea urchins, corals and sponges have been named as far as possible, and arranged in one large case at the end of the gallery. Large donations of insects have been made to the Society, by Mr. Saunders and Mr. J. Ferrier; and a cabinet to hold all our specimens has been made at a cost of some \$37. I am waiting for the arrival of some proper cork from England for the lining of the drawers, to work at this important branch of our collection.

I would call special attention to the large series of rocks and minerals belonging to the Society, many of which are still un-Four table cases to hold our fossils and minerals, would cost us from 100 to 120 dollars, and this is an improvement which I think should be our first object when the state of I think it is no exaggeration to say that our funds will permit. we have some 3000 or 4000 specimens of rocks, minerals, and fossils that we have no means of exhibiting. The only proper case we have contains some 1800 specimens. Of these I have carefully classified and labelled a little over 1200. Our collection of fossils I have partially arranged and named, and have placed them temporarily in the drawers under the mineral cabinet. acknowledgment of the liberality of the Geol. Survey, the Council of the N. H. S., have authorized me to pack up and distribute five series of the duplicate shells, sea urchins, &c., belonging to the Survey, to the following Societies: Laval University, and the Museum of the Literary and Historical Society, Quebec; McGill College, Montreal; Queen's College, Kingston; and University I have accordingly selected, named, and for-College, Toronto. warded these sets to the afore-mentioned institutions, and among the results proceeding from this, may be mentioned a valuable donation of books from the Literary and Historical Society of Quebec, and the acquisition of several interesting additions to the Museum from McGill College, in this city, and from the Laval University of Quebec. Since the date of my first connection with the Society, some 2000 specimens have been added to the Museum, and it is hoped that satisfactory progress has been made during the past year in the work of arrangement and classification. Dr. Smallwood having adverted to the course of lectures I had the pleasure of giving during the past winter, further allusion to them is unnecessary.

As Recording Secretary to the Society, it has been my duty to

issue notices of council meetings, and to prepare and direct circulars calling the usual monthly meetings, to keep the minutes of all ordinary and special meetings, to prepare proper accounts of our monthly proceedings for the press, and for the Naturalist, to return thanks for donations, to issue Diplomas and notices of Election, and to transact many little items of general business for the Society. Finally as an ex-officio member of the editing committee of the Naturalist, I have endeavored to do what I could for the Journal, whether directly or indirectly.

J. F. WHITEAVES, F.G.S., &c. Rec. Secretary and Scientific Curator, N.H.S.

Mr. Jas. Ferrier, jun., then presented his Report as Treasurer of the Society, which will be found on the other side?

THE NATURAL	THOMODY	SOUTHERV	OF	MONTREAL	IN	ACCOUNT	WITH	JAMES	FERRIER.	JUN	TREASURER.	

1864. May 1. To Cash paid.  "" "" "" "" "" "" "" ""	RECAPITULATION.  Salary to J. F. Whiteaves	57 45 40 5	00 00 24 51 69 14 63 57 65 08 62 85 10 00 80	" Proceeds Conversazione	4 00 6 75 3 00 0 60 3 10 5 4
		\$2102	88	J. H. Joseph.	
	d Vouchers compared and found correct lst May, 1864.			W. H. A. Davies. \ Audito	rs.

It was moved by the Right Rev. the Lord Bishop, seconded by Stanley C. Bagg, and unanimously resolved: "That the reports just read be adopted, and printed for distribution among the members."

A vote of thanks to the officers of the past year was moved by Dr. David, seconded by L. A. H. Latour.

The following gentlemen were elected as office bearers during the coming year, as follows:

#### OFFICERS FOR 1864-65.

President.—Principal Dawson, LL.D., F.R.S., &c.

Vice-Presidents.—Rev. A. De Sola, LL.D.; Sir W. E. Logan, LL.D., F.R.S., &c.; E. Billings, F.G.S.; Dr. T. Sterry Hunt, M.A., F.R,S., &c.; W. H. A. Davies; The Right Rev. the Lord Bishop; C. Smallwood, M.D., LL.D.; Rev. A. F. Kemp, M.A.; John Leeming.

Treasurer.—Jas. Ferrier, jun.

Cor. Secretary.—Prof. P. J. Darey, M.A.

Rec. Secretary and Scientific Curator.—J. F. Whiteaves, F.G.S., &c.

Librarian.—Stanley C. Bagg.

Council.—A. Rimmer; G. Barnston; E. Murphy; Dr. Hingston; L. A. H. Latour: D. A. P. Watt; C. Robb; J. H. Joseph, and Dr. David.

Library Committee.—Messrs. J. C. Becket; Prof. Cornish; Dr. Fenwick; Dr. David, and Dr. Mackay.

Editing Committee of the "Canadian Naturalist."—D. A. Poe Watt, Acting Editor; Dr. Dawson; Dr. Hunt; E. Billings,; Rev. A. F. Kemp, M.A.; Prof. Robins, B.A.; Dr. Smallwood, and the Corresponding and Recording Secretaries.

### LIST OF DONATIONS TO THE MUSEUM.

N.B.—The dates refer to the meetings of the Society, at which the specimens were presented.

Donors' Names.	Donations.
	July 1st, 1863.
G. Barnston, Esq	Stuffed specimen of the smaller, or "pulling down" Otter. (Lutra destructor, Barnston.)
	Eggs of thirteen species of birds from New Brunswick.
John Leeming, Esq	Egg capsule of Pyrula. (A marine univalve shell.)
J. F. Whiteaves, Esq	12 Species of marine shells from Jamaica.  9 Species of foreign shells.
Jas. Thompson, Esq	The mud or beaver fish. Amia ocellicauda, Richardson; (Amia calva, Linnæus?) from Sorel.
H. Taylor, Esq	Red Snake.
Mrs. H. Bailey	Specimen of the Granulated (?) Salamander. (Salamandra granulata? Holbrook).
Jas. Ferrier, jun., Esq,	Abnormal growth of spruce from the White Mountains, with specimens of quartzite in
Mr. W. Hunter	which it was imbedded.  Dendroica coronata? Gray, male. (Yellow)
the McMensie Hiver.	crowned wood warbler.
	Troglodytes hyemalis, Viellot, male. (Winter wren.)
	Certhia Americana, Bonaparte. (American creeper.)
	Chrysomitris pinus, Bonaparte. (Pine finch.) Cyanospiza cyanea, Baird. (Indigo bird.)
Prof. P. J. Darey	Tree Frog, Hyla versicolor, Leconte.
	September 28th, 1863.
Jas. Ferrier, jun., Esq	3 Cases of miscellaneous insects.
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1 Chameleon: (Chamæleo vulgaris?)
W. Saunders, Esq., Lon-	Large block of crystals of Calc Spar. Collection of Canadian insects (in five cases,)
don, C. W	which took the first prize at the Provincial Exhibition of 1863, and of which the follow-
	ing is an estimate: Lepidoptera. (Butterflies and Moths,) 78 species.
	Coleoptera. (Beetles,) 294 "
	Hymenoptera. (Bees, wasps, &c.) 15 " Diptera. (Flies,) 3 "
	Neuroptera. (Dragon flies, &c.,) 6 "
	Hemiptera. 4 "
chiben finh a cl (asset)	Orthoptera. (Crickets, locusts, &c.) 5 " (In all nearly 400 species of Canadian in-
	· 北京医院自由社 (1906)

# LIST OF DONATIONS TO THE MUSEUM.

Donors' Names.	Donations.
	September 28th, 1863. (Continued.)
BEOFE A	sects, beautifully prepared and carefully
Dr. Wolff, Quebec	named.) 5 Species of corals.
Mr. J. F. Wolff, Quebec	Egg of Eider duck (Somateria mollissima, Leach, from Hare Island.)
Dr. Douglas, Quebec	Sea urchin. (Palæusterina—?) from the Eocene limestone at the base of the great pyramid
Mr. Jos. Hartley, (Park Farm, near Brantford,	at Chizeh.
C. W.)	West
R. J. Fowler, Esq	4 Echinocyamus pusillus. (A small echinoderm,) and 4 Trochus Magus, (A marine shell,)
	both from Britain.  1 Specimen of the violet Salamander.
	(Salamandra subviolacea, Barton.) Sponge. (Halichondra?) from Portland, Me.
John Leeming, Esq	Specimen of the violet Salamander,
	(Salamandra subviolacea,) and do. of another species of Salamandra.
Jas. Sherar, Esq	Two species of fossils (Turritella carinata? and an Ostræa) from the Potomac.
Jno. Swanston, Esq	Dress worn by one of the Loucheau or "squint eyed" Indians, from the McKenzie River.
G. Barnston, Esq	
Principal Dawson	2 Species of marine shells. (Myadora ovata, Reeve, N. S. Wales; and Donax anatinus,
Case with Study of	Britain.)
J. F. Whiteaves, Esq	4 Eggs of the chipping sparrow. (Spizella socialis, Bonaparte.)
	6 Species of fresh water shells from the Southern States.
W. L. Doutney, Esq	Linnœus.
Captain Jno. McMurtchie Mr. W. Hunter	3 Scorpions from the W. Indies. The Red Bat. (Vespertilio Noveboracensis
Comment of an ended of	Linn.) The Swamp Sparrow. (Melospiza palustris,
	Baird ) The Philadelphian Flycatcher. (Vireo Philadel-
gerbarger (agreet bases	phicus, Cassin.)
David Moss, Esq	1798, containing despatches announcing the
Mrs. Edwin Atwater	victory of the Nile.  A home made wedding apron, spun, woven,
	and embroidered by Mrs. Almy, about the
	Capelin (Mollotus villosus) in a drift nodule from the Ottawa district.

## LIST OF DONATIONS TO THE MUSEUM.

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Donors' Names.	Donations.	
de, (Constaned.)	October 26th, 1863.	
Principal Dawson	The banded pipe Fish, (Syngnathus fasciatus, DeKay) from Nova Scotia, also an exotic species of Syngnathus.	
Lines	Two corallines from Florida. (Leptogorgia virgata, and Ziphigorgia anceps, both of Edwards and Haime.)	
G. Barnston, Esq	Star Fish. (Ophrura Egertoni,) from the Lias of Lyme Regis, England.	
Mr. W. Hunter	8 Specimens of Native copper, from the Lake Superior district. 1 Example of Iron pyrites, in conglomerate	
	from Massachusetts.  Meadow mouse. (Arvicola riparia, Ord.)	
John Gilmour, Esq., Que- bec	Head of the Common or Woodland Caribou, (Rangifer Caribou, Audubon and Bachman.)	
Jas. Ferrier, jun., Esq	2 Sea Gulls, in immature plumage, species undetermined.	
	November 30th, 1863.	
Jas. Ferrier, jun., Esq	1 Specimen of the Hooded Merganser. (Lopho- dytes cucullatus, Reich.)	
Rev. O. Brunet, Laval University, Quebec	2 Species of Exotic starfishes. 8 " of Foreign shells.	
J. F. Whiteaves, Esq	2 Species of Foreign shells. 21 Fossils (named) from the Trenton lime-	
Mr. W. Hunter	stone, near Quebec. Specimen of the Chipmonk or striped ground	
Principal Dawson	Squirrel; (Tamias striatus Linnœus.) 7 'Cone in Cone" concretions from the Coal	
and the second s	fields of Glace Bay, Cape Breton.	
	December 28th, 1863.	
C. Robb, Esq., C. E A. Rimmer, Esq	Star-nosediMole. (Condylura cristata Linnaeus.) The Mole Shrew. (Blarina talpoides, Gray.)	
Gaptain Noble Jno. Brown, Esq., Hamil-	Snowy Owl. (Nyctea nivea, Gray.) The double crested Cormorant. (Graculus dilo-	
ton, C. W	phus, Gray.) Specimen of the spotted Menobranchus, (Meno-	
W. Learmont, Esq	branchus lateralis, Say) in spirits. Cairngorm Stone, cut and polished.	
tool door	Jan. 25th, 1864.	
Rev. M. De Villeneuve.	8 Species of Chinese marine shells.	
Rev. M. Billion	1 Example of Andonta implicata, Say. (A rather scarce Lower Canadian fresh water bivalve shell.)	

## LIST OF DONATIONS TO THE MUSEUM.

Donors' Names.	DOYATIONS.
endr Ann	Jan. 25th, 1864. (Continued.)
Andrew Allan, Esq	Star Fish, (Astrophylon?) from the Gulf of
H. G. Vennor, Esq	the St. Lawrence. Two specimens of the "drinker" Moth, (Gonoptera libatrix,) from a cave at the Cote St. Michel, near Montreal.
	February 29th, 1864.
Prof.Miles, Lennoxville.	2 Specimens of Gutta Perchain its crude state, of qualities No. 1 and 2.  Fibres from the back of the Spanish Aloe, (Agave,) as extracted by machinery.  Another example of Aloe fibre.  Specimen of Cingalese Aloe fibre, with piece of cord made from the same and reddened by vegetable juices.
che sebreta ogan en erni Alber dece e Willest descupations	2 Examples of raw Mohair, as it comes from the animal,—of two intermediate qualities. Another sample of Mohair.  Specimen of pure Mohair "Top," combed in preparation for manufacture.  Example of yarn spun from pure Mohair "Top."
	2 Specimens of down of the Sikk Cotton Tree. (Eriodendron anfractuosum.) Prepared Sarracenia purpurea (The pitcher plant,) the Indian remedy for small pox, as used by the Mix Macs; from Nova Scotia. Samples of Mr. Harben's proposed substitute for Cotton, the fibrous Alva.
they been charted the con-	Specimen of a Javan vegetable fibre proposed as a substitute for cotton, but as prepared for manufacture by Messrs. Marshall & Dalmer of London, (England,) found to answer better in admixture vith silk.
Principal Dawson	10 Specimens of Fossil plants (named) from the Coal measures of Nova Scotia.
Mr. W. Hunter	Small Brown Weasel. (Putorius cigognanii Bonaparte. Hairy Woodpecker, variety. (Picus villosus, Linnæus.) Bohemian Chatteer. (Ampelis garrulus, Linnæus.)
	March 28th, 1864.
Jas. Ferrier, jun., Esq	1 Stuffed specimen of the Goshawk, female, (Astur atricapillus, Bonaparte.)

## LIST OF DONATIONS TO THE MUSEUM.

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Donors' Names.	Donations.
	April 25th, 1864.
Mr. W. Hunter	Fine example of the Woodchuck or ground Hog. (Arctomys monax, Gmelin) from Brockville, C. W.  The Downy Woodpecker. (Picus pubescens.
Mrs. H. Parkinson	Linnœus.) A small collection of Marine shells, bryozoa, annelida, and sea weeds, from Little Metis bay, Gaspé.
	May 30th, 1864.
A. Ramsay, Fsq	The Snow Goose. (Anser hyperboreus, Pallas,) Shot at Nun's Island.
Jas. Ferrier, jun., Esq	The Turnstone. (Strepsilas interpres, Illiger.) Curious Japanese mirror and case.
Mr. W. Hunter	The yellow-bellied Woodpecker. (Centurus
	flaviventris Swainson.) The golden-winged Woodpecker. (Colaptes auratus, Swainson.)
	Two Robins, male and female. (Turdus migra- torius, Linnœus.)
	The blue yellow-backed Warbler. (Parula Americana, Bonaparte.)
Mrs. McCulloch	138 Skins of Canadian birds.  5 " Foreign "
	20 Mammals, (mostly however duplicate speci-
E. E. Shelton, Esq	mens). 4 Indian Pipes from an excavation in Hospital
Jas. Claxton, Esq	street.  8 Specimens of minerals, viz. Quartz, and quartz with pyrites, Calc. spar and sulphate of barytes;—from Devon and Cornwall, England.
	T. D. W T. C. C. C.

J. F. WHITEAVES, F. G. S., &c.
Scientific Curator & Rec. Secretary N. H. S.

Donors' Names.	Donations.
Prof. J. Hall	On some new species of fossils from a locality in the Niagara group in Indiana; by Prof. J. Hall.
C. Robb, Esq	The new sugar canes. An inquiry into the nature, uses, and economic value of the Chinese and African sugar plants, with special reference to Western Canada; by
Confish discontinued in	C. Robb, C. E. Mineral resources of British North America; by C. Robb, C. E.
McGill College	McGill College Calendar. Faculty of medicine, 1863-4.
The University	Bulletin of the Museum of practical Zoology,
S. Scudder, Esq	Cambridge, Mass. List of the butterflies of New England; by S. Scudder. (Fron the proceedings of the Essex
W. Couper, Esq	Institute.) On insect architecture; by W. Couper. (From proceedings of the Entomological Society of Philadelphia.)
Prof. Marcou	Studi stratigrafici e palœontologici sull in- fralias nelle montague del Golfs della Spezia; del Prof. Giovanni Capellini, with
Jas. Ferrier, Jun., Esq	Woodward, F.G.S., &c.
sin vis. Contro and Colo spar and sub- tras Davos and Corn-	British museum catalogue of Mazatian shells,
Linnæan Society (?)	24. 1862 : by G. Busk.
Principal Dawson	The air-breathers of the coal period in Nova Scotia; by Dr. Dawson.
The Society	
Thomas Galbraith, Esq	
(Port Hope, C.W.) Rob. Swinhoe, F.Z.S.,&c	New monetary theory; by T. Galbraith. Catalogue of the birds of China; by R. Swinhoe. The ornithology of Formosa, or Taiwan, by R. Swinhoe. List of plants of do.; by the same author. Notes on the island of Formosa, or Taiwan; by R. Swinhoe.

Donors' Names.	Donations.
Queen's College, Kings-	University Calendar, Queen's College, Kings-
.cox1	Catalogue of the library of Queen's College, Kingston, and supplement to do.
the international Machibi- ni the art deportments and minerals of Yow	Defence of the plan of University reform.  A statement drawn up at the request of the Board of Trustees of Queen's College, Kingston.
W. Saunders, Esq., (London, C.W.)	List of plants of London, U.W., by W. Saun-
	ders. Synopsis of Canadian Arctiadæ; by W. Saunders.
salls from the Personal	Description of two new Arctiadæ; by do. On some new Lepidopterous larvæ; by do.
Literary and Historical Society, Quebec	Message and documents, 1856 and 1857, parts
	Message and documents, 1857 and 1858, parts 1, 2 and 3, 3 vols.  Message and documents, 1858 and 1859, part
	1, 1 vol. Message and documents, abridged.
	Maps to vol. for 1856-1857. Explorations and surveys from the Mississippi River to the Pacific, vols. 2, 3, 4, 5, 7, and
	8, 4to Congressional Globe, 1859 and '60, parts 1-4
	4to, 4 vols. Congressional Globe, 1860-61, parts 1-2, 2
	Commercial relations, vols. 2, 3, 4 and the
Harvard College	
S. H. Scudder, Esq	Remarks on the insect fauna of the white
Principal Dawson	Further observations on the Devonian plants of Maine, Gaspé, and New York; by Prin-
L'Abbé Ovide Brune Quebec	Notice sur les plantes de Labrador, &c. par
The Author	M. O. Brunet.  Annales historiques de College de L'Assomption; par Arthur Dansereau.
W. Couper, Esq	

Donors' Names.	Donations.
Major General Sabine, F.R.S., &c	Major General Sabine's address as president of
Prof. Miles (Lennoxville,	the Royal Society, 1863.
C.E.) Prof. L. W. Bailey (New	Official catalogue of the International Exhibi- tion. Industrial and fine art departments.
Brunswick.)	Report on the mines and minerals of New Brunswick; by L. W. Bailey, M.A. Report of the chief gold commissioner for the Province of Nova Scotia, for 1863.
	Report of Natural History Society of New Brunswick, for 1863.
Prof. Winchell	Prof. Winchell on fossils from the Potsdam sandstone of Wisconsin and Lake Superior.
Stanley C. Bagg, Esq	A chronological numismatical compendium; by Stanley C. Bagg.
Indian Government	Bombay magnetical and meteorological observations, 1861.
L'Abbé Ovide Brunet,	Bombay magnetical and meteorological observations, 1862.
Quebec	Notice sur les plantes de Michaux, et sur son voyage au Canada; par L'Abbé Ovide Brunet.
The University	16th Annual report of Regents of the University of the State of New York, on the State Cabinet of Natural History, appendix D., 1863.
The Government Dr. J. E. Moffatt	Census of Canada, 1860-'61, vol. 2. On the Geology of Southern Africa; by A. G. Bain.
Buffalo Society of Natural	2.00%(1.00m)(1.00m))
Jas. Ferrier, Jun., Esq	Preliminary list of plants of Buffalo (N.Y.) and its vicinity; by G. W. Clinton.  Arboretum et fruticetum Britannicum; by J.
The Geological Survey	C. Loudon, F.L.S., 8 vols. 8vo., illustrated.
From the Publishers, in exchange for the Na-	The Geology of Canada.
, turalist	Canadian Journal, Toronto. Transactions of the Literary and Historical
and laborated after	Society, Quebec. Journal of the Board of Arts and Manufactures
e College du L'Income.	of Upper Canada. The Canadian Patriot.
of Lower Camadas by	La Revue Canadienne. Transactions of the Nova Scotian Institute. British American Journal.
	Silliman's American Journal.

Donors' Names.	Donations.
gronto.	Proceedings of the Academy of Sciences of Philadelphia.
	Annals of the Lyceum of Natural History of New York.
olaus	Boston Journal of Natural History.
Window.	Proceedings of the Essex Institute.  Do. do. Franklin do.
face the same	Do. do. Entomological Society of Philadelphia.
alfirzenso	Transactions of the Academy of Sciences of St. Louis.
toaden	Proceedings of the American Antiquarian Society.
	Historical Magazine.
10 7 1100	The Technologist, London. Proceedings of the Linnæan Society.
	Proceedings of the Dublin University Zoolog-
and aphidus	ical and Botanical Association Proceedings of the Tyneside Naturalist's Field Club.
ew Heren, Conn.	Journal of the Society of Arts, London. Proceedings of the Natural History Society of
salt gotso	Dublin.
thony, New York.	Edinburgh New Philosophical Journal. Zeitschrift der Deutschen Ceologischen Gesell-
Bury Man York	schaft, 1861 and 1862, (From the Geological Society of Berlin.)
Government of Canada.	Canada Gazette.
Education Office, L.C	Journal of Education.
The Publishers	Statutes of Canada.
McGill University	The Canadian Naturalist and Geologist. Calendar for 1862-3.
Toronto School of Medi-	Calculat for 1002-3.
cine	Annual Announcement.
From the Regents of the	Spirituality Englishment and American
N. York State Library	Supplement to the Catalogue of the New York State Library.
From the U.S. Patent	Annual Reports of the Trustees of do. 1863. Patent Office Report, vols. 1 and 2.
	Tours I talk 2.

# THE CANADIAN NATURALIST.

The Canadian Naturalist is sent to the following Institutions and Societies:

## CANADA, ETC.

University College,	Toronto.
Trinity College,	Toronto.
Canadian Institute,	Toronto.
Knox's College,	Toronto.
Victoria College,	Cobourg.
Victoria College,	Kingston.
Queen's College,	Montreal
McGill College,	T annowyilla
Bishop's College,	Lennoxyme.
Laval University	Quebec.
Literary and Historical Society,	Quebec.
Natural History Society,	St. John, N. B.

### UNITED STATES.

Harvard College,	.Cambridge, Mass.
Amherst College,	.Amherst, Mass.
Yale College,	.New Haven, Conn.
Natural History Society,	.Boston, Mass.
State Library,	.Albany, New York.
Albany Institute,	Albany, Mew York.
Essex Institute,	Salem Mass.
Essex Institute,	Now Vork
Lyceum of Natural History,	New York
Astor Library,	Ditt delakie
Academy of Natural Sciences,	Philadelphia.
Franklin Institute,	Philadelphia.
Smithsonian Institute,	Washington.
Academy of Science,	St. Louis, Missouri.
University of Nashville,	Tennessee.

### GREAT BRITAIN.

Geological Society,	.London.
Linnæan Society,	
Royal Society,	.London.
Royal Geographical Society,	
British Museum Library,	
University College,	
Society of Arts,	
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Geological Society,	Dublin.
Royal Dublin Society,	Dublin.
Literary and Philosophical Society,	Manchester.
Natural History Society,	Newcastle upon Tyne.
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## CONTINENT OF EUROPE.

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Société Géologique de France,	Paris, France.
Académie des Sciences,	Paris, France.
Academia Car. Leop.,	Jena, Saxe Weimar.
Imper. Geological Institute,	
Deutsches Geolog. Gesellschafft,	Berlin, Prussia.
Société Hollandaise des Sciences,	
Konigl. Sachs. Gesellschaft der Wissen	
schaften,	
Société Impèriale des Naturalistes,	.Moscow, Russia.
Konigl. Bayerischen Akademie der Wis	- Alle San
senschaften,	
Stockholm Biksbiblioleket,	Stockholm, Sweden.
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Freiberg Royal Acad.,	.Freiberg, Saxony.

And to the following Periodicals:-

### CANADA.

Journal of the Board of Arts,.....Toronto.

### UNITED STATES.

Silliman's Journal,.....New Haven.

### GREAT BRITAIN.

Zoologist,	1 Paternoster Row.
Intellectual Observer,	
Technologist,	
Geological Magazine,	
Popular Science Review,	192 Piccadilly.
Seeman's Journal of Botany,	
Journal of Science,	11 New Burlington St.
Natural History Review	14 Henrietta Street Co-
Tome VI UZBO BROOM TOM	vent Garden.

### CONTINENT OF EUROPE.

Annales des Sciences Naturelles,Paris, France.
Allgemeine Deutsches Naturh. Zeitung, Dresden, Saxony.
Archiv. fur Naturgeschichte by Weig-
man,Berlin, Prussia.
Leopoldoia,Jena, Saxe Weimar.

Leonhard und Brohn Jahrbuch, ..... Stutgardt, Wurtemburg-

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## Honorary Members.

DATE OF ELECTION. May 29, '50. A. M. McWhinnie,....London, England. Nov. 29, '52. General J. Lefroy, F.R.S. Royal Arsenal, Woolwich, Eng. Aimé Bouchard, M.D., .... Academie des Sciences, Paris. Milne Edwards, M.D., ..... Academie des Sciences, Paris. Feb. 28, '53. Prof. Joseph Henry, Secretary of the Smithsonian Institute, ..... Washington. March28, '53. Dr. Rae..... 5, '54. O'Bryan Bellingham, M.D., Dublin. Oct. 29, '55. Sir Edmund W. Head, Bart.,. May 19, '56. C. Smallwood, M.D., LL.D., Montreal. Sept. 29, '56. Prof. James Hall, ..... Albany, N.Y. Prof. Dunglison, ..... Philadelphia. May 19, '62. William Skakel, ..... Montreal. Oct. 26, '63. Prof Agassiz...... Cambridge, nr. Boston, U.S. Major General Sabine, LL.D., F.R.S., &c.

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Aug.	26,	37.	Dr. Sabourin,
Sept.	29,	'45.	Major Kendall,
June	26,	'46.	Dr. W. Newcomb, Troy, N.Y.
			J. W. Leaycraft, Quebec.
Nov.	20,	'47.	Henry Holmes Croft, Profes-
			sor of Chemistry, Univer-
			sity College, Toronto.
April	24,	'48.	Major Lachlan, Cincinnati.
			Dr. John Hillier Blount, Birmingham, England.
July	30,	'49.	William Notman
			Jean Charles Taché,Quebec.
			Charles Payn, M.D., United States.
May	20,	'50.	T. McDonald, Jamaica.

Tam 97	751	Cecil Percival Stone,	
	150	Samuel Kneeland, M.D.,	Boston Mass
April 25,	04.	Dr. Robert M. Huston,	Dhiladalphia Pann
Aug. 30,		William Rogerson,	Royal Observatory, Green-
		William Rogerson,	
		TITLE AND SECTION OF A STREET	wich.
		William Andrews,	
		J. Adolphus Thurberg,	
Sept. 8,	'52.	M. C. Brodie,	Beauharnois.
		E. A. H. Allen,	Troy, N.Y.
Oct. 25,	152.	Prof. Thos. McCulloch,	Truro, N.S.
		Wm. Goodenough Wheeler	
		M.D.,	Chelsea, Mass.
		Rev. William Scott,	Sherbrooke, C.E.
Nov. 29,	752.	B. P. Johnson, Secy, Agric	
		Society	New York.
		Samuel Walker,	Roxbury, Mass.
		Hon. A. N. Morin,	.Quebec.
		Sir John P. Boileau, Bart.	munusti bala
		F.R.S.,	London.
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		of the Boston Society o	
		Nat. History,	
		John Cassin,	
		John Gundlach, M.D.,	
		Professor W. Buckland,	
Feb 28	153	Dr. Charles Huguet Latour,	
100. 20,	00.	Dr. J. W. Salisbury,	
		George Webber Breton,	
		George Jephson Rumley,	
		Archibald Cameron,	
March 29	152	Hon. Jos. Cauchon, M.P.P.	
marchao,	00.		
		Benjamin Franklin Niles,	
		Francis Markoe, Jr.,	
		Samuel Dutton,	
		H. Thieleke,	
		François Xavier Garneau,	
		Hon. Judge Laberge,	
		Rev. F. Pilote, College o	
		Ste. Anne de la Pocatière	
4 11 ok	120	Dr. Théop. Huguet Latour,	
April 27,	53.	Vertue Edwards	
		Pierre Martial Bardy, M.D.,	
		Arthur Hill Hassall, M.D.,	
		Thomas Wakley, Jr.,	
,		William Bell,	
		PhilipClaiborneGooch, M.D.	,Richmond, Va.

	Oal Campball O.B. St. Wilson
	Col. Campbell, C.B.,St. Hilaire.
	Eben Wight, M.D.,Boston, Mass.
	Alexander Murray,Woodstock, C.W.
July 26, '53.	George G. Francis, Swansea, England.
	Geo. Prev. de Bourcherville, St. Hyacinthe.
	Rev. Jean Langevin,Quebec.
	Albert Baker, M.D., Stancross, Devon, England.
Bearing & street	John Gilson, Rome, Italy.
Nov. 28, '53.	Casimir Dessaulles, St. Hyacinthe.
	Hamilton D. Jessup, M.D., Prescott.
	M. Turcot, M.D.,St. Hyacinthe.
	Rev. J. B. Ferland, Quebec.
	Hon. L. A. Dessaulles, Montreal.
	Rev. M. Lavallée,St. Vincent de Paul.
April 24, '54.	Rev. Michael AshtonAdelaide, Australia.
June 30, '54.	Rev. M. A. Trudeau, Buffalo, N.Y.
THE RESERVE OF THE PARTY OF THE	Edward Crisp, M.D.,London.
	Edward L. Ormerod, M.BBrighton.
	James Spence, Pointe Claire.
	Rev. John Jenkins,London, England.
Oct. 30, '54.	Rev. Louis Ed. Bois, Maskinongé.
	Dr. Amédée Weilbraim, Tournay, Belgium.
Jan. 29, '55.	Sir James Ed. Alexander,
June 25,	General Rowan,
	Dr. Litchfield,Kingston.
Oct. 29, '55.	William Couper,Quebec.
March31, '56.	Hon. G. E. Cartier, M.P.P.
	A. Brunel,Toronto.
	Rev. W. Brethour, M.AOrmstown.
April 28. '56.	Hon. L. V. Sicotte, St. Hyacinthe.
	Sir E. P. Taché, St. Thomas, C.E.
May 19, '56,	Asst. Com. Gen. Ibbotson
Jan. 28, '56.	P. L. McDougall, Advocate, Toronto.
Para de la constante de la con	Rev. John Flanagan,Lachine.
	J. C. Lee, M.D.,London, C.W.
	Prof. J. P. HeyfelderFinland.
Dec. 29, '56	H. P. Gosselin, Clarendon.
200. 20,	Alexander Copland, Hinchinbrooke.
Feb. 25, '57	. Prof. O. P. Hubbard, M.D.,
	Dartmouth College, Hanover, N.H.
	Prof. A. D. Bache, Sup. U.
	S. Coast Survey, Washington.
	Rev. A. J. Tellier, President
	St. John's College, N.Y., Fordham.
	R. L. Pell,New York.
April 27, 755	Jules Flavien Gingras, Quebec.
July 27, 151	7. Count Motschulsky,St. Petersburg.
July 21, 51	

April 27,	'58.	Rev. M. A. Curtis, D.D., Hillsborough, U.S.
		W. S. Sullivant, Columbus, Ohio.
		S. Durkee, M.D.,Boston, Mass.
May	'60.	Rev. Louis Wurtele,Actonvale.
July	'60.	M. J. Mitcheson, Philadelphia.
October	'60.	Henry Poole,
		Rev. D. Honeyman, F.G.S., Antigonish, N.S.
		Ed. Bowen, M.D., Brantford.
November	·'60.	Barnard R. Ross, Fort Simpson, Rupert's Land.
January	<sup>1</sup> 62.	Thomas Macfarlane, Actonvale.
June 30,	'62.	Prof. Baird, Smithson'n Inst., Washington.
		W. Stimpson, M.D., " " "
		Rev. A. Forrester, D.D., Principal of Normal Schools,
		Truro, Nova Scotia.
Sept. 29,	<b>'62.</b>	Dr. Lowe, F.R.S., &c Brighton, England.
Nov. 24,	<b>'62.</b>	S. H. Parkes, Birmingham, England.
March30,	'63.	Hugh E. Montgomerie, London, England.
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		Prof. J. W. Bailey, Fredericton, N.B.
		N. W. Bethune, Ottawa, C.W.
Oct. 26.	<sup>2</sup> 63.	W. Saunders,London, C.W.
,		A S Packard
		A. S. Packard, Brunswick, Me.
		H. Rose, Granby, C.E.
Nov 30	100	G. F. Matthew, St. John, N.B.
2.00. 30,	03.	John Brown, Hamilton, C.W.

### CATALOGUE

OF

## NORTH AMERICAN VERTEBRATA

IN THE COLLECTION

OF THE

# MUSEUM OF THE NATURAL HISTORY SOCIETY,

MONTREAL.

N. B.—In this list the mammals and birds are arranged according to Prof. Baird's classification. An asterisk (\*) before a species is intended to denote either that the specimens are very bad, or that additional examples would be desirable.

### MAMMALIA.

### CHEIROPTERA.

Vespertilio noctivagans, Leconte. Silver haired Bat. \*Vespertilis subulatus, Say. Says bat. Vespertilio pruinosus, Say.

Hoary bat.

\*Vespertilio Noveboracensis, De
Kay.

The Red, or N. York Bat.

### INSECTIVORA.

\*Sorex Cooperi? Bachman. Cooper's Shrew. Blarina talpoides, Gray. Mole Shrew. Condylura cristata, Illiger. Star nosed Mole.

### CARNIVORA.

Felis concolor, Linnœus.

The Catamount, or American
Panther.

\*Lynx Canadensis, Rafinesque. Canadian Lynx. Canis occidentalis, Linn.

American Wolf.
Vulpes fulvus, Desmarests:
Red Fox.

Mustela Pennantii, Erxleben. Fisher or Black Cat.

Mustela Americana, Turton.

Pine Marten, or American
Sable.

\*Putorius pusillus, Aud. & Bach. Least Weasel. \*Putorius cigognanii, Bon. Small brown Weasel. Putorius Noveboracensis, De Kay. Ermine: White Weasel.

\*Putorius vison, Richardson. Brown Mink.

Lutra destructor, Barnston.

The smaller, or "pulling-down" Otter.

Mephitis mephitica, Shaw. Common Skunk.

Taxidea Americana, Waterh. American Badger.

Procyon lotor, Storr.
Raccoon.

Ursus Americanus, Pallas. Black Bear.

### RODENTIA.

Sciurus hudsonius, Pallas.
Red Squirrel.
Sciurus Carolinensis, Gmelin.
\*Var. cinereus, Schreber.
(Gray Squirrel.)
\*Var. niger, Godman.
(Black Squirrel.)
Pteromys volucella? Pallas.
Common flying Squirrel.
Tamias striatus, Linn.
Chipmunk or striped Ground
Squirrel.
\*Tamias quadrivittatus, Say.
Missouri striped Squirrel.

Arctomys monax, Gmelin.
Wood Chuck: Ground Hog.
Arctomys pruinosus, Gmelin.
Hoary Marmot or Whistler.
Castor Canadensis, Kuhl.
American Beaver.

Jaculus Hudsonius, Zimmerman. Jumping Mouse. Mus decumanus, Pallas. Brown Rat.

\*Mus rattus, Linn. Black Rat.

Mus musculus, Linnœus. Common Mouse. \*Hesperomys leucopus, Wagner.

White-footed Mouse. Hesperomys myoides, Gapper.

Hamster Mouse.
Arvicola riparia, Ord.
Meadow Mouse.

Arvicola Zanthognathus.
Yellow-cheeked Meadow
Mouse.

Fiber Zibethicus, Cuvier. Musk Rat.

Erethizon dorsatus, F. Cuvier.
White-haired Porcupine.

\*Lepus Americanus, Erxleben. American Hare. (Black variety.)

Lepus sylvaticus, Bach. Gray Rabbit.

### EDENTATA.

\*Dasypus novem cinctus, Linn.
Texas Armadillo.

#### RUMINANTIA.

\*Alce Americanus, Jardine.

American Moose.

\*Rangifer Caribou, Aud. & Bach.

Common or Woodland Caribou (Head and Antlers only.)

\*Cervus Virginianus, Boddaert.
Virginian deer.
\*Antilocapra Americana, Ord.
Prong-horned Antelope.
(Skull and Antlers only.)

### CETACEA.

Delphinapterus leucas, Linn.
The Beluga, or White "Whale."

#### PINNIPEDIA.

Phoca vitulina, Linn.
The Common Seal.

### NOTES ON THE MAMMALS.

One of the principal aims in a Museum like ours, unquestionably should be to procure as complete a series of Canadian Mammals as possible. Bearing this in mind it has appeared to me to be well to indicate first of all those species which are well known to inhabit Canada, of which we have no specimens in the Museum, and secondly those species which

from their known geographical range are likely to occur in this colony. As yet the North American Mammals are but imperfectly understood, and doubtless careful scrutiny would reveal many new species in Canada. Of the Cetacea and Pinnipedia of this country we seem to know almost nothing. The Seals and the Walrusses would probably well repay investigation. Amongst the more familiar orders, the Shrews, the Moles, the Weasel family, and the Mice (Hesperomys), and field mice, require careful study and comparison. Of the following species which are well known to inhabit Canada, we have not specimens in the Museum.

Scalops aquaticus, Cuvier. Common mole.

Occurs frequently in swampy districts throughout both provinces: I have taken living specimens from a swamp near Spencer Wood, Quebec, J. F. W.

Vulpes fulvus, var. decussatus. The "Cross" fox.

A variety of the common Canadian species, deriving its name from the occurrence of a black cross on the back of the animal "formed by a dark band along the back, crossed by another on the shoulder."

Putorius Richardsonii, Bonaparte. Least ermine.

Known from the common Ermine (P. Noveboracensis) by its smaller size, narrower hind feet, and shorter tail.

Gulo luscus, Sabine. The Wolverine.

The Canadian lynx is often called the Wol-The Glutton of Europe. verine in country districts in Canada.

Lutra Canadensis, Sabine. The American otter.

Good examples of this species would be particularly desirable to compare with Mr. Barnston's new species, as would also be the Californian Otter, the Lutra Californica of Gray.

Didelphys Virginiana, Shaw. Common opossum.

A species of special interest as being the only marsupial mammal inhabiting the Northern part of North America.

Pteromys Hudsonius, Fischer. Northern flying Squirrel.

If this species be a good one, it may be that the Lower Canadian flying squirrels should be referred here. It is said to be a larger species than the common flying squirrel, "its tail is proportionately shorter," and the under hairs of the belly, instead of being white at the roots are leadcolored.

Hesperomys myoides, Gapper. Hamster mouse.

Hesperomys leucopus, Wagner. White-footed mouse.

Of these two common species we have no Canadian examples.

Arvicola Gapperi, Vigors. Red-backed mouse.

Of this well known Canadian species we have not a single specimen.

From their known geographical range the following mammals may be detected in Canada:

Sorex Forsteri, Richardson. Forsters shrew. Sorex Richardsonii, Bachman. Richardson's shrew. Sorex platyrhinus, Wagner. Eared shrew. Sorex Thompsoni, Baird. Thompson's shrew. Blarina angusticeps, Baird. The narrow-skulled Field mole. Scalops argentatus, Aud & Bach. Silvery mole. Scalops Breweri, Bachman. Hairy-tailed mole. Lynx rufus, Rafinesque. Wild cat. Vulpes Virginianus, Richardson. Gray fox. Putorius nigrescens, Audubon & Bachman. Little black mink. Sciurus cinereus, Linn. Cat squirrel. Sciurus Ludovicianus, Custis. Western Fox squirrel. Hesperomys Michiganensis, Wagner. Prairie mouse. Arvicola Breweri, Baird. Brewer's field mouse. Arvicola rufidorsum, Baird. Red-sided mouse. Arvicola pinetorum, Leconte. Upland mouse. Lepus glacialis, Leach. Polar hare. Phoca leonina. Hooded Seal. Phoca Greenlandica. Harp Seal.

### AVES.

N.B.—Mexican and Californian species are included in this list as well as those of Canada and the United States, an asterisk (\*) in this case indicates that we have the eggs of the species to which it is attached.

Cathartes aura, Illiger.
Turkey Buzzard.
Falco anatum? Bonaparte.
Duck Hawk.

(Immature; Falco Dawsonis? Hall.) Hypotriorchis columbarius, Gmel.

Pigeon Hawk.
Tinnunculus sparverius, Viell.
Sparrow Hawk.

Astur atricapillus, Bonap. Goshawk.

Accipiter fuscus, Bonap.
Sharp-shinned Hawk.
Buteo borealis, Viellot.
Red-tailed Hawk.

Buteo lineatus, Jardine. Winter Falcon.

Buteo Pennsylvanicus, Bon.
Broad-winged Hawk.
Archibuteo Iagopus, Gray.
Rough-legged Buzzard.

Circus Hudsonius, Viellot.

Marsh Harrier.

Aquila Canadensis, Cassin.

Golden Eagle. Haliætus leucocephalus, Sav.

Bald Eagle.
Pandion Carolinensis, Bon.

Fish Hawk.
Bubo Virginianus, Bonap.
Great Horned Owl.

Scops Asio, Bonap.
Mottled Owl.
Otus Wilsonianus, Lesson.
Long-eared Owl.

Long-eared Owl.

Brachyotus Cassinii, Brewer.
Short-eared Owl.

Sprium nebulosum, Gray.
Barred Owl.
Nyctale albifrons, Cassin.

Kirtland's Owl.

Nyctale Acadica, Bon,
Saw Whet Owl.

Saw Whet Owl.

Nyctea nivea, Gray.

Snowy Owl.

Snowy Owl.
Surnia ulula, Bon.
Hawk Owl.

Trogon Mexicanus, Swains.

Mexican Trogon,
Geococcyx Californianus, Baird.
Californian Ground Cuckoo.

Coccygus Americanus. Yellow-billed Cuckoo. Coccygus erythropthalmus, Bon. Black-billed Cuckoo.

Picus villosus, Linn. Hairy Woodpecker.

Picus pubescens, Linn.

Downy Woodpecker.

Picoides pretions Creat

Picoides arcticus, Gray.

Three-toed Woodpecker.

Picoides hirsutus, Gray.

Banded 3-toed Woodpecker.
Sphyropicus varius, Baird.

Yellow-bellied Woodpecker. Hylotomus pileatus, Baird.

Black Woodpecker.
\*Melanerpes erythrocephalus, Sw.
Red-headed Woodpecker.

Melanerpes torquatus, Bon. Lewis's Woodpecker. Colaptes auratus, Swains.

Golden-wingedWoodpecker.
Colaptes Mexicanus, Swainson.
Red-shafted Woodpecker.

Trochilus colubris, Linn.
Ruby-throatedHumming Bird.
Chœtura pelasgia, Stephens.

Chierta perasgia, Stephens.
Chimney Swallow.
Antrostomus vociferus, Bonap.

Whip poor Will. Chordeiles popetue, Baird. Night Hawk.

Chordeiles Henryi, Cassin.
Western night Hawk.
Ceryle Alcyon, Boie.

Belted King-Fisher.
Milvulus forficatus, Swainson.
Scissor Tail.

\*Tyrannus Carolinensis, Baird.
Tyrant Flycatcher.

Tyrannus verticalis, Say.
Arkansas Flycatcher.
Myriarchus crinitus, Cab.

Great-crested Flycatcher. Sayornis fuscus, Baird. Pewee.

Sayornis Mexicanus.

The Mexican Pewee,

\*Contopus Richardsonii, Baird,
Short-legged Pewee.

Empidonax Acadicus, Baird.
Green-crested Flycatcher.
\*Turdus mustelinus, Gmelin.

Wood Thrush.
Turdus Pallasi, Cabot.

Hermit Thrush,

Turdus fuscescens, Stephens. Hirundo horreorum, Barton. Wilson's Thrush. \*Turdus migratorius, Linn. Robin. \*Sialia Sialis, Linn. Blue Bird. Regulus calendula, Licht. Ruby-crowned Wren. Regulus Satrapa, Licht. Golden-crowned Wren. Hydrobata Mexicana, Baird. Water Ouzel. Anthus Ludovicianus, Licht. Tit-lark. Mniotilta varia, Viellot. Black and White Creeper. Parula Americana, Bon. Blue vellow-backed Warbler. Geothlypis Trichas, Linn. Maryland Yellow-thorat. Geothylpis Philadelphia, Baird. Mourning Warbler. Icteria viridis, Bonap. Yellow-breasted Chat. Helminthophaga ruficapilla, Baird. Nashville Warbler. Helminthophaga peregrina, Cab. Tennessee Warbler. \*Seiurus aurocapillus, Swains. Golden-crowned Thrush. Dendroica virens, Baird. Black-throated Green War-Dendroica Canadensis, Baird. Black-throated Blue War-Dendroica Blackburnice, Baird. Blackburnian Warbler. Dendroica castanea, Baird. Bay-breasted Warbler. \*Dendroica pinus, Baird. Pine-creeping Warbler. Dendroica Pennsylvanica, Baird. Chesnut-sided Warbler. Dendroica striata, Baird. Black Pole Warbler. Dendroica œstiva. Baird. Yellow Warbler. Dendroica maculosa, Baird. Black and Yellow Warbler. Myiodioctes Canadensis, Aud. Canada Flycatcher. \*Setophaga ruticilla, Swains. American Redstart. Pyranga rubra, Viellot.

Scarlet Tanager.

Summer Red Bird.

Louisiana Tanager.

Pyranga Ludoviciana, Bon.

Pyranga œstiva. Viell.

Hirundo lunifrons, Say. Cliff Swallow. \*Hirundo bicolor, Viell. White-bellied Swallow. Cotyle riparia, Boie. Bank Swallow. \*Progne purpurea, Boie. Purple Martin. Ampelis garrulus, Linn. Bohemian Waxwing. \*Ampelis Cedrorum, Baird. Cedar Bird. Collyrio borealis, Baird. Great Northern Shrike. Vireo olivaceus, Viell. Red-eyed Flycatcher. Vireo Philadelphicus, Cassin. Philadelphia Vireo. Vireo flavifrons, Viell. Yellow-throated Flycatcher. \*Mimus Carolinensis, Gray. Cat Bird. \*Harporhynchus rufus, Cab. Brown Thrush. Troglodytes Parkmanni, Aud. Parkman's Wren. Troglodytes hyemalis, Viell. Winter Wren. Certhia Americana, Bon. American Creeper. Sitta Carolinensis, Gmelin. White-bellied Nuthatch. Sitta Canadensis, Linn. Red-bellied Nuthatch. Parus atricapillus, Linn. Black-capped Titmouse. Parus Hudsonicus, Forster. Hudsonian Titmouse. Pinicola Canadensis, Cab. Pine Grosbeak. Carpodacus purpureus, Gray. Purple Finch. \*Chrysomitris tristis, Bon. Yellow Bird. Chrysomitris pinus, Bon. Pine Finch. Curvirostra Americana, Wils. Red Crossbill. Curvirostra leucoptera, Wils. White-winged Crossbill. Ægiothus linaria, Cab. Lesser Red poll. Ægiothus canescens, Cab. Mealy Red poll. Plectrophanes nivalis, Meyer. Snow Bunting. Plectrophanes Lapponicus, Selby. Lapland long-spur.

Barn Swallow.

\*Poocœtes gramineus, Baird. Grass | \*Cyanura cristata, Sw. Finch: Bay winged bunting.

Chondestes grammaca, Bon. Lark Finch.

Zonotrichia leucophrys, Sw. White-crowned Sparrow.

\*Zonotrichia albicollis, Bon. White-throated Sparrow.

\*Junco hyœmalis, Sclater. Black Snow Bird.

Spizella monticola, Baird. Tree Sparrow. Spizella pusilla, Bon.

Field Sparrow. \*Spizella socialis, Bon.

Chipping Sparrow. \*Melospiza melodia, Baird.

Song Sparrow. Melospiza palustris, Baird. Swamp Sparrow.

Passerella iliaca, Sw.

Fox-colored Sparrow. Euspiza Americana, Bon. Black-throated Bunting.

Guiraca Ludoviciana, Sw. Rose-breasted Grosbeak.

Guiraca melanocephala, Sw. Black-headed Grosbeak. \*Cyanospiza cyanea, Baird.

Indigo Bird. Cardinalis Virginianus, Bon. Red Bird.

Pipilio arcticus? Sw. Arctic Towhee.

Dolichonyx oryzivorus, Sw. Boblink: Rice Bunting.

\*Molothrus pecoris, Sw. Cow Bunting.

\*Agelaius phœniceus, Viell. Red-winged Starling.

\*Sturnella magna, Swains. Meadow Lark. Icterus spurius, Bon.

Orchard Oriole. Icterus Baltimore, Daudin. Baltimore Oriole.

Icterus Bullockii, Bon. Bullock's Oriole.

Scolecophagus ferrugineus, Sw. Rusty Grakle. Scolecophagus cyanocephalus.

Brewer's Blackbird. \*Quiscalus versicolor, Viell.

Crow Blackbird. Corvus carnivorus, Bartram.

American Raven. \*Corvus Americanus, Aud. American Crow.

Pica Hudsonica, Bon. Magp ie.

Blue Jay.

Cyanura Stelleri, Sw. Steller's Jay.

Perisoreus Canadensis, Bon. Canada Jay.

Ectopistes migratoria, Sw. Passenger Pigeon.

Zenaidura Carolinensis, Bon. Common Dove.

Meleagris Gallopavo, Linn. Wild Turkey.

Tetrao Canadensis, Linn. Spruce Partridge.

Pedioecetes phasianellus, Baird. Sharp-tailed Grouse.

Cupidonia cupido, Baird. Prairie Hen.

\*Bonasa umbellus, Steph. Ruffed Grouse. \*Lagopus albus, Aud.

White Ptarmigan. Lagopus rupestris, Leach.

Rock Ptarmigan. \*Ortyx Virginianus, Bon.

Virginian Quail. Herodias egretta, Gray.

White Heron. Ardea Herodias, Linn.

Great Blue Heron. Ardetta exilis, Gray. Least Bittern.

Botaurus lentiginosus, Steph American Bittern.

Butorides virescens, Bon. Green Heron.

Nyctiardea Gardeni, Baird. Night Heron.

Charadrius Virginicus, Borck. Golden Plover.

Œgialitis vociferus, Cassin. Kildeer Plover.

Œgialitis semipalmatus, Cabot. Semipalmated Plover.

Œgialitis melodus, Cab. Piping Plover.

Squatarola Helvetica, Cuv. Black-bellied Plover.

Strepsilas interpres, Ill. Turnstone.

Gallinago Wilsonii, Bon. Snipe.

Macrorhamphus griseus, Leach. Red-breasted Snipe.

Tringa maritima, Brun. Purple Sandpiper.

Tringa Alpina, var. Americana, Cassin. Red-backed Sandpiper.

Tringa Wilsonii, Nuttall. Least Sandpiper.

Calidris arenaria, Illiger.
Sanderling.
Ereunetes petrificatus, Ill.
Semipalmated Sandpiper.
Gambetta flavipes, Bon.
Yellow legs.

Rhyacophilus solitarius, Bon.
Solitary Sandpiper.
\*Tringoides macularius, Gray.

Spotted Sandpiper.
Limosa Hudsonica, Sw.

Hudsonian Godwit, Numenius longirostris, Wils. Long-billed Curlew.

Numenius Hudsonicus, Lath. Hudsonian Curlew. Numenius borealis, Lath.

Esquimaux Curlew.
Rallus Virginianus, Linn.
Virginia Rail.

Porzana Carolina, Viell.
Common Rail.

Porzana Noveboracensis. Yellow Rail.

Fulica Americana, Gmelin.
Coot.

Cygnus buccinator, Rich. Common Swan. Anser hyperboreus, Pallas.

Snow Goose.
Bernicla Canadensis, Boie.

Canada Goose.

Bernicla Hutchinsii, Bon.

Hutchin's Goose.

Bernicla brenta, Stephens.
Brant.

Anas boschas, Linn.
Mallard.
Anas obscura, Gmel.

Black Duck.
\*Dafila acuta, Jenyns.

Pin-tail.

Nettion Carolinensis, Baird.

Green-winged Teal.

\*Querquedula discors, Steph.
Blue-winged Teal.

Spatula Clypeata, Boie. Shoveller.

Mareca Americana, Stephens.
Baldpate.

Aix sponsa, Linn. Wood Duck.

Fulix marila, Baird.

Greater Black Head.

Fulix collaris, Baird.
Ring-necked Duck.
Aythya Americana, Bon.

Red Head. Aythya Vallisneria, Bon. Canvass back. Bucephala Islandica, Baird.
Barrow's Golden Eye.
Bucephala albeola, Baird.

Buffel Head.
Histrionicus torquatus, Bon.
Harlequin Duck.

Camptolaemus Labradorius, Gray. Labrador Duck.

Melanetta velvetina, Baird. Velvet Duck.

Pelionetta perspicillata, Kaup. Surf Duck.

Oidemia Americana, Swains.
Scoter.
\*Sometorie mollussima Leac'

\*Somateria mollussima, Leach. Eider Duck.

Erismatura rubida, Bon. Ruddy Duck.

Mergus Americanus, Cass. Sheldrake.

Mergus serrator, Linn.
Red-breasted Merganser.
Lophodytes cucullatus, Riech.

Hooded Merganser.
Pelecanus erythrorynchus, Gmel.
American Felican.

Graculus dilophus, Gray.

Double-crested Cormorant.

Thalassidroma Leachii, Tem. Leach's Petrel.

Stercorarius parasiticus, Tem. Arctic Skua.

Larus Glaucus, Brunn.
Burgomaster.
Larus leucopterus, Faber.

White-winged Gull.
Larus marinus, Linn.

Great Black-backed Gull.
\*Larus argentatus, Brünn.

Herring Gull. Chroicocephalus Philadelphia. Bonaparte's Gull.

Rissa tridactyla, Bon. Kittiwake Gull. Sterna fuliginosa, Gmelin.

Sooty tern.
\*Sterna macroura, Naum.

\*Sterna macroura, Naum.
Arctic Tern.
Sterna frenata, Gambel.

Least Tern.
Colymbus torquatus, Brünn.
Loon.

Podiceps griseigena, Gray. Red-necked Grebe.

Podiceps cornutus, Latham.
Horned Grebe.

Podiceps auritus, Latham. Eared Grebe.

\*Uria grylle, Latham. Black Guillemot. \*Uria lomvia, B:un.
Foolish Guillemot
Mergulus Alle, 7iell.
Sea Dove.
Podilymbus podiceps, Lawr.
Carolina Grebe.

\*Alca torda, Linn.
Razor-billed Awk.
Mormon arctica, Ill.
Common Puffin.

### NOTES ON THE BIRDS.

Of many of the species enumerated in the above list (more especially of those not found in Lower Canada) we have only single and often very bad examples. Fine, fresh specimens of almost any N. American bird would be very acceptable, particularly of the scarcer kinds, and most especially those species of which we have no representative in the Museum.

### REPTILIA.

Aspidonectes spinifer, Lesuer.

The Soft-shelled Turtle.
Chelydra serpertina, Schw.
The Snapping Turtle.
Chrysemys picta, Gray.
The Painted Turtle.

Nanemys guttata, Schneid.
The Spotted Turtle.
Glyptemys insculpta, Leconte.
The Wood Terrapin.

Alligator Mississipiensis.
The Common Alligator.

Crotalus durissus, Linn.
Northern Rattle Snake.
Eutainia sirtalis, Linn.
Garter Snake.
Ophibolus eximius, Harlan.
Milk Snake: Chicken Snake.

Chlorosoma vernalis, Harlan.
Green Snake.
Diadophis punctatus, Linn.
Ring-necked Snake.
Celuta amœna, Say.
Red Snake.
Storeria occipito-maculata, Storer.
Spotted-necked Snake.

Rana pipiens, Linn.
Bull Freg.
Rana halecina, Kalm.
Shad Freg.
Bufo Americanus, Leconte.
American Toad.

Hyla versicolor, Leconte.
Tree Frog.
Phrynosoma.
Horned Frog.
California.

Salamandra subviolacea, Barton.
The Violet-colored Salamander.

Salamandra erythronota, Green.
Red-backed Salamander.
Salamandra granulata? Green.
Granulated (?) Salamander.

Triton millepunctatus, Storer.
The Crimson-spotted Triton.
Menobranchus lateralis, Say.
The Banded Proteus.

### PISCES.

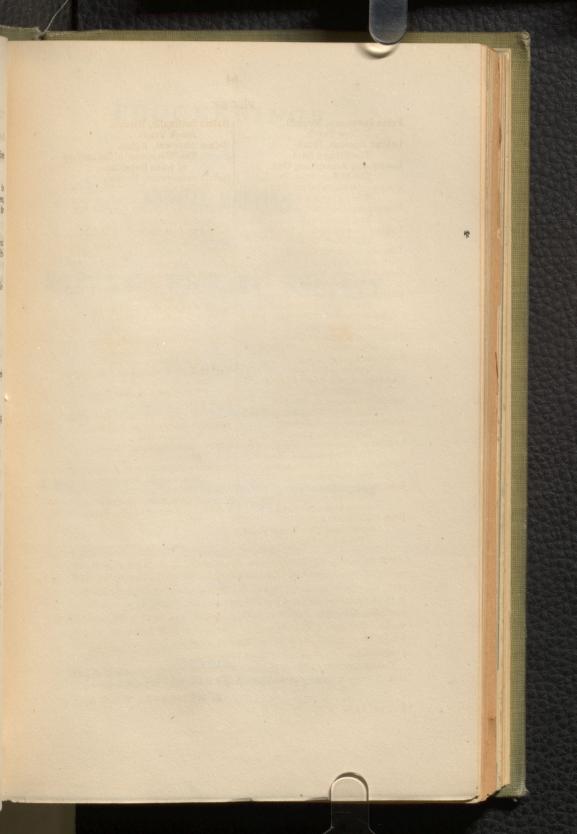
Perca flavescens, Mitchill. Yellow Perch. Labrax lineatus, Bloch. The Striped Bass. Lucioperca Americana, Cuv. The Yellow Pike Perch. Lucioperca Canadensis, Cuv. The Canadian Pike Perch. Centrarchus œneus, Lesuer. The Rock Bass. Centrarchus fasciatus, Lesuer. The Black Bass. Pomotis vulgaris, Cuv. & Val. Sun Fish. Cottus Greenlandicus, Cuv. & Val. The Greenland Bull-head. Gasterosteus gymnetes, Dawson. The 6 spined Stickleback. (See Canadian Naturalist, vol. 4 pages 321 to 324.) Pimelodus nigricans, DeKay. The Great Lake Catfish. Pimelodus catus, Linn. Common Cat-fish. Catastomus communis Lesuer. Common Sucker? Leuciscus cornutus, Mitchill. The Red Fin or Rough Head. Leuciscus nitidus? DeKay. The Shining Dace. Leuciscus atro-maculatus? Mitchill. The Black-headed Dace? Hydrargira fusca? Thompson. The Black Minnow. Esox estor, Cuvier. The Maskinonge. (Only one very small example.) Esox lucioides ? Agass. Great Northern Pickerel, or Canadian Pike.

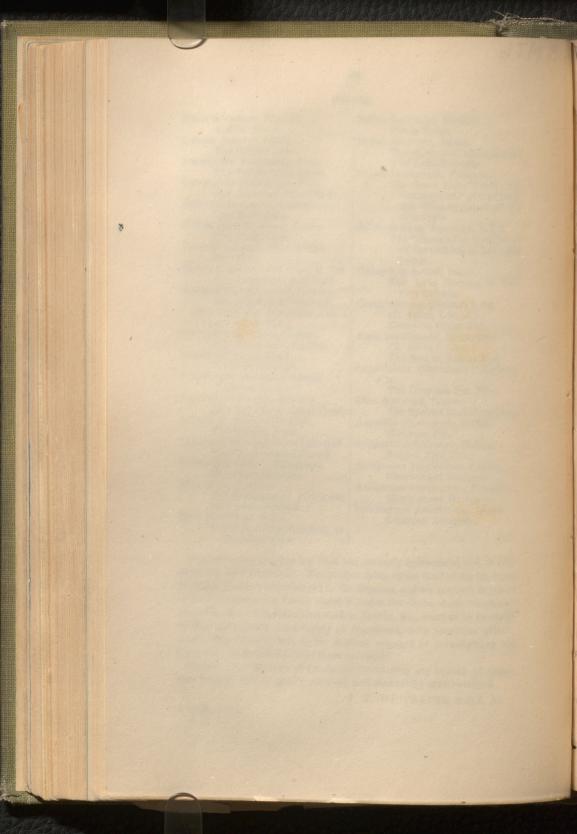
Salmo fontinalis, Mitchill. Brook Trout. Salmo siscowet, Agass. The "Siscowet" of the natives of Lake Superior. Salmo namaycush, Pennant. The Great Lake Trout: the "Namaycush" of the Crees. the "Namaygoose" of the Ojibway's. Salmo ursinus, Barnston, M.S.S. The "Macqua," or Bear Trout of the natives of Lake Superior. Coregonus Artedi, Lesuer. The Lake Herring, or Herring Salmon. Coregonus sapidissimus? Ag. (C. albus, Lesuer.) Common White Fish. Amia ocellicauda, Richardson. (A. calva? Linn.) The Mud or Beaver Fish. Lepidosteus Huronensis? Richard-The Common Gar Pike. Lota Maculosa, Lesuer. The Spotted Burbot, or Ling. Anguilla tenuirostris, DeKay. Common Eel. Syngnathus fasciatus, DeKay. Striped Pipe Fish. Accipenser brevirostris, Lesuer. Short-nosed Sturgeon. Accipenser oxyrynchus, Mitchill. Sharp-nosed Sturgeon. Petromyzon Americanus, Lesuer. Common Lamprey.

Our collection of fishes has been but recently commenced and is consequently very imperfect. The marine fishes of the Gulf of the St. Lawrence are almost unrepresented in the Museum, and we are very deficient in the Cyprinidæ, the family which includes the chubs, dace, "suckers," minnows, &c. The Canadian snakes, lizards, &c., want to be carefully worked out, and a good supply of specimens, with localities affixed, would be a valuable help to the student engaged in investigating the geographical distributions of these creatures.

Finally, contributions of specimens illustrating any branch of Canadian Zoology will be gladly received and thankfully acknowledged.

J. F. WHITEAVES, F.G.S. &c.





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# PROCEEDINGS

V. 37

AT THE

# ANNUAL MEETING

OF THE

# NATURAL HISTORY SOCIETY

OF

# MONTREAL,

FOR THE YEAR ENDING MAY, 1865:

WITH

I Tist of the Officers, Tife, Ordinary, Honorary, and Corresponding Members of the Society.

MONTREAL:
PRINTED BY JOHN LOVELL, ST. NICHOLAS STREET:
1865.

# PROCEEDINGS

ANNUAL MERCHAN

THAIDON THEFOLD NOOLETT

MONTREAL

FOR THE YEAR ENDING MAY, 1885:

MILM

First the Offices Title, delicates, Josephy, and Consequellings Manders of the Koriefy.

TREET EX SOUR LOVERING EX MIGHOLAS STREET

1805.

## PROCEEDINGS.

The annual meeting of this Society was held at its rooms on the evening of May 18th, the President, Principal Dawson, in the chair. Mr. J. F. Whiteaves, the Recording Secretary, read the minutes of the last annual meeting; after which the usual annual address of the President was delivered, as follows:—

### THE PRESIDENT'S ADDRESS.

GENTLEMEN:—In the midst of the many exciting occurrences of the past year, we have reason for thankfulness and mutual congratulation that we have been enabled to pursue in peace our unobtrusive work, and that we have to record the past as one of the most successful years of this Society. More than twenty original papers on various departments of Natural History have been contributed, the greater part of which have been published in our Journal. Our course of Sommerville Lectures and our Annual Conversazione have been eminently successful. Large additions have been made to our Museum, and much progress has been made in its arrangement. An Entomological club has been established in connection with the Society, and arrangements have been made for retaining for another term of two years the services of our efficient scientific curator, Mr. Whiteaves.

In Geology many important communications have been received. Among these I may particularly mention, in the first place, several papers by Dr. Hunt on Canadian lithology, on the Silicification of fossils, on mineral waters and on the economical uses of peat. While all of these are of great value, I may direct particular attention to the very remarkable facts stated in the paper on mineral waters, in relation to the saline springs, so abundant in this country, when regarded as affording evidence of the composition of that primeval ocean in which our Silurian beds were deposited. As treated by Dr. Hunt, mineral springs cease to be

merely objects of curiosity or for medicinal use, but acquire great geological interest, as indications of conditions of the ocean which have long since passed away, but which may have had an important influence on animal life and mineral accumulation in the Palœozoic period; and also as illustrations of the causes of chemical change now in action in the crust of the earth.

The remarkable discovery by Mr. Billings of locomotive organs probably of the nature of swimming feet, in Asaphus platycephalus, read before the Society, but not yet published, deserves to be reckoned as one of the most important facts developed in connection with Canadian Geology in the past year. As an addition to this discovery, I may place the view which I presented to this Society, in a paper on the fossils known as Rusophycus, that these are in reality casts of burrows of Trilobites, and entitled to the name Rusichnites.

In my address of last year I dwelt at some length on the question of the mode of formation of the boulder clay, and on the alleged action of glaciers in the post pliocene period; and stated my reasons for the belief that floating ice was the agent in the striation of rock surfaces, and the transport of boulders in Canada; and that our lake basins had been eroded by the slow action of cold ocean currents. I have since followed up this subject, and in a paper on the Post pliocene deposits of Riviere du Loup, have endeavoured to show the true marine character of the boulder clay of that locality, so rich in fossil shells of the post-tertiary period. I have also obtained facts which prove conclusively that the boulder clay of Montreal and its vicinity, could not possibly have been sub-aerial, and that throughout Eastern Canada this deposit does not form a continuous sheet, but rather a series of old seamargins extending from an elevation of two or three hundred feet above the sea to the present sea level, and in time from the newer Pliocene period to the present day.

Lastly, under the head of Geology, but passing from the latest formations to the far distant dawn of organic life on our planet, our last number contains the re-publication of papers by Sir W. Logan, Dr. Carpenter, Dr. Hunt, and myself, on Eozöon Canadense, shewing that the views which I illustrated here a year ago,

of the character of that remarkable fossil, have been fully confirmed by the greatest living authority on the group of animals to which the specimens were assigned, and that this great discovery has been accepted as an unquestioned fact by all the leading minds in Geology.

Before leaving this part of our work, it is proper to state that the utility of our collection to students of Geology and Mineralogy has been much increased by the arrangement and display of our specimens of fossils, rocks and minerals, through the exertions of Mr. Whiteaves, aided by other members of the Society.

Among the numerous papers received on Zöology, Botany and Physical Geography, I may, without attempting any detailed notices, mention those of Mr. Jones on Ocean Drift, and on the fishes of Nova Scotia, communicated to our Journal by the Natural History Society of New Brunswick; of Mr. J. G. Bowles on Pieris rapæ: of Dr. Bowerbank on Canadian Sponges; of Prof. Brunet on the Travels of Michaux; of Prof. Lawson, Prof. Eaton, and Mr. McCord on Canadian Ferns; of Mr. Drummond on the Geographical Botany of Canada; of Hon. Mr. Sheppard on Canadian Timber trees; of Mr. Vennor on the Night Heron; of Mr. Whiteaves on Canadian Mammals; of Mr. Ritchie on the structure of Insects; and lists of plants of various localities in Canada contributed by Dr. Thomas, Mr. Drummond, Mr. Macoun, and other botanists. We owe also to the gentlemen of the Entomological club our cordial thanks for the generous donations which have filled our cabinet of insects with one of the most valuable collections of entomological specimens as yet accumulated in this city.

It is proper, on this occasion, to congratulate the Society on the completion of the first series of its Journal, the Canadian Naturalist, and on the commencement of the second volume of a new and improved series. The inception of the Canadian Naturalist is due to our colleague Mr. Billings, the palæontologist of the Canadian Survey; and the first volume was ably sustained by his unaided exertions. Adopted by the Natural History Society in 1857, it has now entered on its tenth year of publication, and contains in the volume already published a mass of information on the Natural

History of British America, indispensable to every student of the subject. It has established its reputation wherever science is cultivated, and is now a recognized medium of communication between Naturalists in Canada and in foreign countries. It is only to be regretted, both for the sake of the interests of science and of the publishers of the work, who have heretofore issued it without any expense to the Society or any public aid, that it should not be more extensively circulated. When we consider the difficulties experienced by scientific periodicals both in Britain and the United States, it is not surprising that a scientific journal in Canada should be slenderly supported. Still I think that, if the value of the articles contained in the Naturalist, and the importance of sustaining it, were properly understood, its subscription list would be largely increased. I earnestly commend this matter to the attention of members of the Society. It will be proposed in connection with this, in the Report of the Council, that a new class of members should be created in connection with the Society, namely, nonresident ordinary members, who should pay a subscription equivalent to that for the Naturalist, and should enjoy the advantages of the meetings and museum of the Society, during any visits they might make to the city. In this way I have no doubt that something might be done toward the introduction of a taste for Natural History, as well as toward the extension of the circulation of the "Naturalist." It is to be hoped that these subjects will receive the early attention of the officers of the Society.

In conclusion, gentlemen, allow me to say that in cultivating here the amenities of science, and directing our attention and that of others to the works of God, we are in our humble way doing something for the welfare of this country. We are seeking to mingle the pursuit of merely utilitarian objects in the development of the resources of this country, with higher and more philosophical conceptions of nature. In the midst of many perturbed social and political elements, we are studying things that make for peace, and which are for the common benefit of all. While we are so constantly drawing closer the links of connection between ourselves and kindred institutions in other parts of the great empire to which it is our happiness to belong; and while, in common I believe with

all scientific men and educators in British America, we feel that it is above all things desirable that still more intimate and mutually helpful relations should be established with the good heart of that empire, so that the political, social, and scientific power of Great Britain may be more strongly felt in these colonies, we can at the same time extend the most earnest sympathy and lively appreciation to the labors of scientific men in other lands, and can more especially ally ourselves in the closest manner with our numerous and able fellow workers in the United States, who have always been so ready to recognize in our case that bond of brotherhood which should unite all the cultivators of science in every country.

In now resigning the office with which, contrary to my own desire, you have honored me twice in succession, I have only to express my regret that the pressure of other duties has prevented me from devoting more time to the interests of this Society, and my earnest wish that its prosperity in the past, and more especially since it entered on an enlarged career of usefulness in its new building, may prove an earnest of still greater success in the future.

The Chairman of the Council (Mr. A. Rimmer) then submitted the following:—

#### REPORT OF THE COUNCIL.

Your Council beg to offer the following report of the proceedings of the past year. They regret to say that even the Society has not been quite free from the effects of the general commercial depression. The number of new members is fourteen, but on the other hand there have been many resignations. The list of members has not been revised for some years, and on careful scrutiny several names have been removed, of whom many have long ceased to belong to the Society.

The debt upon the building is still \$2400, bearing annual interest. The number of ordinary members is about 220, which should represent an income of about \$880; and two new life members, H. Fraser, Esq. and John Molson, Esq., have been added.

This is, of course, exclusive of the government grant, which has not been received so far, but your Council have every reason to believe it will be when Parliament meets. We are again indebted to our treasurer, James Ferrier, Esq., for the liberality with which he has come forward and advanced money to liquidate the more pressing claims. The Society owes him now \$190, and the other claims against it are about \$300 for current expenses. Mr. Ferrier, by a system of cash payment for advertising, printing, and other items, has been able to reduce the expenditure from \$2100 to \$1700. The price charged for letting the lecture room has been reduced to \$6, and for the use of the library to \$2 per evening.

Your Council would suggest, as a means of improving the income of the Society, that a new class of members might be introduced,—non-resident paying members, who might have all advantages of the Society when they visit the city; and as they cannot attend our meetings, a copy of the Naturalist might be sent to their address. This would also give us the advantage of being in constant communication with the residents of country places, from whom specimens of interest to the Society might be procured.

#### PUBLIC LECTURES.

The Somerville lectures this year have been extremely interesting; their subjects were as follows:

February 16th, 1865. On the Oldest Fossil known and its living representatives: by Principal Dawson, LL.D., F.R.S., &c.

March 2nd, 1865. On the Occurrence of Metals in Nature: by Dr. T. Sterry Hunt, M.A., F.R.S., &c.

March 9th, 1865. Shells, considered from a popular and from a literary point of view: by J. F. Whiteaves, F.G.S.

March 16th, 1865. On Ferns: by D. R. McCord, B.A.

March 21st, 1865. On Certain Chemical Manufactures which might be advantageously introduced and carried on in Canada: by Prof. Bell, F.G.S.

March 28th, 1865. On Combustion, illustrated with experiments: by Dr. Girdwood.

#### CONVERSAZIONE.

The Annual Conversazione of the Society was held on the evening of February 21st, and was unusually successful, upwards of 400 persons being present.

Messrs. F. Cundill, A. S. Ritchie, Jas. Ferrier, Jun., Thos. Rimmer, D. R. McCord, and Principal Dawson, kindly contributed and exhibited microscopes and microscopical preparations. Principal Dawson exhibited De La Rue's photographs of the moon and many examples of Eozoon Canadense. Mr. D. R. McCord contributed his fine collection of Canadian ferns, and Mr. R. J. Fowler, a very meritorious series of drawings of Canadian fishes. Mr. J. F. Whiteaves exhibited a collection of the eggs of North American birds, and many rare and interesting exotic shells. Experiments shewing the rotation of the earth on its axis were conducted and explained by Dr. Smallwood. Illustrations were given of the working of the Electric Telegraph, and of the Montreal Fire Alarm Telegraph. The band of the 63rd regiment was in attendance, by permission of the commanding officer, Col. Carter. During the evening an address was delivered by the President, Principal Dawson. Notwithstanding the low charges for admission, the sum of \$66.05 was realized, after paying the necessary expenses.

#### MISCELLANEOUS.

It is a matter of congratulation that we have secured the services of Mr. Whiteaves for two years longer, commencing from the first of April, 1865, at a salary of \$400 per annum; and for this sum he undertakes to edit the Naturalist, if necessary, to conduct the correspondence, and to act as sub-Librarian.

An alteration was made in September, as to the place where the ordinary meetings are held, and they have been transferred from the library, which was too small, to the lecture room; and your Council congratulate you that the accommodation is sufficient not only for the ordinary members, but for their friends, who are at all times invited to attend.

Mr. Whiteaves will give, in his capacity of curator and sublibrarian, an account of the alterations in and additions to the museum and library. Your Council respectfully urge upon their successors the desirability of adding to our members as far as possible. There are so many advantages that we can offer to the public, and such facilities afforded for studying Natural History in the city and its vicinity, that we believe the Society requires to be more generally known than it is at present. There are many inhabitants of Montreal who never saw the inside of the museum; and it might be worth while to consider how far it could be thrown open to the public on certain occasions, free of charge, as is done in kindred institutions in Great Britain.

They are also, in conclusion, glad to find that more enlightened views are prevalent with regard to the protection of small birds; this is partly owing to the representations made by our Society, and in part to the efforts of the Fish and Game Protection Club, with whom we cannot too cordially co-operate.

Mr. Whiteaves then read an account of the work done in the Museum during the past year, and made a short report on the state of the Library, both of which are subjoined.

## REPORT OF THE SCIENTIFIC CURATOR AND SUB-LIBRARIAN

FOR THE SESSION 1864-65.

The most important work of the past summer has been the formation of a good entomological collection. Nearly all the old Canadian specimens which had become injured, and faded by exposure, have been replaced by fresh examples. By the exertions of friends our local collections have more than doubled lately; not only have we filled the twenty-six drawers of our cabinet, but we have four cases full over and above these. As much has been done in the way of naming and classifying our specimens as the present state of our knowledge of Canadian insects warrants. The Coleoptera and the diurnal Lepidoptera are for the most part named. Many of the nocturnal Lepidoptera and most of the Hymenoptera, Diptera, Neuroptera, Orthoptera, and Hemiptera of this country have yet to be determined. It is hoped that with the assistance of the Entomological branch of our Society, some steps may be taken in this direction. The large and interesting collection of minerals contained in the museum has occupied a considerable portion of my time. A number of cases that have not been opened for years, have been unpacked, and their contents carefully looked over-Several specimens that were missing in Dr. Holmes' collection, have been restored to their place, and labelled. Including these, and several specimens placed in this collection for the sake of comparison, the series now consists of upwards of 1400 specimens from various parts of the world, all of which are carefully labelled. A collection of Canadian rocks and minerals has been formed to illustrate the prominent features of the lithological part of Canadian geology. A number of new specimens has been procured, and about 200 rocks and minerals are now named and exhibited. Two packages were found to contain a series of the rocks, lavas, and other minerals of Vesuvius and its neighborhood, a collection of great interest, and containing many fine specimens. The labels attached to these were written in Italian, and thus incorrectly spelt. Signor de Angelis, who has lived many years in the immediate neighborhood of Vesuvius, has kindly helped me to identify the exact localities of the specimens, and Dr. Hunt has determined some of the more difficult minerals. The set consists of about 380 specimens, all of which are now labelled and exhibited. These two last collections, which have never been exposed to view until now, occupy one of the new cases which were got last winter. A number of miscellaneous minerals of interest have been labelled and placed temporarily in the case in the aquaria room. The number of specimens labelled is about 165. A great many duplicates and worthless specimens have been selected and put away. The number of specimens of rocks and minerals that are now named and exhibited in the museum may be approximately summed up as follows:

Dr. Holmes' Collection, with additions, over	1400	specimens.
Canadian Rocks and Minerals	200	"
Rocks and Minerals of Vesuvius	370	Ct.
Miscellaneous do	165	16

In all upwards of...... 2139 specimens.

Some 500 or 600 specimens remain without any locality, they are mostly duplicate examples, and are in some cases undetermined.

The second new case has been entirely devoted to our collection

of fossils. The old series was totally un-named and devoid of any attempt at arrangement. Many new specimens have been added during the past session. Dr. Dawson has contributed several Devonian, Carboniferous and Post Tertiary species, Prof. Dana some Carboniferous and Cretaceous forms; and during last summer I received several donations to this part of our collection from various friends in the United States. The local fossils of the neighborhood of Montreal I have collected in person: most of these will be found in the collection. To Mr. Billings I am indebted for the determination of the Silurian and Devonian species, and to Principal Dawson for the nomenclature of the Carboniferous fossils; those of the Mesozoic and Tertiary periods were determined by myself.

The following is an estimate of this branch of our Collection.

Lower Silurian	61 s	pecies.
Middle "	23	"
Upper "	1	"
Devonian	31	66
Carboniferous	57	"
Lias	21	"
Oolite	42	"
Cretaceous	30	
Tertiary	12	"
Post Tertiary	36 .	"

In all about 314 species.

The Polyzoa or Bryozoa of the Gulf of the St. Lawrence have been determined by Principal Dawson, and may now be conveniently studied. The Annelida, from the same district, have also been classified and named. The synonyms of the Canadian species of reptiles and fishes have been studied, and printed labels have been attached to the specimens. A few of our foreign birds have been determined and named. During the past summer several additions have been made to our collection of shells and radiates: these have been named and incorporated with the general series. During the past winter the making arrangements for the Somerville course of lectures has devolved upon me. These I have either reported from notes taken during the evening, or when this has not been the case, care has been taken that reliable abstracts should appear in the daily press. It is hoped that the

series as a whole has not proved inferior in point of interest to those of past years.

During the month of April, 1865, I have devoted some time to the library, having been appointed Sub-librarian on the first of that month. My object during that time has been to see how far complete are our sets of those journals, which we should receive in exchange for the Canadian Naturalist. Most of these are very incomplete, as the following statement will show. The list includes not only the numbers or volumes we possess, but those also which are wanting to complete our sets.

#### CANADA AND BRITISH NORTH AMERICA.

The Canadian Naturalist and Geologist. Montreal. Dawson Brothers.

Complete up to the present date, with the exception of the first volume.

The Canadian Journal. Toronto.

Vol. for 1852-3 inclusive, bound.

Vols. 1-3 inclusive bound, 1856-1858 inclusive.

Unbound: Vol. 4. 1859. Complete, except No. 19.

" Vol. 5. 1860. Complete.

Vol. 6. 1861. Nos. 35 and 36 missing.

Vol. 7. 1862. Nos. 37 and 41 missing.

Transactions of the Literary and Historical Society of Quebec.

Vols. 1 & 2 bound.

Unbound: Vol. 3. 1832. Parts 1 and 4. Parts 2 and 3 missing.

" Vol. 4. 1855. Parts 3 and 4 with Supplement. 1-2 missing.

" Vol. 5. 1862. Part 1.

" New series. Vol. 1. Parts 1 and 2. 1863-1864.

Annals of the Botanical Society of Canada. Kingston.

Vol. 1. Parts 1 and 2 received. 1860-1861. Part 3 and Supplement wanting.

Journal of Education for Lower Canada. Montreal.

Unbound: Vol. 1. 1857. Complete.

Vol. 2. 1858. Complete.

" Vol. 3. 1859. No. 11 missing.

" Vol. 4. 1860. No. 11 missing.

" Vol. 5. 1861. Nos. 1, 4, 6, and 7 missing.

Unbound: Vol. 6. 1862. Nos. 11 and 12 missing.

" Vol. 7. 1863. Nos. 2, 3 and 13 missing.

" Vol. 8. 1864. No. 8 missing.

" Vol. 9. 1865. 1, 2 and 3 received.

Journal de L'Instruction Publique. Montreal.

Unbound: Vol. 1. 1857. Complete.

" Vol. 2. 1858.

Vol. 3. 1859.

" Vol. 4, 1860.

Wol. 5. 1861. Nos. 1, 7 and 12 missing.

Vol. 6. 1862. No. 4 missing.

" Vol. 7. 1863. Nos. 2, 3, 5, 6, 7, 8, 9 and 10 missing.

66

Vol. 8. 1864. Nos. 2, 3, 9, 10, 11 and 12 missing.

Journal of Education for Upper Canada. Toronto.

Vols. 2 to 5 inclusive received. 1849 to 1852.

Journal of the Board of Arts and Manufactures of Upper Canada.

Vol. 1 and 2 bound.

Vol. 3 complete.

Vol. 4. Nos. 3, 5 and 11 missing.

Vol. 5. 1865. Nos. 1 to 5 missing.

Transactions of the Nova Scotia Institute of Natural Science. Halifax, Nova Scotia.

Vol. 1. Part 1. 1863.

Vol. 2. Part 1. 1864.

#### UNITED STATES.

The American Journal of Science and Arts. Newhaven.

1st. Series: 20 Vols 8vo. Complete and bound.

2nd. Series: Vols. 1 to 35 inclusive. Complete and bound.

Unbound: Vol. 36. 1863. Complete.

" Vol. 37. 1864. Complete.

" Vol. 38. 1864. Nos. 113 and 114 missing.

Vol. 39. 1865. Nos. 115 and 116 received.

Proceedings of the Academy of Natural Sciences, of Philadelphia. Unbound: Vol. for 1857-58. Pages 1-16 inclusive, & 73-176 do., missing.

"Vol. for 1859. Pages 1-108 inclusive, and 132-286 do. missing.

Vol. for 1860. Pages 361-412 inclusive, missing.

Unbound: Vol. for 1861. Pages 65-120 inclusive, 257-328 do., and from page 385 to the end of the volume, missing.

" Vol. for 1862. Parts 7 and 8 wanting.

Wol. for 1863. Complete.

" Vol. for 1864. Complete.

#### Proceedings of the Boston Society of Natural History.

Vols. 1, 2 and 3, complete and bound. 1848-1851.

Unbound: Vol. 4. 1851-54. Pages 81-128, inclusive, 193-224 do., 241-256 do., 305-336 do., and 353 to 401 do., missing.

" Vols. 5 and 6 wanting.

Wol. 7. 1859-61. Pages 1 to 64 inclusive, 129 to 160 do., 257-288 do., 353-384 do., missing.

Vol. 8. 1861-62. Pages 33 to 96 inclusive, 161-256 do., missing.

Vol. 9. 1862-63. Pages 305 to the end of the volume, missing.

#### Annals of the Lyceum of Natural History of New York.

Vol. 1. missing.

Vol. 2. Complete and bound.

Vol. 3. 1828-36. Nos. 1, 2, 3 and 4 received. The rest wanting.

Vol. 4. 1837-38. Complete, unbound.

Vol. 5. 1850-52. No. 1 wanting, all the rest received.

Vol. 6. 1853-57. Complete and bound.

Vol. 7. 1858-62. Complete, unbound.

Vol. 8. 1863. One number received.

# Proceedings of the Portland (Maine) Society of Natural History. Vol. 1. Part 1 and Supplement, 1862: Received.

vol. 1. Part I and Supplement, 1862: Received.

Journal of the Portland Society of Natural History.

Vol. 1. No. 1. 1864. Received.

## Transactions of the Academy of Science of St. Louis. (Missouri.)

Vol. 1. 1857 to 1860 inclusive. Complete, unbound.

Vol. 2. 1863. Only No. 1 received.

## Proceedings of the Entomological Society of Philadelphia.

Vol. 1. 1861-63. 9 (out of 10) numbers received. No. 2 wanting. (After this date (1863) the Ent. Society decline making any further exchanges of, or for, its Journal.) Historical collections of the Essex Institute. Salem, Massachussetts.

Vols. 1 and 2. 1859 and 1860. Complete and bound.

Vols. 3-5 inclusive. 1861-1863. Complete, unbound. Vol. 6, 1864. Nos. 1, 2 and 4 received. No. 3 wanting.

Journal of the Franklin Institute of the State of Pennsylvania.

Vols. 31 to 34 inclusive. 1858-1861. Complete and bound.

Vol. 42. 1861. Complete, unbound.

Vol. 43. 1862, Nos. 3 to 6 inclusive. Nos. 1 and 2 not received.

Vol. 44. 1862. Complete and bound.

Unbound: Vol. 45. 1863. No. 6 missing.

" Vol. 46. 1863. Complete.

" Vol. 47. 1864. No. 3 missing.

Vol. 48. 1864. Complete.

" Vol. 49. 1865. Nos. 1, 3 and 4 received. No. 2 wanting.

The Historical Magazine, and Notes and Queries concerning the Antiquities and Biography of America. New York.

Unbound: Vol. 5. 1761. Nos. 1, 2, and 5 to 12 inclusive, wanting.

" Vol. 6. 1862. Nos. 3 and 4 wanting.

" Vol. 7. 1863. Nos. 1, 4, and 6 wanting.

" Vol. 8. 1864. Nos. 6-12 inclusive, wanting.

Proceedings of the American Antiquarian Society. Boston.

Nos. for 1860, 1863 and 1865 received. Those for 1861 and 1862 wanting.

Proceedings of the American Academy of Arts and Sciences. Boston and Cambridge.

Vols. 1. to 4, May 26, 1846, to May 8, 1860. Complete and bound. Unbound: Vol. 5. 1860-61. Pages 241 to 312 inclusive, missing.

"Vol. 6. 1862-64. Pages 1 to 340 inclusive, received.

Proceedings of the American Association for the advancement of Science.

Vols. for 1858 and 1860. Unbound.

Transactions of the Albany Institute.

Vol. 1. 1830. Complete and bound.

Vol. 4. 1858-1864. Complete, unbound.

#### GREAT BRITAIN.

### Edinburgh New Philosophical Journal.

Vols. 1 to 15 inclusive, 1819 to 1833. Complete and bound.

Unbound: Nos. 32 to 39 inclusive, received. No 40 wanting.

Nos. 41 to 54 inclusive, received. Nos. 55, 56 and 57 wanting.

Nos. 58 to 61, received. Nos. 62 to the end of the first series wanting.

#### New Series.

Unbound: Nos. 9 to 12 inclusive, received. Nos. 1-8 missing, also Nos. 13 to 20, inclusive.

Nos. 21-29 inclusive, received. No. 30 missing.

Nos. 31-38 inclusive, received. Up to April, 1864.

### Proceedings of the Geological Society of London.

Vols. 2, 3 and 4. 1833 to 1844. Complete and bound. Vol. 1 wanting.

## Quarterly Journal of the Geological Society of London.

Nos. 65 to 81, received, except No. 72, which is wanting. 1861-1865. Unbound.

#### The Natural History Review. London.

Unbound: Vol. 4. No. 4 received. Nos. 1, 2 and 3 wanting.

Vol. 5. Nos. 1, 3 and 4 received. No. 2 wanting. 66

Vol. 6. No. 4 received. Nos. 1, 2 and 3 wanting.

Vol. 7. Complete and bound.

Vol. 8. No. 4 received. Nos. 1, 2 and 3 wanting.

## The Quarterly Journal of Science. New Burlington St., London.

Nos. 5 and 6 received. Jan. and April, 1865. Nos. 1 to 4 inclusive, wanting.

## The Popular Science Review.

No. 15 only received. April, 1865.

## Journal of the Proceedings of the Linnæan Society. London.

Zoology. Vol. 5, 1861. Complete and bound. 66 66 66 Botany.

Unbound: Zoology. Vol. 6. 1861-62. Complete.

Botany. Vol. 6. 1861-62. 66

Zoology. Vol. 7. 1863. Complete.

66 Botany. Vol. 7. 1863.

Zoology. Vol. 8. 1864. No. 29 received.

Botany. Vol. 8. 1864. No. 30 received, No. 29 wanting.

Hooker's Journal of Botany and Kew Garden Miscellany.
5 Henrietta St., Covent Garden, London.

Nos. 30 to 56 inclusive, received. June 1851 to September 1863. Unbound.

Proceedings of the Royal Physical Society of Edinburgh.

1858-1861. 1 Vol. 8vo., unbound.

1861-1862. 1 Vol. 8vo., unbound.

Proceedings of the Dublin University Zoological and Botanical Association. Dublin University Press.

Vol. 1. Part 3, (Nov., 1859) received, the rest wanting. Vol. 2. Part 1 (Nov., 1861) received only.

Proceedings of the Natural History Society of Dublin for the session 1862-63.

Vol. 4. 1864, Part 1 only received.

Journal of the Geological Society of Dublin.

Vol. 10, 1862-64. Parts 1 and 2.

Transactions of the Tyneside Naturalists Field Club.

Newcastle upon Tyne.

Vol. 5. 1861-63. Parts 2, 3 and 4 received. Part 1 wanting.

Vol. 6. 1863-64. Parts 1 aad 2 received.

Journal of the Society of Arts and of the Institutions in union.

London.

Vol. 4. 1855. Nos. 161 and 188 only received, the rest wanting.

Vols. 5 and 6. No numbers received.

Vol. 7. 1859. Nos. 351 to 355 inclusive, received. "The rest wanting. Vol. 8. 1860. Nos. 385 to 390 inclusive, 392 to 396 do., 407 to 409 do., and Nos. 415 and 417 received.

Vol. 9. 1861. Nos. 426,-429 to 432 inclusive, 434 to 436 do., 439 to 443 do., Nos. 446 to 460 do., 462 to 469 do., rec'd.

Yol. 10. 1861-62. Nos. 470 to 474 inclusive, 481 to 491 do., 493 to 498 do., Nos. 500 to 521 do., received.

Vol. 11. 1862-53. Nos 522 to 529 inclusive, 531 to 5361do., 538 to 540 do., 543 to 547 do., 550 to 572 do., and No. 574, received.

Vol. 12. 1863-64. Nos. 579 to 581 inclusive, No. 584, Nos. 587 to 589 inclusive, 591 to 593 do., No. 596, No. 602, No. 609 and 611 to 925 inclusive, received.

Vol. 13. 1864-65. Nos. 627 and 628, Nos. 630 to 638 inclusive. Nos. 643 and 644, and No. 648 received.

The Technologist. A monthly record of Science applied to Art,
Manufacture and Culture. Kent & Co., Paternoster Row,
London.

Vol. 1. 1860. No. 7 only received.

Vol. 2. 1861. Nos. 1, 15, 16, 22, 23 and 25, received.

Vol. 3. 1862. Nos. 22 to 28 inclusive, received, No. 29 missing, Nos. 30 to 36 inclusive, received.

Vol. 4. 1863-64. Nos. 37 to 40 inclusive, received, No. 41 wanting, No. 42 received, 43 wanting, and Nos. 44 to 48 inclusive, received.

Vol. 5. 1864-65. Nos. 49 to 54 inclusive, received; No, 55 wanting, No. 56 received.

The Geologist. An illustrated Magazine of Geology, Palæontology, and Mineralogy. London: Lovell, Reeve & Co., Henrietta St., Covent Garden.

Vol. 1. No Numbers received.

Vol. 2. 1859. Nos. 17, 50, 21 and 22 received.

Vol. 3. 1860. Nos. 28, 29 and 35 received.

Vol. 4. 1861. Complete, with supplements.

Vol. 5. 1862. Nos. 49, 51, 54, 55, 57, 58 and 59 received.

Vol. 6. 1863. Nos. 63, 65, 68 and 70 received.

Vol. 7. 1864. Nos. 74, 76, 77 and 78 received.

The Zoologist. A Popular Magazine of Natural History. Jno. Van Voorst, Paternoster Row, London.

Nos. 217 to 229 inclusive, received. June 1860-April 1861.

The Naturalist. Journal of the West Riding Consolidated Naturalists Society and Manual of Exchange in all departments of Natural History. London, Manchester, and Hudderfield.

The first 18 numbers. May 1, 1864 to Jan. 15, 1865. Presented by the Society.

#### CONTINENT OF EUROPE.

Memoires de l'Académie des Sciences, Arts et Belles-lettres de Dijon.

2nd. Series. Vols 1-9 inclusive, unbound. 1851 to 1861.

Bulletin de la Société Impériale des Naturalistes de Moscou. Vol. for 1863. Parts 1 and 2 received.

Jahrbuch der Kaiserlich-Koniglichen Geologischen Reichsanstalt.

Vols. 1, 2, and 3, complete, 1850-52. Vols. 7 to 10 inclusive, 1856 to 1859. Complete. Vol. 11, 1860. 2 Nos. missing.

Vols. 12 and 13, 1861-62 and 1863. Complete. And No. 1 of Vol. 13, 1864.

Mittheilungen der Kaiserlich-Koniglichen Geographischen Gesellschaft. Vienna.

Vol. 1. 1857. Parts 1 and 2.

Vol. 2. 1858. Parts 1, 2, and 3.

Vol. 3. 1859. Parts 1, 2, and 3.

Vols. 4, 5, and 6 for 1860-1863 inclusive. Each complete in one part.

Zeitschrift der Deutschen geologischen Gesellschaft. Berlin. Vols. 1 to 15 inclusive. 1858 to 1664. Complete, unbound and 2 Nos. of Vol. 16, 1664.

Sitzungsberichte der königl. bayer. Akademie der Wissenschaften zu Munchen. Munich, Bavaria.

Vols. from 1860 to end of 1863 inclusive. Complete, unbound.

2 first parts of 1864.

(And a quantity of quarto pamphlets taken from the above.)

Schriften der Königlichen Physikalisch-Okonomischen Gesellschaft du Konigsberg.

Unbound: 1860. Part 1.

1861. Parts 1, 2, and 3.

1862. Parts 1 and 2.

Der Oberhessischen Gesellschaft für Natur und Heilkunde. Giessen.

October, 1855. June, 1857.

January, 1859.

Nyt Magazin for Naturvidenskaberne. Udgives af den Physiographiske Forening i Christiania ved M. Sars and Th. Kjerulf.

1863. 1 Part.

1864. 2 Parts.

Fordhandlinger i Videnskabs-Selskabet i Christiania.
1859 to 1864 Vols. inclusive. Unbound.

Öfversight af Kongl. Vetenskaps-Akademiens Förhadlingar. Part 19. 1862.

Kongliga Svenska Vetenskaps-Akademiens Handlinger. Quarto. 1861.

From the above detailed account it will be seen how irregularly the exchanges for the Naturalist have been received. Efforts will be made to procure the missing numbers, and to complete the Society's sets. It is hoped, that with attention and care, the library may be made more valuable to students, and more available for reference. Since the first part of this report was in type, application has been made, and all the missing parts of the Boston Journal of Natural History have been received.

The Treasurer of the Society, Mr. Jas. Ferrier, jun., then gave an account of the financial position of the Society, showing what had been its receipts and expenditure during the past session. The details will be found on the other side.

THE NATURAL HISTORY SOCIETY OF MONTREAL IN ACCOUNT WITH JAMES FERRIER, JUN., TREASURER. DR.

1864.	RECAPITULATION.			1865.	RECAPITULATION.		
May 1.				May 1.			
To cash be 1865. May 1. To Cash p	paid, Printing.  "Furniture, cases, &c. "Sundry petty charges, repairs, &c "P. O. accts. "J. F. Whiteaves, salary. "W. Hunter, salary. "W. McCormick, commissions. "Wood and coals. "Gas accounts. "Water " City taxes.	\$ 15 309 70 51 12 350 200 34 165 21 40 40	38 00 65 90 00 30 49 08 65		Government Grant Members' yearly subscriptions Life member's subscription, H. Fraser, Esq. Museum entrance fees. Rent of Lecture Room Donation from Captain Serocold, Proceeds Conversazione Balance due Treasurer	36 26 5	00 00 00 00 00 05
"	"Insurance	34					
	" Interest	\$1424	_			\$1424	8

 It was moved by the Right Rev. the Lord Bishop, and unanimously resolved:

That the special thanks of the Society be voted to the President of the past session for his valuable services during that time.

A vote of thanks to the other officers of the past year was also unanimously carried.

The following gentlemen were elected as officers of the Society, for the coming session.

#### OFFICERS FOR 1865-66.

President.—C. Smallwood, M.D. LL.D., D. C. L.

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# LIST OF DONATIONS TO THE MUSEUM. From June 27th, 1864, to May 18th, 1865.

N.B.—The dates refer to the meetings of the Society, at which the specimens were presented.

Donors' Names.	Donations.
* NO. 10. 10. 10. 10. 10. 10. 10. 10. 10. 10	June 27th, 1864.
Mr. W. Hunter	The Maryland Yellowthroat. (Geothlypis
	trichas, Linnæus:) Stuffed specimen of the English Ferret.
E. E. Shelton, Esq	Coral from the West Indies, species of Maan- drina?
The Corporation	Specimen of the Common Seal. (Phoca vitulina, Linnæus.)
	Linneus.)
	September 26th, 1864.
C. Hart, Esq	A small collection of Marine Algæ from Portland, Maine; and 3 species of exotic shells.
	Specimen of Red Coral.
	4 Concretions, from Lake Champlain.
C. Foley, Esq	A series of Canadian Insects, consisting of 14 species of Coleoptera.
	13 "Hymenoptera.
	22 " Lepidoptera.
	6 "Neuroptera.
	Specimen of the Star-nosed Mole. (Condylura cristata, Linnaus.)
R. J. Fowler, Esq	
	mens).
	1 Phylloptera oblongifolia.
Prof. Dana, (New Haven, Conn.)	
ven, conn.)	2 Cretaceous Species from Lebanon, Syria.
	5 Species of Marine Shells, from Key West.
	3 " Exotic Shells.
E. Seymour, Esq., (N.Y	.) Slab of White Chalk containing Fossil Fishes,
Dr. Hubbard, (Staten	from Lebanon, Syria. 2 Species of Echinoderms, from Florida.
Island, N.Y.)	
	of the United States.
Taba D Conde D	2 Species of U. S. Fossils.
John B. Goode, Esq	Series of Canadian Insects, as follows: 77 Species of Lepidoptera.
	8 "Neuroptera.
	1 "Diptera.
	1 "Aptera.

Donors' Names.	Donations.
(Silanting vans	September 26th, 1863. (Continued.)
Mrs. J. J. Jones  Mr. W. Hunter  James H. Rankin, Esq., (Brompton, C. E.)  Jas. Donnelly, Esq  W. H. M. S. D'Urban, Esq., (through the Geol. Survey)	Specimen of the "Walking-Stick" Insect. (Spectrum femoratum, Say.) Stuffed example of the "Black-throated Green Warbler." (Dendroica virens, Baird.) Stuffed example of the "Blackburnian Warbler." (Dendroica Blackburnia, Baird.) Two living specimens of the "Wood Terrapin." (Glyptemys insculpta, Leconte.) A "King" Crab. (Limulus Polyphemus.) About 400 Species of British Coleoptera, partly named.
	October 24th, 1864.
Mrs. (Neill) McIntosh	22 Specimens of Fossil Plants (named), from the Coal Measures of Nova Scotia.  Series of Post Pliocene Fossils (23 Species), from Ottawa, Montreal, and Rivière-du-Loup.  Columnaria alveolata, from the Black River Limestone of Burgess, C. W.  Specimen of Diallage, from Brompton, C. E. Antimony, native and manufactured, from South Ham.  A quantity of Living Fishes for the Aquaria.  Stuffed example of the Night Heron. (Nyeti-ardea Gardeni, Baird.)
	November 28th, 1864.
P. Kutzing, Esq  Jas. Ferrier, jun., Esq  Moore, Esq	<ul> <li>5 Species of recent Shells, from the W. Indies. Feetal Monkey, from Australia.</li> <li>1 Spoon and 2 Antique Rings, both dug up at Cacouna.</li> <li>49 Species (82 Specimens) of Canadian Lepidoptera. (Butterflies and Moths.)</li> <li>The Spruce Partridge, or Canadian Grouse. (Tetrao Canadensis, Linnæus.)</li> <li>A quantity of Live Fishes for the Aquaria.</li> <li>Specimen of the American Woodcock. (Philohela minor, Gray.)</li> </ul>
Rev. A. DeSola, LL.D	Live Gar Pike (Lepidosteus) for the Aquarium.

Donors' Names.	Donations.
G. Barnston, Esq Mr. W. Hunter	November 28, 1864. (Continued.)  Stuffed example of the "Painted Bunting" (Plectrophanes pictus, Swainson), from the plains of the Saskatchewan.  Two fine Black Squirrels (Sciurus Carolinensis, variety niger), from Brockville, C. W.  December 27th, 1864.
Dr. Wolff, (Quebec) Thos. White, Esq P. Kutzing, Esq H. B. Small, Esq	Lake Superior. Snuff-box made from wood taken from the Royal George.
C. Foley, Esq	6 Species of Canadian Hymenoptera, and one of Diptera. 18 Species of British Hymenoptera. 22 Species of Coleoptera (Beetles), from Washington, South Carolina, and California. Crystal of Amethystine Quartz, from Thunder Bay, Lake Superior. The Mottled Owl. (Scops asio, Bonaparte.) The Cape May Warbler. (Dendroica tigrina, Baird.) Cooper's Hawk. (Accipiter Cooperi, Bonaparte.) 7 Species of Coleoptera (Beetles), from the Island of Montreal. 8 Species of Lepidoptera (Moths), from the Island of Montreal. 9 Species of Diptera (Flies), from the Island of Montreal. 9 Species of Hymenoptera, from the Island of Montreal. March 6th, 1865.
Capt, P. R. Fortin	Skin of the Gannet (Sula bassana, Brisson), from the Bird Rocks on the Magdalen Islands; also, skin of the Puffin (Mormon arctica, Illiger), from Bras d'or.

Donors' Names.	Donations.
A. S. Ritchie, Esq	Fine Specimen of the rare "Cinereous Owl"
and the terrority, may	(Syrnium cinereum, Audubon), shot on the
Daniel Hedenick Street	Island of Montreal.
Principal Dawson	21 Species of Fossils, from the Carboniferous
John Swanston, Esq	Limestone of Ireland and Nova Scotia. 4 Coins. 1 Centesimo, Tuscany; 1 Skilling
sing a hear there was	Danske; 1 Silver piece from Sweden; and 1
John Dinner Day	do., from Schleswig-Holstein.
John Finney, Esq	1 Italian (Silver) Coin. 5 Soldi.
	March 27th, 1865.
Horace S Smith Esa	A Series of Insects from Canada and Prince
more of Dillion, Esq	Edward's Island.
	Williams the state of the Second Add Second
	April 24th, 1865.
Jas. Radford, Esq., (Ta-)	3 Varieties of the Brook Trout (Salmo fontinalis)
doussac.)	from inland lakes at the back of Tadoussac.
	TOTAL STREET, ST.
	May 29th, 1865.
H. Laggatt, Esq	Series of Precious Stones, as follows:
	1 Agate, from Lake Superior.
	3 Moss Agates, from Egypt.
	3 Varieties of Cornelian. 2 Scotch Pebbles (cut and polished).
	1 Onyx.
A. C. Samsay L. for 1804.	1 Cat's Eye, from Ceylon.
	2 Amethysts.
tince of New Brunswick,	1 Oriental Amethyst. 4 Chrysoprases.
My T and and the same of the same	2 Specimens of Sardonyx.
o e de Camparine a con	1 Heliotrope, or Bloodstone.
Trustees of the Museum	1 Red Jasper.
dogy. Cambridge, 1503	1 Garnet.
gree one medical to ve	4 Rubies (uncut), from the East Indies.  1 Sapphire (uncut), from Ceylon.
by R. Howse and J. W.	2 Aquamarines.
to bull out to send I	3 Turquoises.
	1 Specimen of Lapis lazuli, or Lazulite.
at the same of the	1 Oriental Topaz.  Also, fine Cubes of Iron Pyrites, from Maine,
repeating in Doblin in	and Specimens of Jewellers Red Coral, from
the desired and me rade	the Pacific.
C. Foley, Esq	American Crow. (Corvus Americanus, Audu-
0.10.0), 204	bon.)

Donors' Names.	Donations.
- Dunn, Esq., (Cote St. Paul)	Night Heron. (Nyctiardea Gardeni, Baird.) Bull Frog. (Rana pipiens, Linnæus.) Jumping Mouse. (Jaculus Hudsonicus, Zimmerman.) Swamp Sparrow, male. (Melospiza palustris, Baird.) Nashville Warbler, female. (Helminthophaga ruficapilla, Baird.); and a male Bay-winged Bunting. (Poocætes gramineus, Baird.)

## J. F. WHITEAVES, F.G.S., Scientific Curator, N. H. S.

Donors' Names.	Donations.
Royal Academy, Stock-	Crustacea decapoda podopthalma marina Sue- ciœ, interpositis speciebus Norvegicis alius- que vicinis, enumerat, A. Goess. Stockholm.
The Author	Address of the President of the Geol. Society of London, (Prof. A. C. Ramsay), for 1864. Fourth Annual Report of the board of Agriculture for the Province of New Brunswick,
The Author	1864. Catalogue of N. American butterflies, by J. W. Weidemeyer.
The Trustees	Annual Report of the Trustees of the Museum of Comparative Zoology. Cambridge, 1863
The Authors	Synopsis of the Geology of Durham and part of Northumberland, by R. Howse and J. W. Kirkby.
The Author	On the direction and force of the Wind at Leopold Harbour, by the Rev. S. Haughton, M.D., F.R.S., &c.
on Profites, the Missier, the and the control of the first the control of the con	On the Rainfall and Evaporation in Dublin in the year 1860, by do.
- unit and a second	Experimental Researches on the Granites of Ireland: (Part. 3), by do. On the use of Nicotine in Tetanus, &., by do.

Donors' Names.	Donations.
The Author	Account of experiments made to determine
The Manor	the velocities of Rifle bullets commonly used,
	by do.
"	On the Phenomena of Diabetes mellitus, by do.
"	On the form of the cells made by various
EREL WITH DON LIE	Wasps and by the Honey bee, &c., by do.
nov .D. Cr. O att navi	Essay on Comparative Petrology, by M. J.
	Durocher, translated by Rev. S. Haughton,
Smithsonian Institute, ?	M.D., T.R.S., &c. Smithsonian Miscellaneous Collections. Vol. 5.
Washington	Smithsonian Contributions to knowledge.
Washing to account of	Vol. 13.
(	Record and Results of the Magnetic survey of
	Pennsylvania, &c., by A. D. Bache.
and the management of the	Discussions on the Magnetic and Meteorolo-
	gical observations made at the Girard coll.,
	Philadelphia, by A. D. Bache. Parts 2 and 3.
The Author	Nederlandsch Meteorol, Jaarboek. 1862. Animals of the North American Continent.
The Mathematical	Part 1, Mammalia. By H. B. Small.
Royal Academy, Munich	Die Geologie in ihrem Verhaltuisse Zu den
ST CONTROL OF THE PARTY	übrigen Natur-wissenschaften, &c. von Dr.
an execution beautiful and	Karl Schafhautl. 1843.
((	Andentungen Zur Characteristick des Orga-
	nischen lebens nach seinem Austreteten in
	den verschiedenen Erdperioden; von Dr. A. Wagner. 1845.
"	Denkrede auf Joseph Gerhard Zuccerini, &c.
	von Carl Friedr. Phil. von Martius. 1848.
tt.	Denkrede auf Johann Nepomut von Fuchs;
to building and the care	von Franz von Dobell. 1856.
oh mupiledieli meltr	Ueber Johannes Muller und sein Verhaltniss
	Zum jekingen Standpunknt der Physiologie; von Dr. Th. L. W. Bischoff. 1858.
46	Errinerung an Mitglieder der Mathematish—
	physikalischen classe der K. Bayr Akademie
	der Wissenschafter Eine Rede, &c., &c.
	von Dr. Carl Friedr. Phil. von Martius.
not result be completed for	Einleitende Morte Zur feier des Allerhochsten
	Geburtsfestes Sr. Majestat des Konigs Maximilian 2, &c. von Justus Freiherrn von
	Liebig. 1860.
the state of the s	Grenzen und Grenzgebiete der physiologischen
	forschung, &c. von Dr. E. Harlelz. 1860.
THE THE PERSON	Rede Zur vorfeier des Einhundert und Zweiten
	Stiftungstages der K. Akademie der Wissens-
	chaften; von Justus von Liebig. 1861.

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Royal Academy, Munich.	&c. von Dr. Andreas Wagner. 1861. Gedachtniszrede auf Friedrich Tiedeman, &c. von Dr. Theodor Ludw. Wilh. Bischoff. 1861. Denkrede auf John Andreas Wagner, &c. von Dr. Carl Friedr. Phil. von Martius. 1862. Uber Parthenognesis; von Dr. C. Th. G. von Siebold. 1862. Zum Gedachtniss an Jean Baptiste Biot; von Carl Friedrich Philipp von Martius.
Prof. A. Winchell The Author	Rede in der offentlichen Sitzung der K. Akademie der Wissenschaften am 28 Marz, 1863, &c. von Justus F. von Liebig. 1863. Geological Survey of Michigan, 1860. Notes on the Economic Mineralogy of Nova Scotia. Part 1; by Prof. How, Kings Coll., Windsor, N. S. On the Waters of the Mineral Springs of Wilmot, N. S.; by do.
C. Legge, Esq	Harbour improvements at foot of Lachine Canal, considered in a report addressed to the proprietors on Mill St.: by C. Legge, C. E. With two large colored Diagrams.
Stanley C. Bagg, Esq The Editor	Archeeologia Americana; by Stanley C. Bagg. Canadian Archeeology; by Stanley C. Bagg. The Constitution of the United States, edited by W. Hickey.
The Author	Nederlandsch Meteorol. Jaarboek. Utrecht. On Mordenite, a new mineral from the Trap of Nova Scotia; by Prof. How, D.C.L., &c. Annuaire de Ville Marie, origine, utilité et
consider Paralogia;	progrès des Institutions Catholiques de Montreal. Première année, 1863; par Ma- jor L. A. H. Latour.
Smithsonian Institute, Washington 5 The Author	Bi-monthly Report of the Agricultural Department. From Sept. 1864, to March 1865.  Embryology of the Starfish; by A. Agassiz. 1 vol. 4to. Plates.  Report of the Chief Commissioner of Mines for the Province of Nova Scotia, for the year
Royal Society, Christi-	1864. Om de Geologiske Forhold Paa Kyststrækningen af mordre Bergenhus Amt. Af M. Irgens og Th. Hiortdahl. 40. Christiania, 1864. Om Sneebræen Folgefon, af S. A. Sexe. 4th 1864.

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Royal Society, Christi-	Resultate Magnetischer, Astronomischer und Meteorologischer Beobachtungen, 1828-30.
to cension to complex?	Von Prof. Christoph. Hansteen and Lieut. Due, 4th Christiania 1863. Om det Syphilitiske Virus, af L. Bidenkap.
"	Christiania, 1863. Norges Fisterier af O. N. Loberg, Christiania,
dioles dioles	Egyptische Chronologie von J. Lichbein.
	Oversigt af Norges Echinodermer ved Dr
"	Michael Sars, Christiania, 1861. Supplementer til Dovres Flora, af F. Hoch, Christiania, 1864.
do vision " Society of	Smaatrek af Naturens Vexthusholding, for- nemlig indenden Norske Floras Gebel, af
sophionI Jeneral, Science, Loudon.	Beretning om det tongelige Selstab for Norges,
The Author	The Soils and Subsoils of Michigan, by Prof.  A. Winchell, 1865.
Lieut. Col. Wiley	On Selandria Vitis, as it occurs in Michigan, by Prof. Winchell. The Active or Volunteer Militia Force list of
	Canada. Quebec, 1863. The Annual Volunteer and Service Militia list
The Author	of Canada. Quebec, 1865. Observations on the Geology of Southern New Brunswick (with a Geol. map), by Prof. L. W. Bailey, M.D.
From the Publishers, in exchange for the Naturalist	Canadian Journal, Toronto.  Transactions of the Literary and Historical
	Society, Quebec.  Journal of the Board of Arts and Manufactures of Upper Canada.
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Joseph and Strateging and An	schaft, 1861 and 1862, (From the Geological
	Society of Berlin.) Mettheilungen der Kaiserlich-koniglichen Ge-
	ographischen Gesellschaft, Vienna. Sitzungsberichte der konigl, bayer Akademie
	der Wissenschaften Zu Munchen, Munich. Forhandlinger i Videnskabse Selskabet i
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from the Regents of	Annual Announcement.  Eupplement to the Catalogue of the New York
the N. York State	State Library.
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SMITH, S. HORACE STARNES, HY., M.P.P. STEPHEN, W. SUTHERLAND, DR. WM. SWANSTON, JOHN SWANSTON, THOMAS TEMPEST, JOHN THOMAS, HENRY THOMPSON, THOS. M. TIFFIN, Jos., JUN. TORRANCE, F. W. TRUDEAU, ALEXIS TYLEE, R. S. URQUHART, A. VENNOR, H. G. WALKER, ALEX. WALKER, WM. S. WATSON, WM. WATT, D. A. POE WHITEAVES, J. F. WHITNEY, H. H. WILKES, REV. H., D.D. WILLIAMSON, JAS. WINNING, PERCIVAL WINKS, G. WINTER, MATTHEW Wood, Rev. E. WOOD, A. S. WRIGHT, EDW.-224

### Konorary Members.

Jan.	5,	'54. O'Bryan Bellingham, M.D., Dublin.
Oct.	29,	'55. Sir Edmund W. Head, Bart
May	19,	'56. C. Smallwood, M.D., LL.DMontreal.
Sept.	29,	'56. Prof. James Hall Albany, N. Y.
		Prof. DunglisonPhiladelphia.
Oct.	26,	'63. Prof. Agassiz Cambridge, nr. Boston. U. S.
		Major General Sabine, LL.D., F.R.S., &c.

# Corresponding Members.

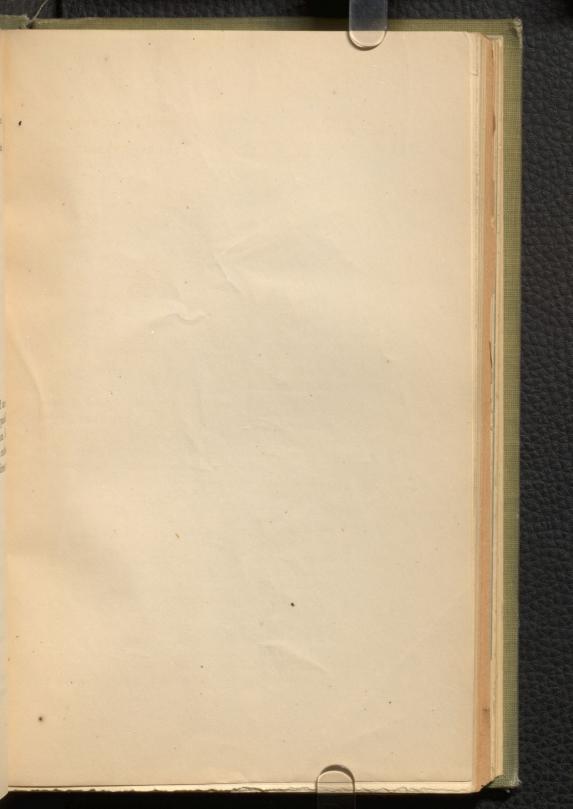
Aug. 26, '37. Dr. Sabourin United States.	
Sept. 29, '45. Major Kendall	
June 26, '46. Dr. W. Newcomb Troy, N.Y.	
June 25, '47. J. W. Leaycraft Quebec.	
Nov. 20, '47. Henry Holmes Croft, Profes-	
sor of Chemistry, Univer-	
sity CollegeToronto.	
April 24, '48. Major Lachlan Cincinnati.	
June 25, '49. Dr. John Hillier Blount Birmingham, Engla	nd.
July 30, '49. William Notman	
Jean Charles TachéQuebec.	
Charles Payn, M.D., United States.	
May 20, '50. T. McDonaldJamaica.	
Jan. 27, '51. Cecil Percival Stone	
April 25, '52. Samuel Kneeland, M.D., Boston, Mass.	
Aug. 30, Dr. Robert M. Huston Philadelphia, Penn.	
William Rogerson Royal Observatory,	Green-
wich.	
William Andrews Quebec.	
J. Adolphus ThurbergLouisiana.	
Sept. 8, '52. M. C. BrodieBeauharnois.	
E. A. H. AllenTroy, N.Y.	
Oct. 25, '52. Prof. Thos. McCullochTruro, N.S.	
Wm. Goodenough Wheeler.	
M.D.,	
Rev. William ScottSherbrooke, C.E.	
Nov. 29, '52. B. P. Johnson, Secy, Agric.	
SocietyNew York.	
Samuel Walker Roxbury, Mass.	
Hon, A. N. Morin, Quebec,	

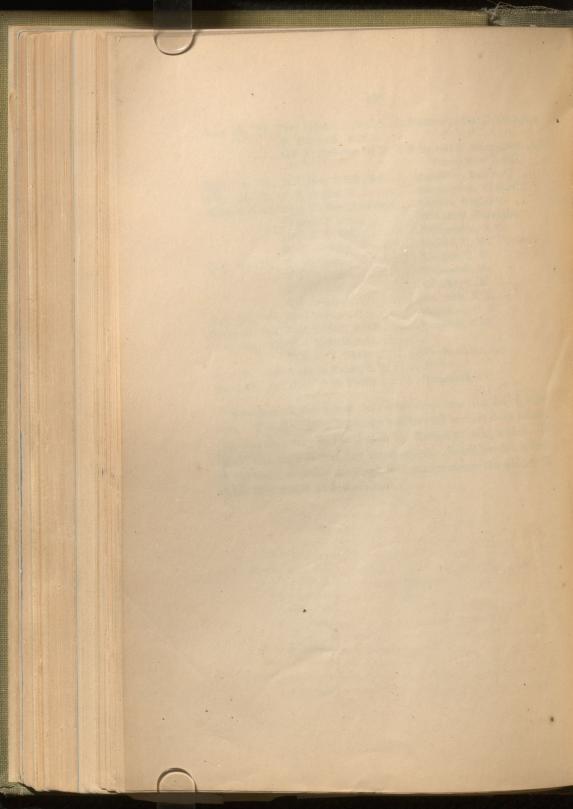
Sir John P. Boileau, Bart.,
F.R.SLondon.
John L. LeConte, M.D Philadelphia.
J. Eliot Cabot, Cor. Sec.
of the Boston Society of
Nat. History Boston, Mass.
John CassinPhiladelphia.
John Gundlach, M.D Cardenas, Cuba.
Professor W. Buckland Toronto.
Feb. 28, '53. Dr. Charles Huguet Latour .St. Rémi.
Dr. J. W. Salisbury Albany.
George Webber Breton Paris.
George Gephson RumleyDublin.
Archibald CameronPointe du Chêne.
March 28, '53. Hon. Jos. Cauchon, M.P.P. Quebec.
Benjamin Franklin Niles Washington, D.C.
Francis Markoe, JrWashington, D.C.
Samuel Dutton Guernsey.
H. ThielekeQuebec.
François Xavier Garneau Quebec.
Hon. Judge Laberge Three Rivers.
Rev. F. Pilote, College of
Ste. Anne de la Pocatière.
Dr. Théop. Huguet Latour. Boucherville.
Tandan England
April 27, '53 Vertue Edwards
Arthur Hill Hassall, M.D London.
Thomas Wakley, JrLondon.
Thomas wakiey, Jr London
William BellLondon. Philip Claiborne Gooch, M.D., Richmond, Va.
Col. Campbell, C.BSt. Hilaire.
Wielt M.D. Roston Mass.
Eben. Wight, M.DBoston, Mass. Alexander MurrayWoodstock, C. W.
Alexander Murray Woodseed, England.
July 26, '53. George G. FrancisSwansea, England. Geo. Prev. de BouchervilleSt. Hyacinthe.
Geo. Prev. de Boucherville
Rev. G. LangevinQuebec.  Albert Baker, M.DStancross, Devon, England
John GilsonRome, Italy.
on the Cosimin Descentles St Hyacinthe.
Nov. 28, '53. Casimir DessaullesSt. Hyacinthe. Hamilton D. Jessup, M.DPrescott.
M. Turcot, M.DSt. Hyacinthe.
Rev. J. B. FerlandQuebec.
Hon. L. A. Dessaulles Montreal.
Hou. H. A. Dessaultes House

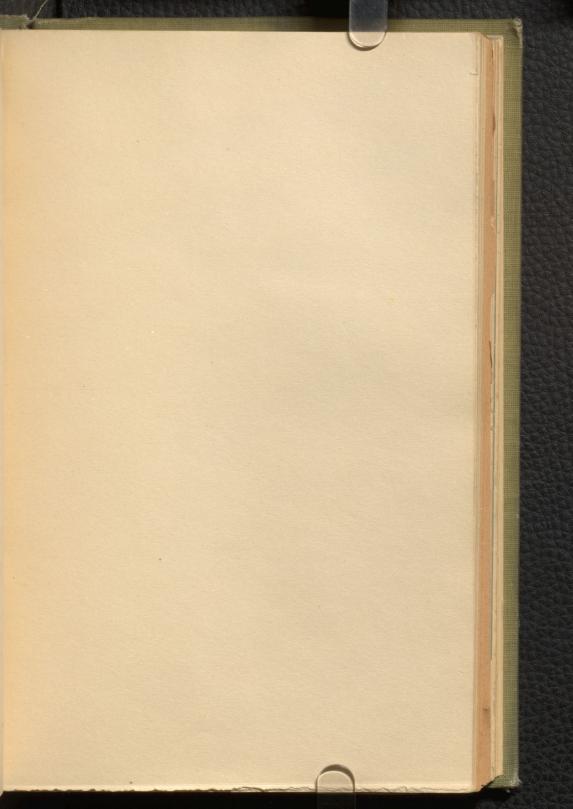
			Rev. M. LavalléeSt. Vincent de Paul.
April	21	754	Rev. Michael Ashton Adelaide, Australia.
Tuno	20	754	Rev. M. A. Trudeau Buffalo, N. Y.
oune	30	04	
			Edward Crisp, M.D London.
			Edward L. Ormerod, M.BBrighton.
			James SpencePointe Claire.
0 1	-	malg	Rev. John JenkinsLondon, England.
Oct.	30,	'54	. Rev. Louis Ed. BoisMaskinongé.
	H	.W. c	Dr. Amédée WeilbraimTournay, Belgium.
Jan.	29,		. Sir James Ed. Alexander
June	25,	'55	General Rowan
			Dr. LitchfieldKingston.
Oct.			. William CouperQuebec.
March	31,	'56.	Hon. G. E. Cartier, M.P.P
			A. Brunel Toronto.
			Rev. W. Brethour, M.A Ormstown.
April	28,	'56.	Hon. L. V. SicotteSt. Hyacinthe.
			Sir E. P. TachéSt. Thomas, C. E.
May	19,		Asst. Com. Gen. Ibbotson
Jan.	28,	'56.	P. L. McDougall, Advocate. Toronto.
			J. C. Lee, M.DLondon, C. W.
			Prof. P. J. Heyfelder Finland.
Dec.	29,	'56.	H. P. Gosselin Clarendon.
			Alexander CopelandHinchinbrooke.
Feb.	25,	757.	Prof. O. P. Hubbard, M.D.,
			Dartmouth College Hanover, N. H.
			Prof. A. D. Bache, Sup. U.S.
			Coast SurveyWashington.
			Rev. A. J. Tellier, President
			St. John's College, N. Y. Fordham.
			R. L. PellNew York.
April :	27,	'57.	Jules Flavien GingrasQuebec.
July :	27,	157.	Count MotschulskySt. Petersburg.
April 2	17,	<sup>7</sup> 58.	Rev. M. A. Curtis, D.D Hillsborough, U. S.
			W. S. Sullivant Columbus, Ohio.
			S. Durkee, M.DBoston, Mass.
May		'60.	Rev. Louis Wurtele Actonvale.
July		'60.	M. J. MitchesonPhiladelphia.
October	Г	'60.	Henry Poole
			Rev. D. Honeyman, F.G.S Antigonish, N. S.
			Ed. Bowen, M.DBrantford.
Noveml	ber		Barnard R. RossFort Simpson, Rupert's Land.
January			Thomas MacfarlaneActonvale.
	-		

	Principal of Normal Schools, Truro, Nova Scotia.
Sept. 29, '62. Dr. Lowe, F.R.S., &c Nov. 24, '62. S. H. Parkes March 30, '63. Hugh E. Montgomerie	Brighton, England.
Prof. J. W. Bailey N. W. Bethune	Fredericton, N. B. Ottawa, C. W. London, C. W.
A. S. Packard H. Rose G. F. Matthew	Granby, C. E. St. John, N. B. Hamilton, C. W.
Sept. 26, '64. Prof. R. Bell, F.G.S Oct. 24, '63. Rev. R. McDonald Prof. H. Y. Hind	Frederickton, N.B.
Nov. 28, "64. Captain Rooke, S.F March 27, '65. Capt. P. G. Fortin	

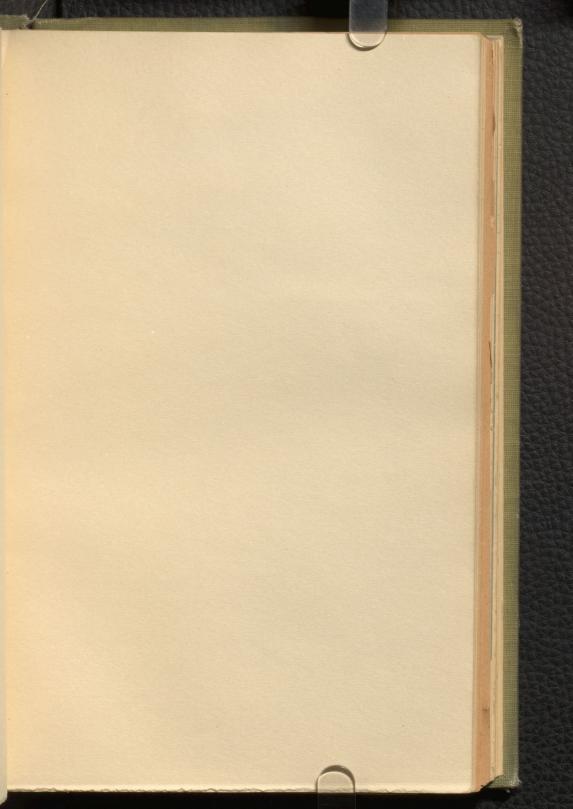
Some unavoidable errors may have crept into the list of members. The Recording Secretary will be glad to have these pointed out, that they may be rectified in the Report of next session. He would also request that any members who do not receive notices of the usual monthly meetings, will communicate the address to which they would wish them sent.

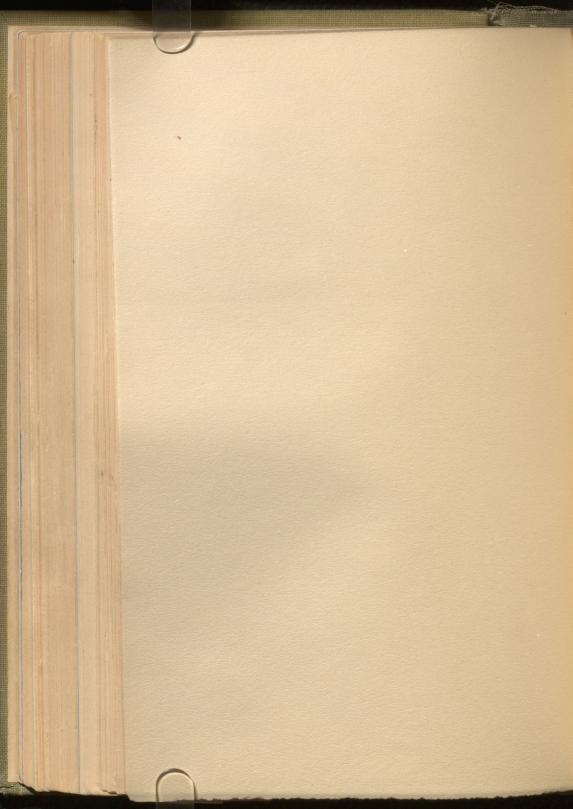


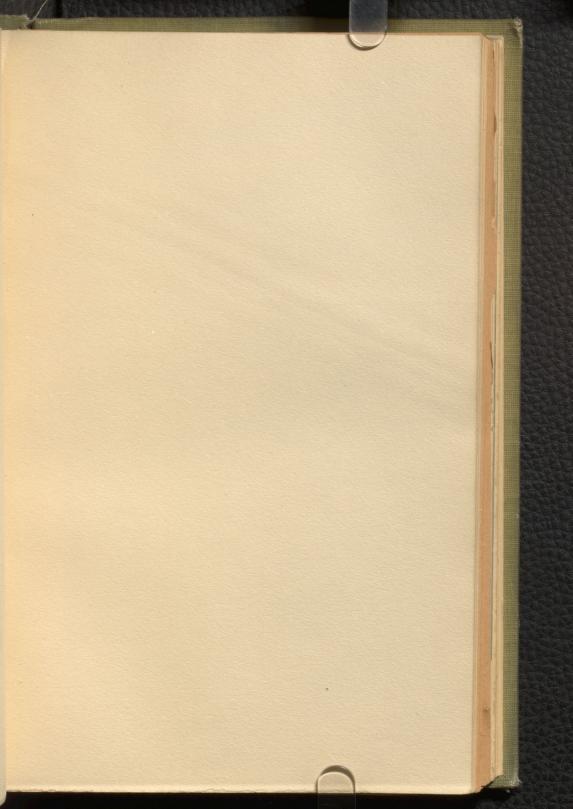


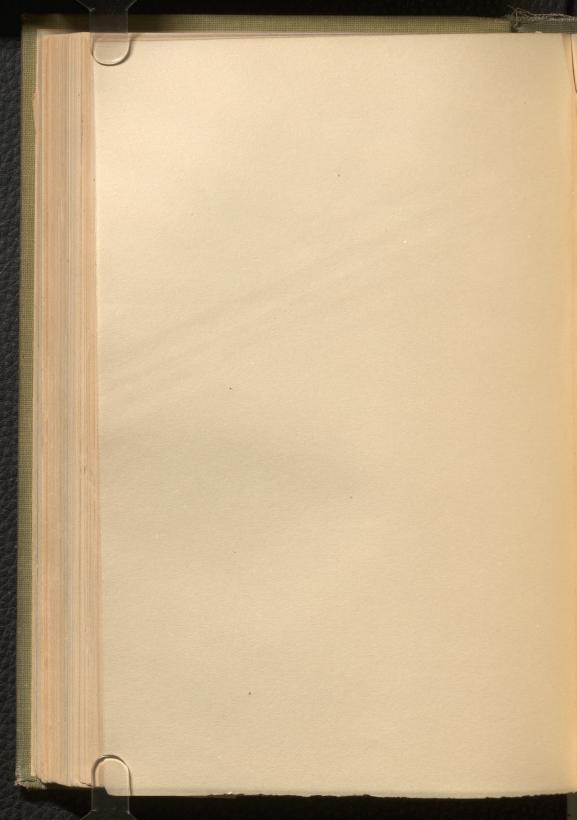


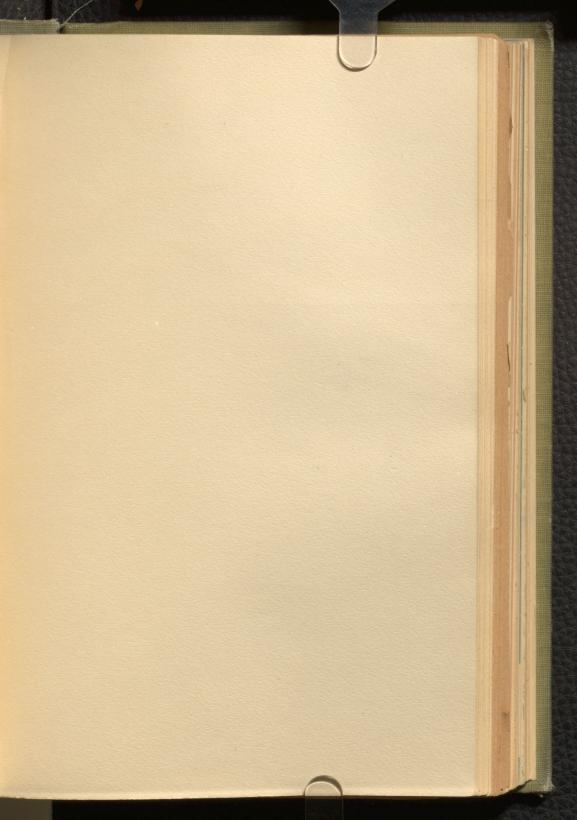


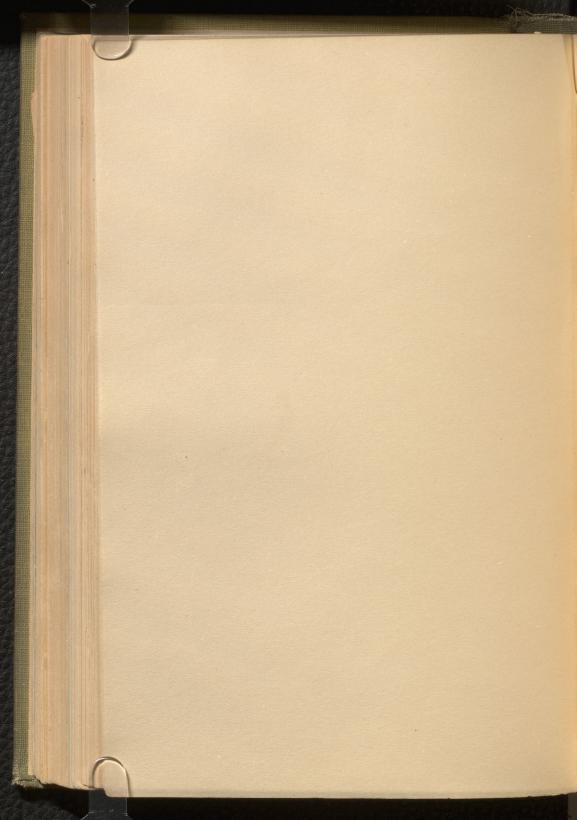


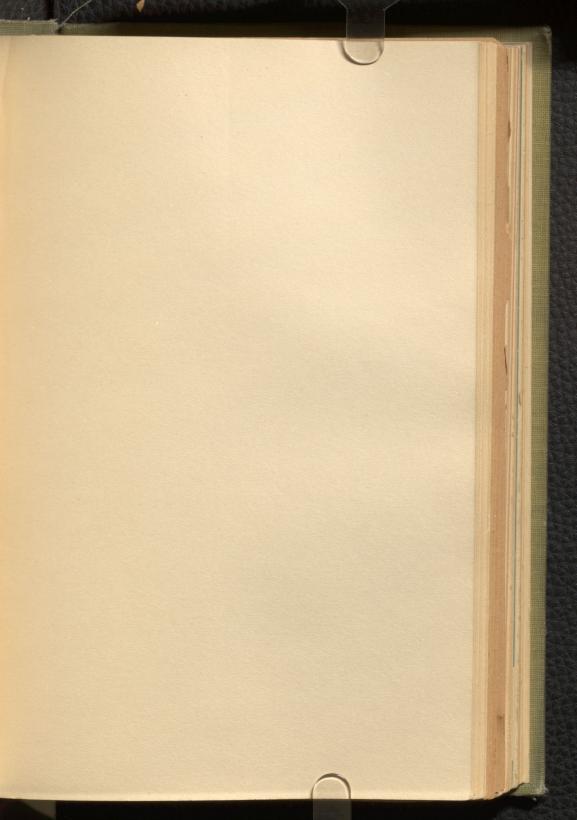


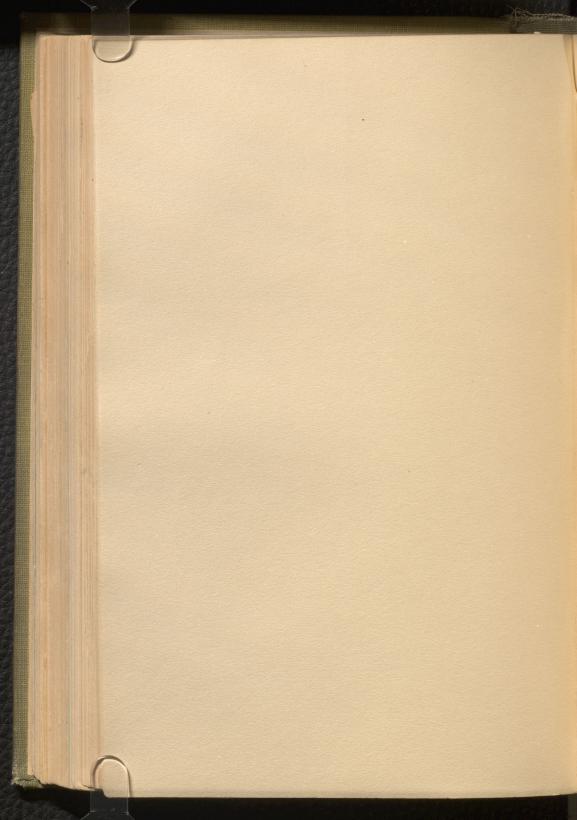


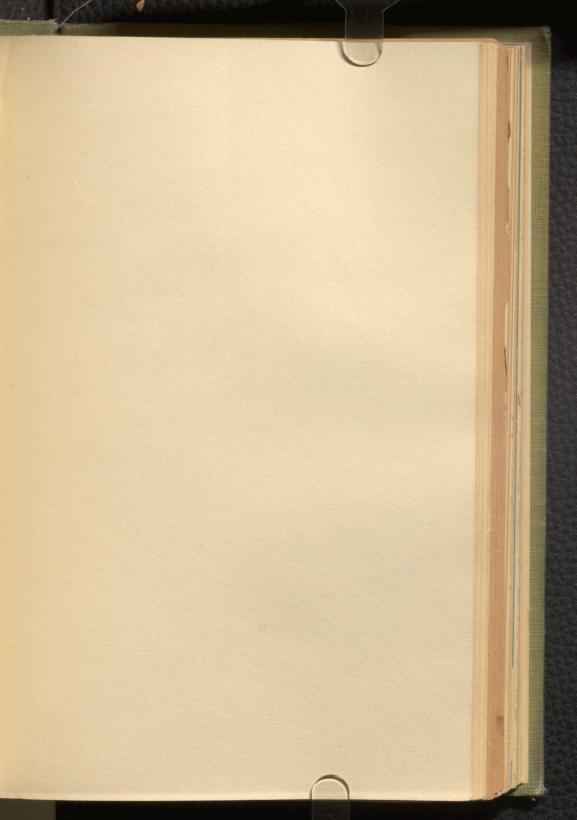


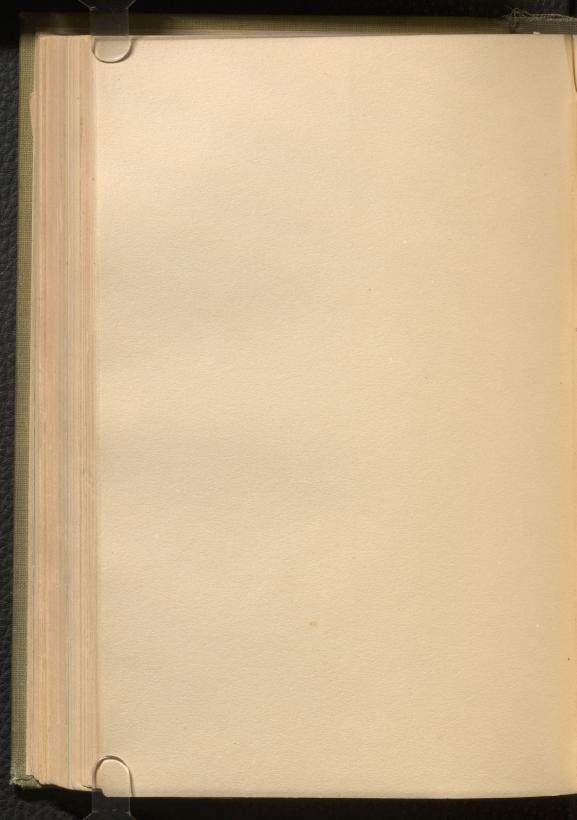


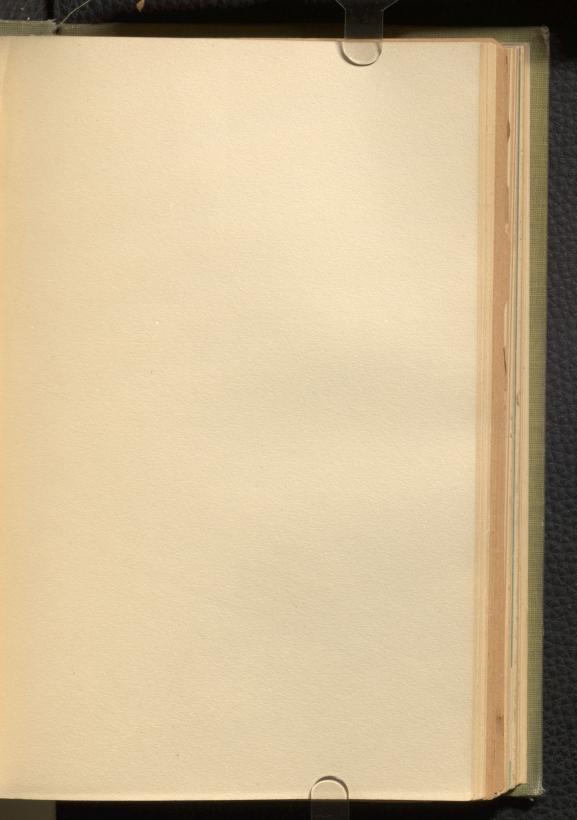


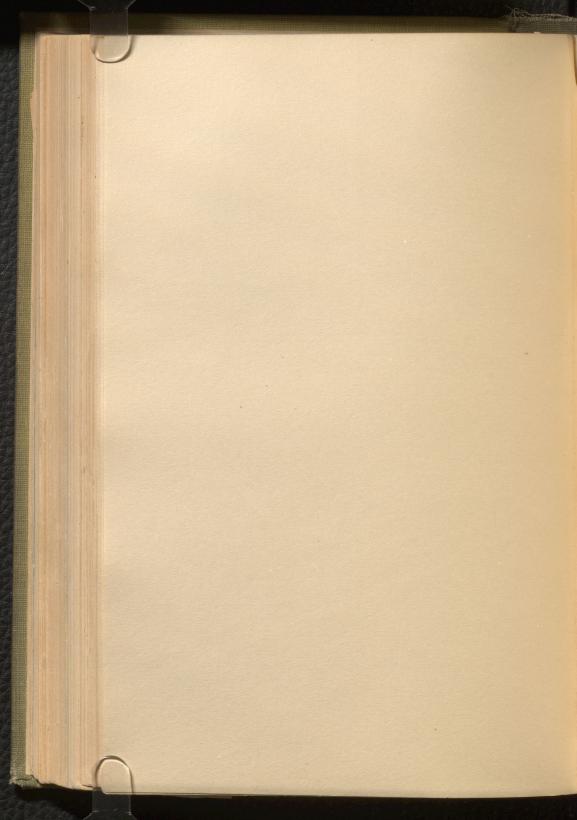


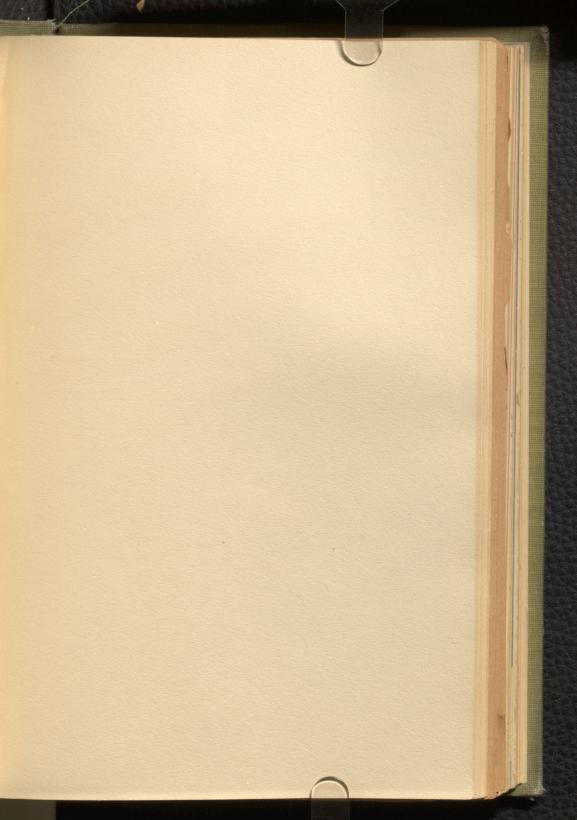


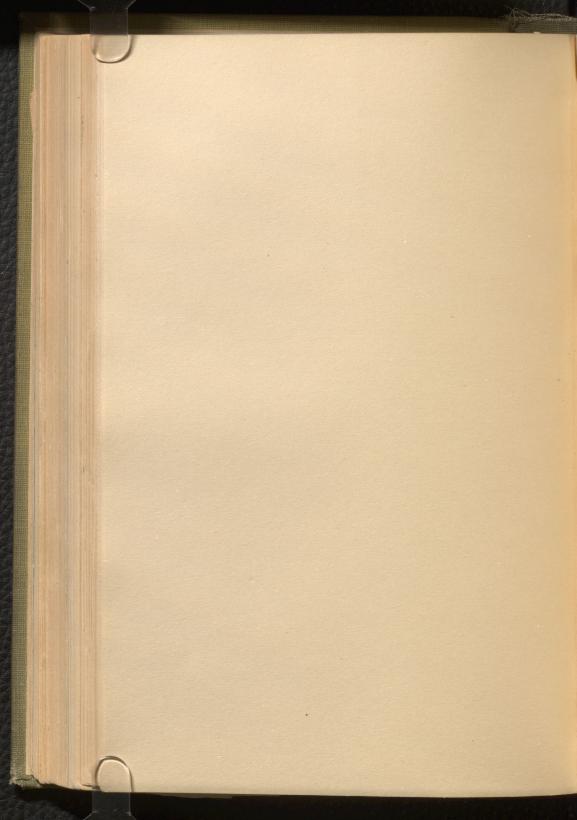


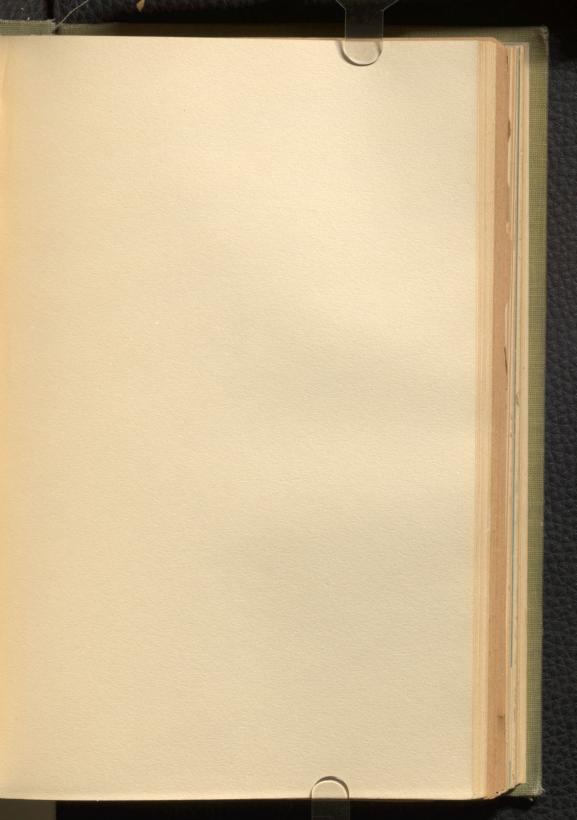


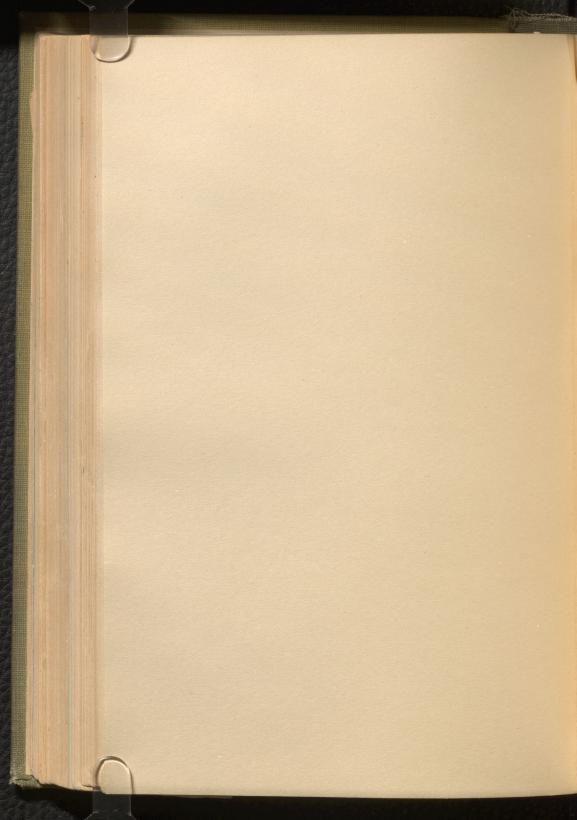


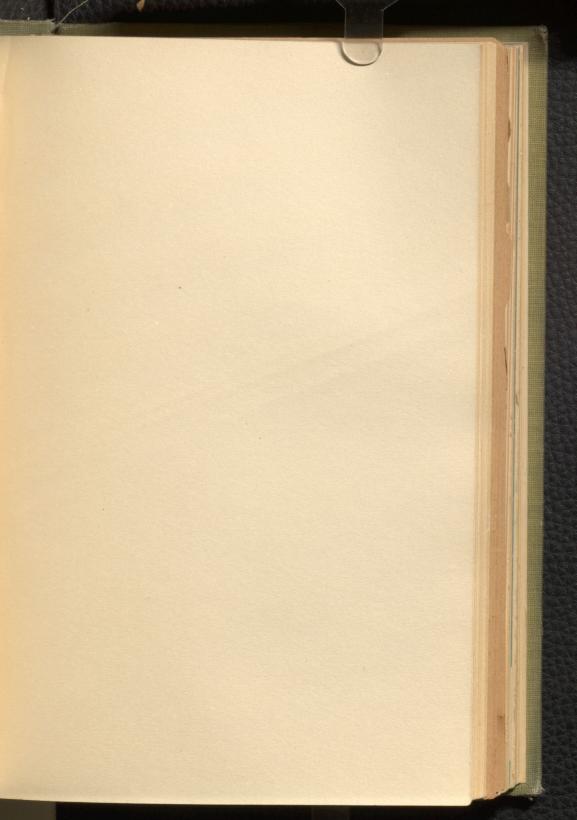


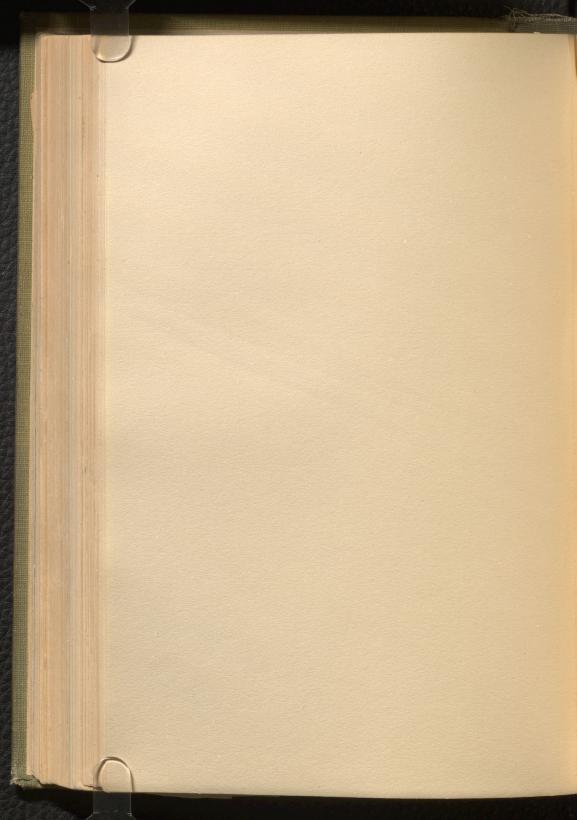


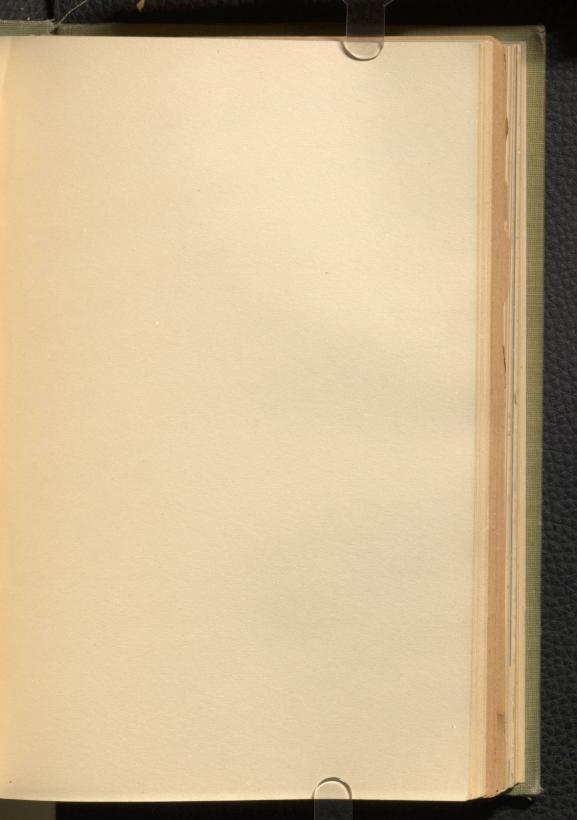


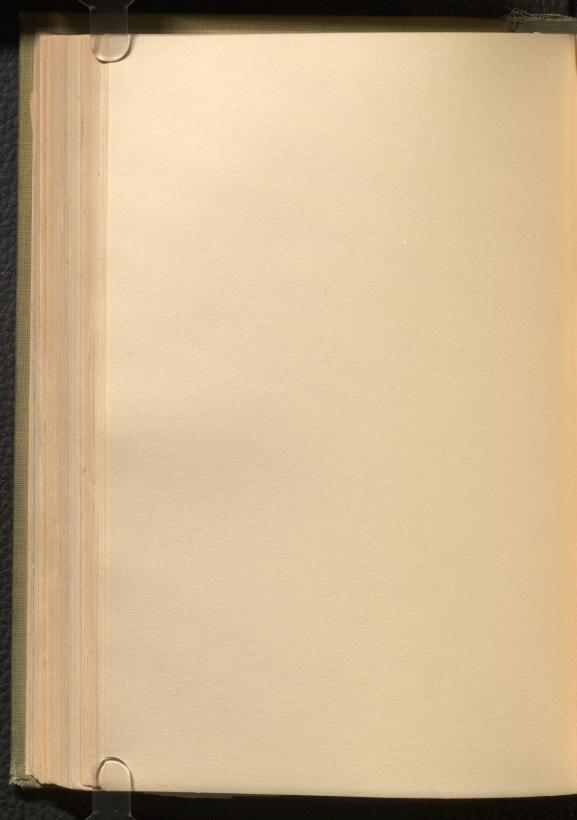


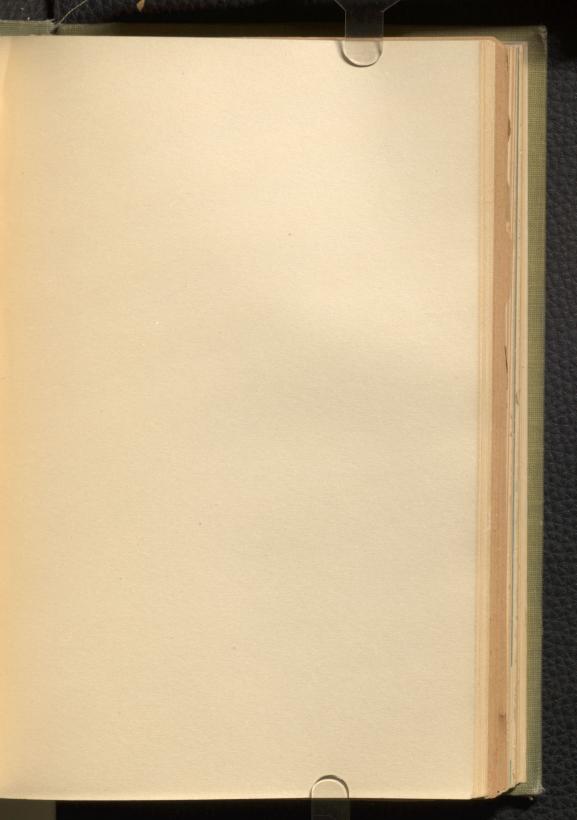


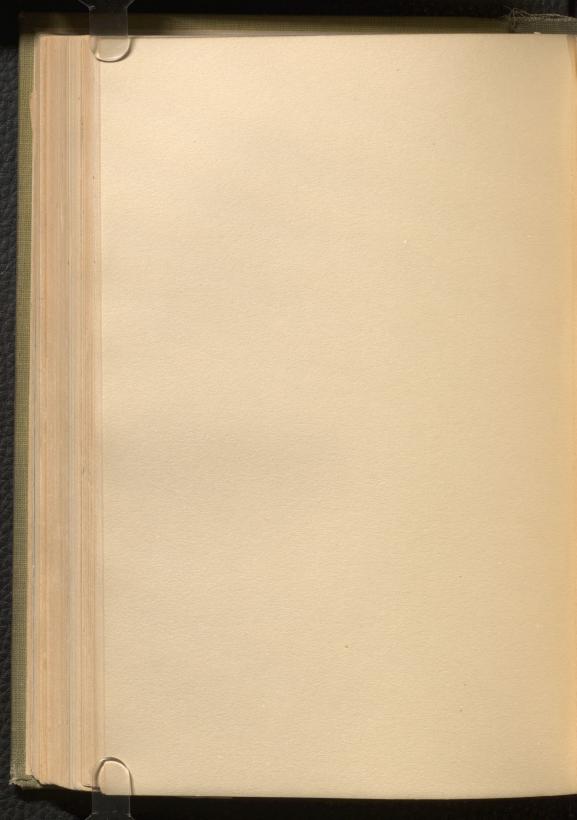


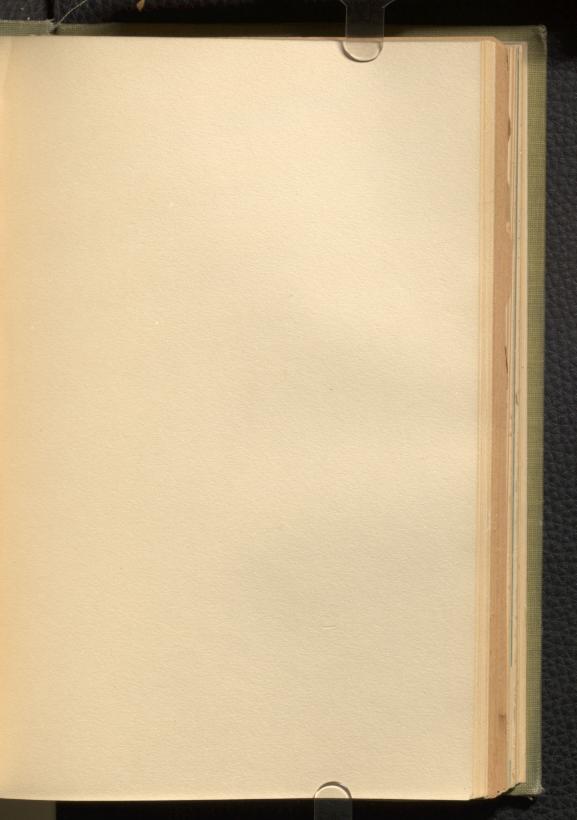


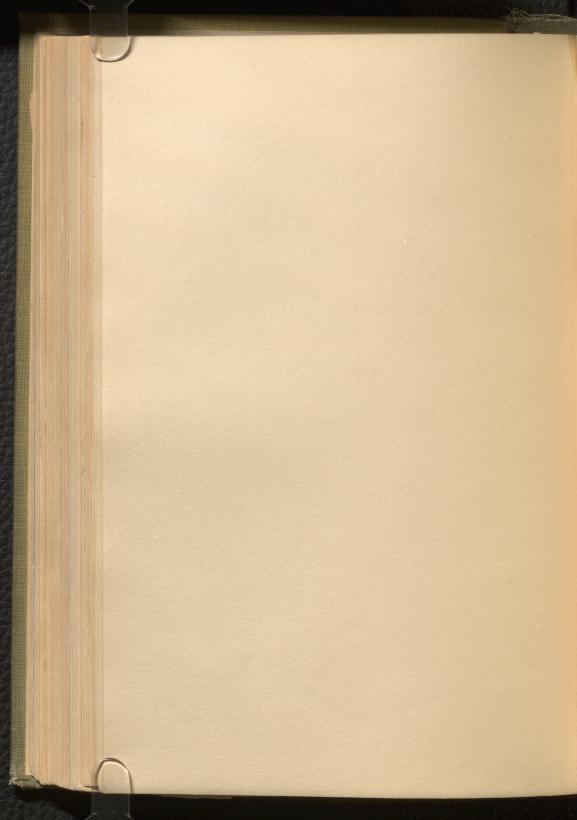


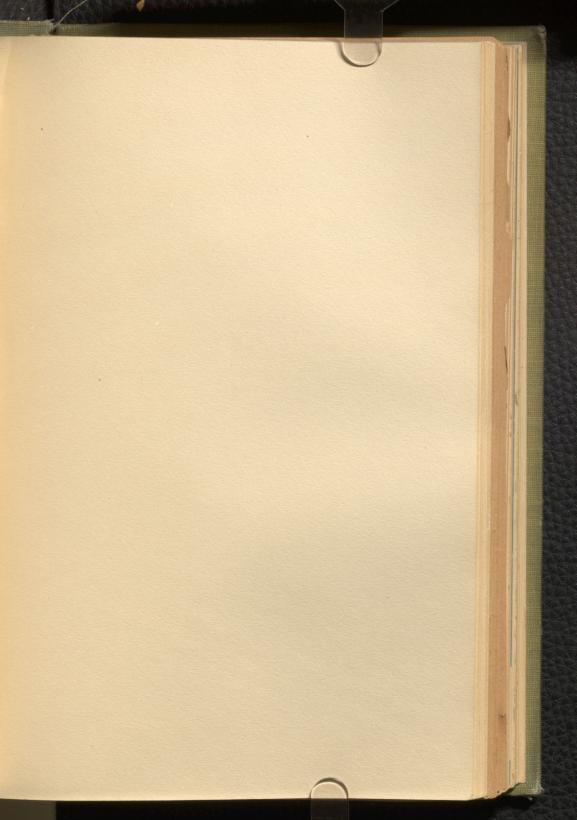


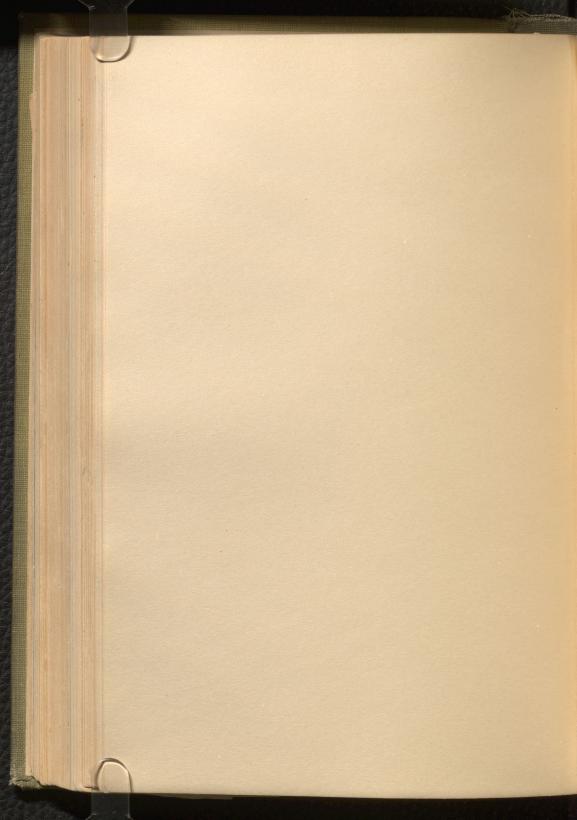


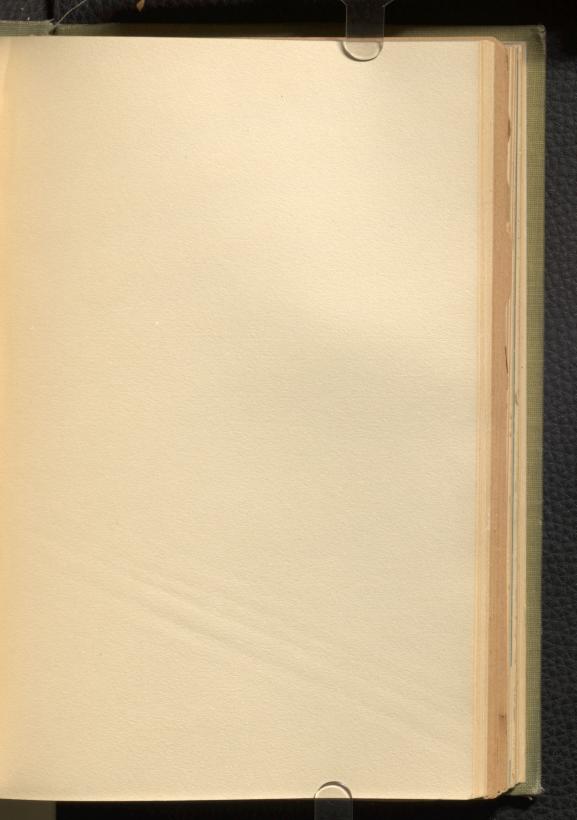


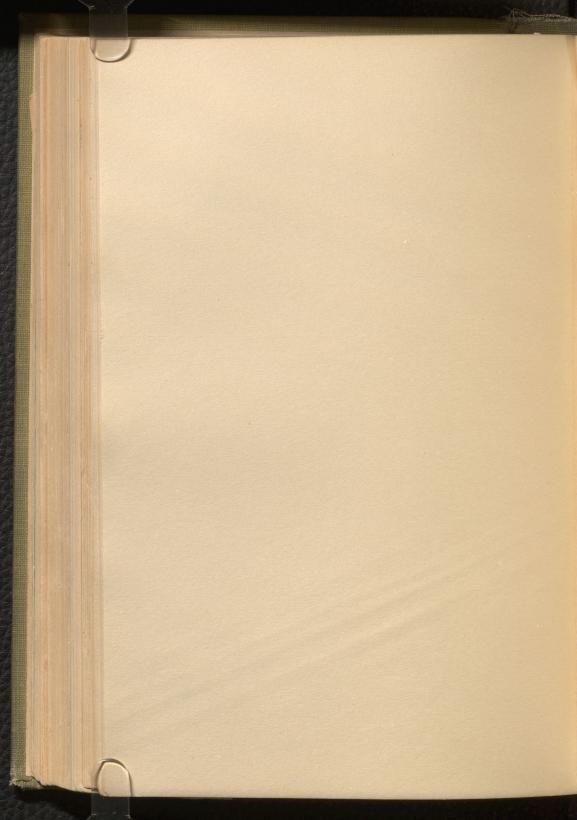


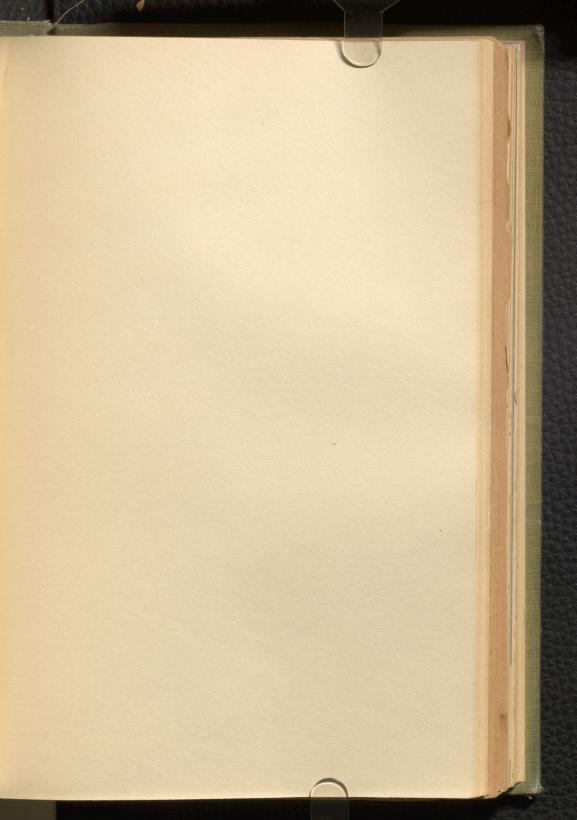


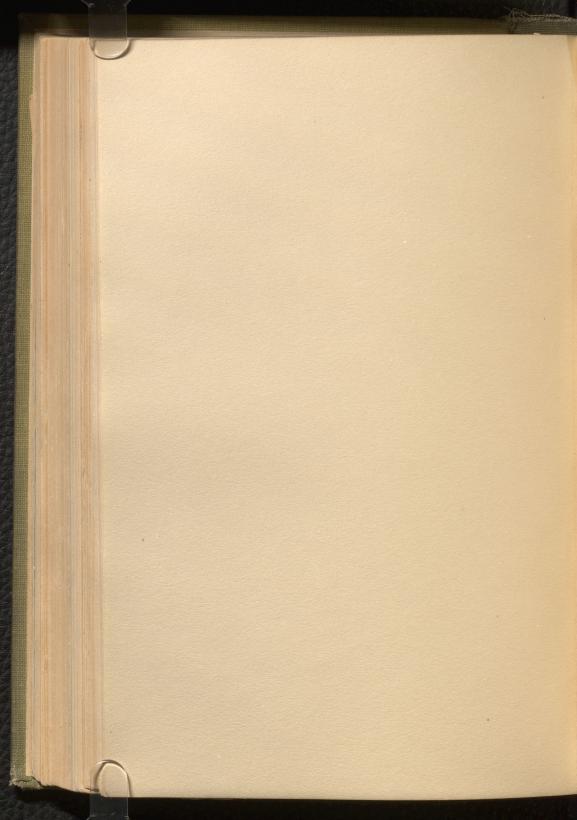


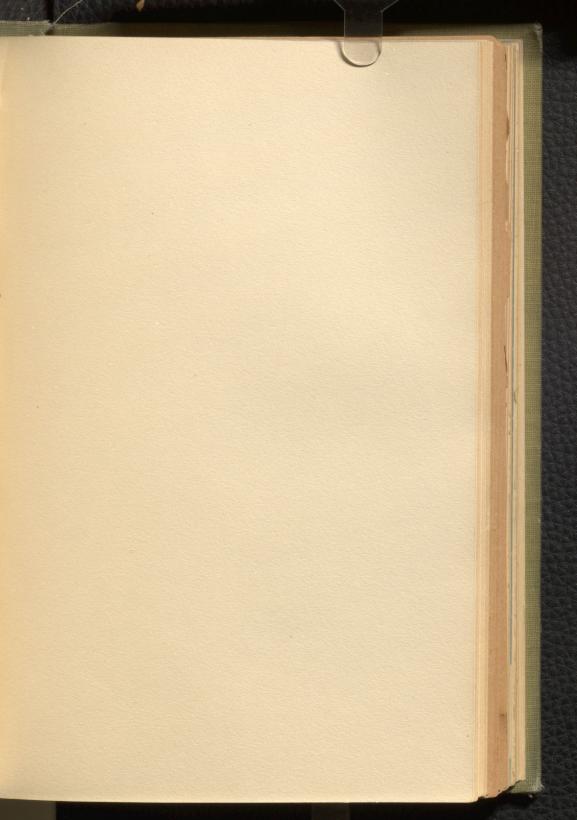


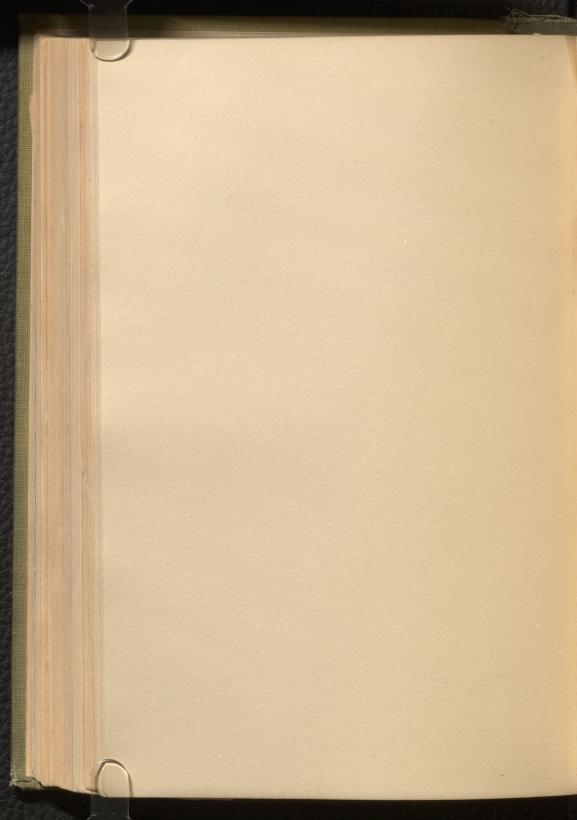


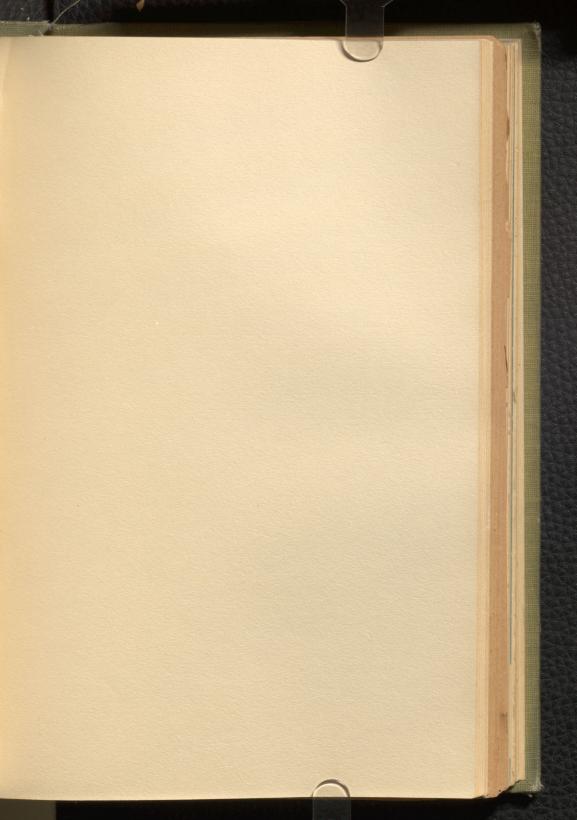


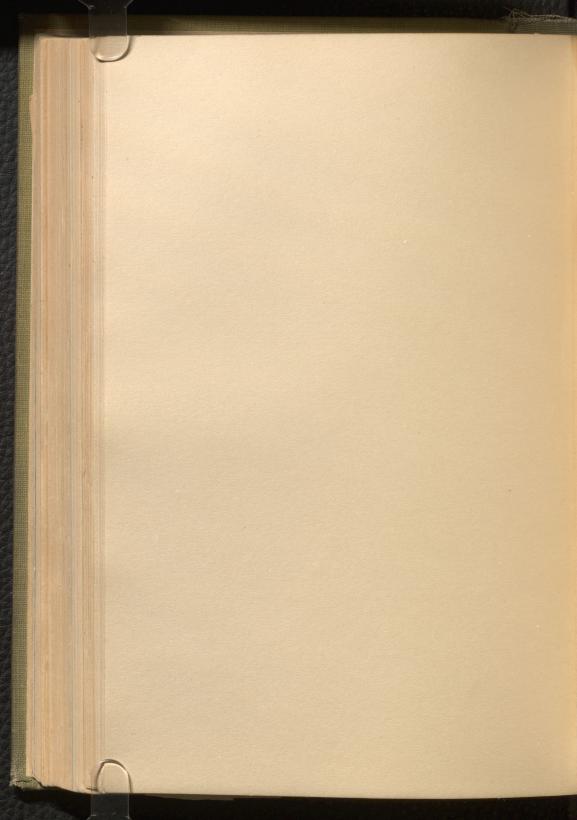


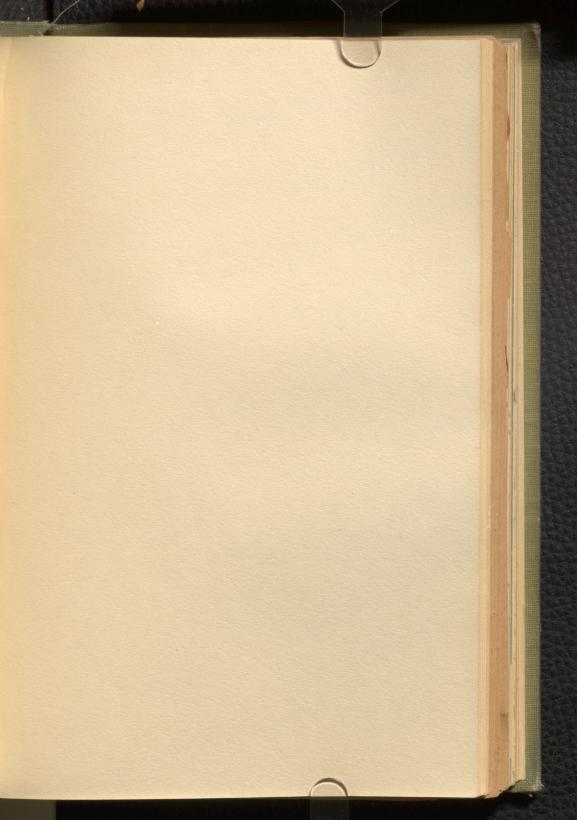


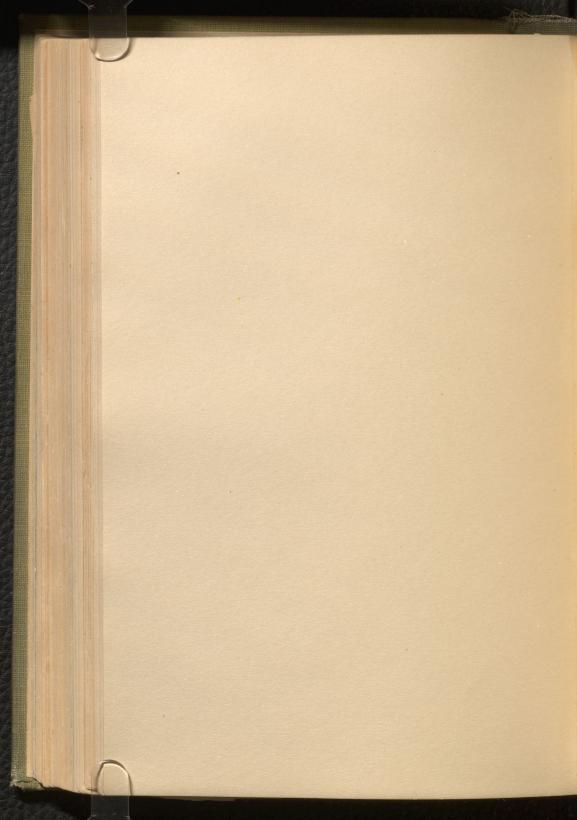


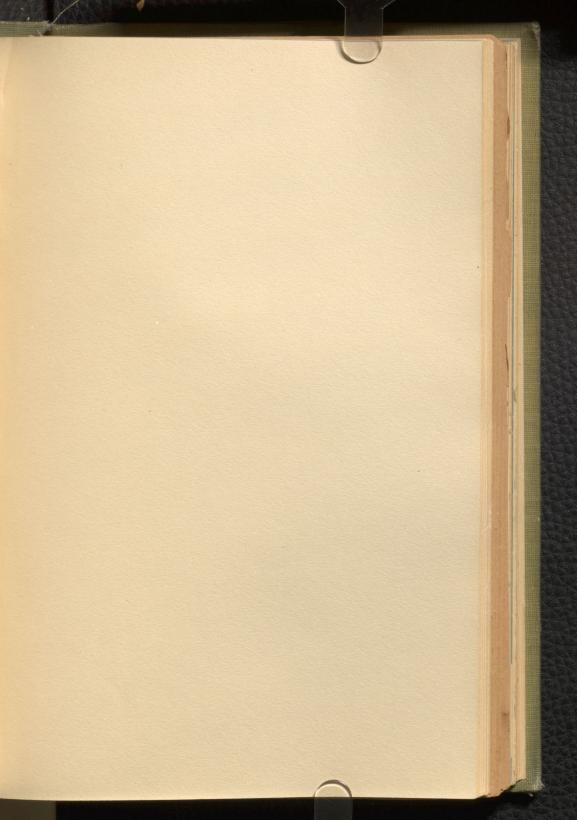


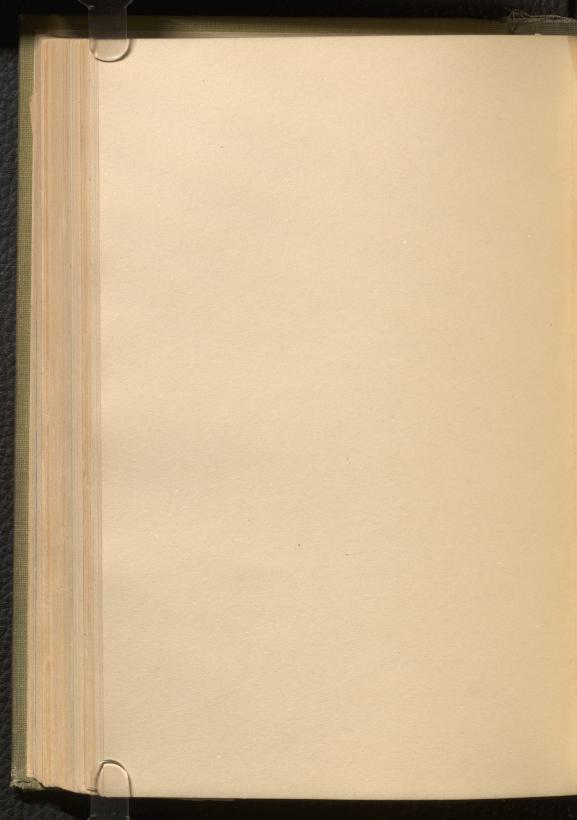


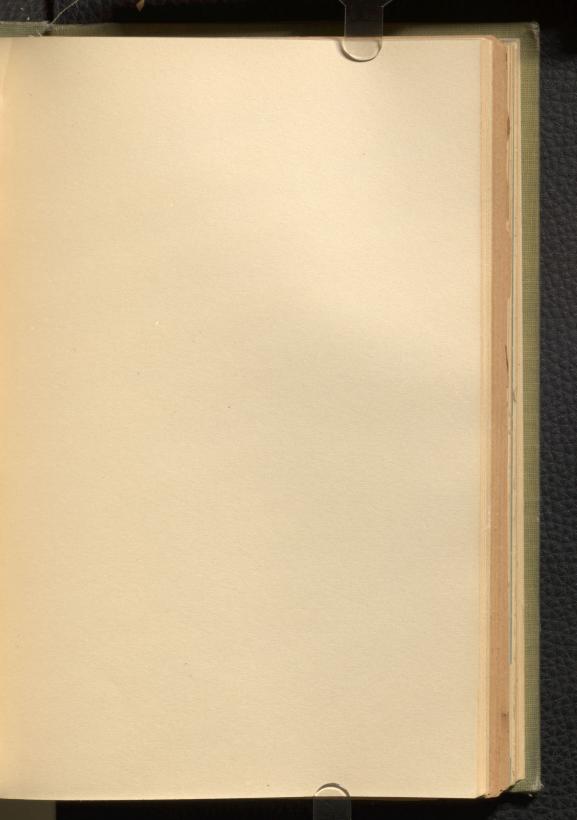


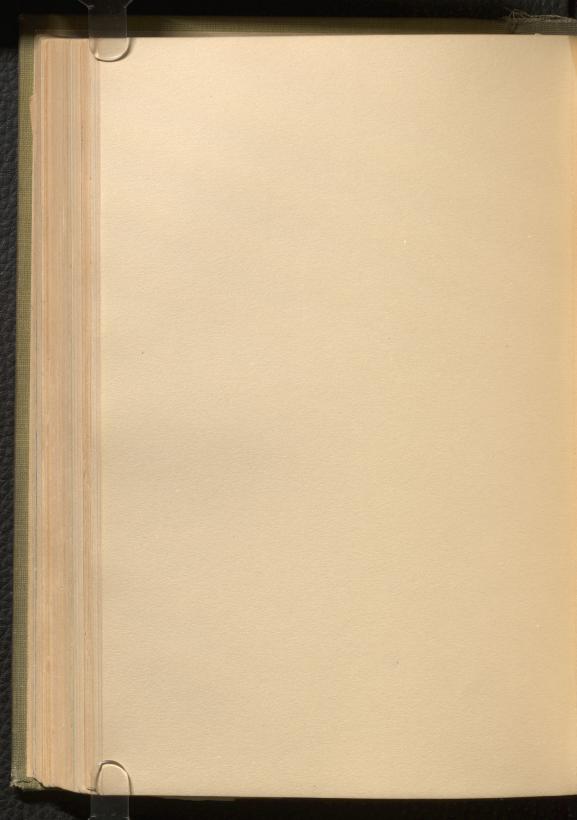


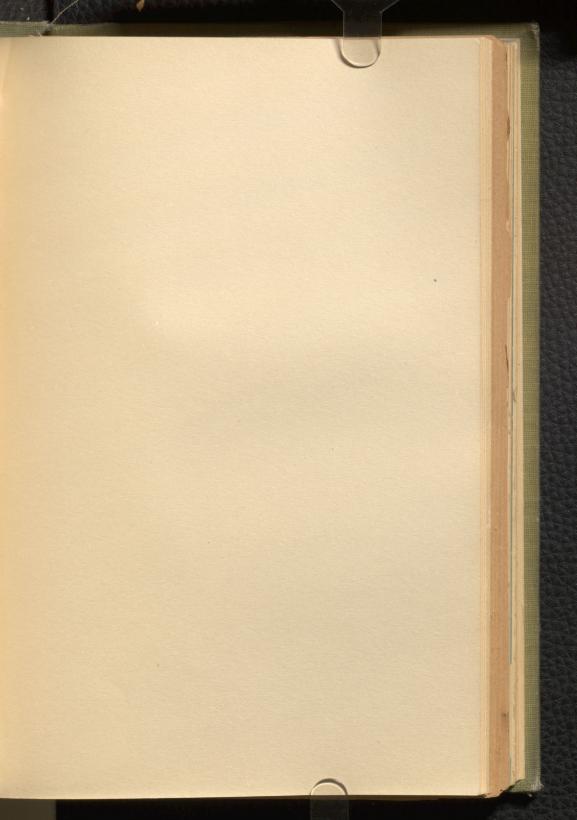


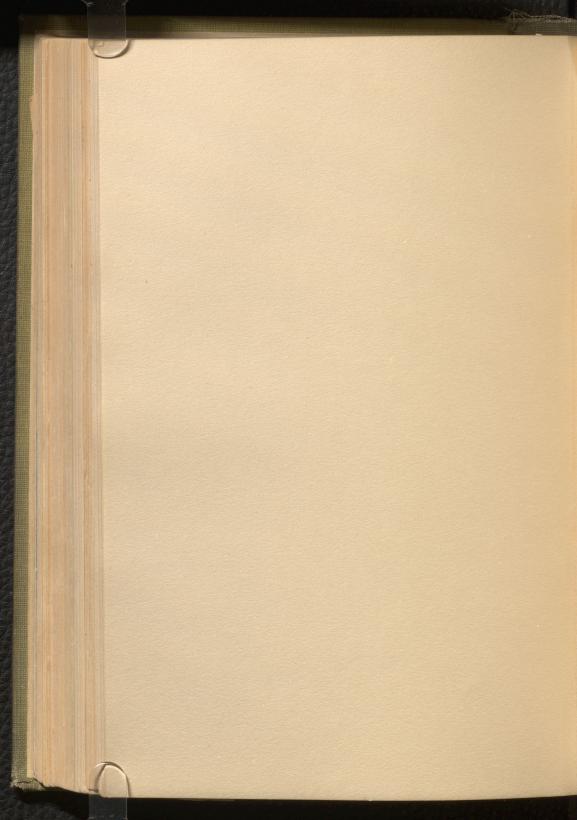


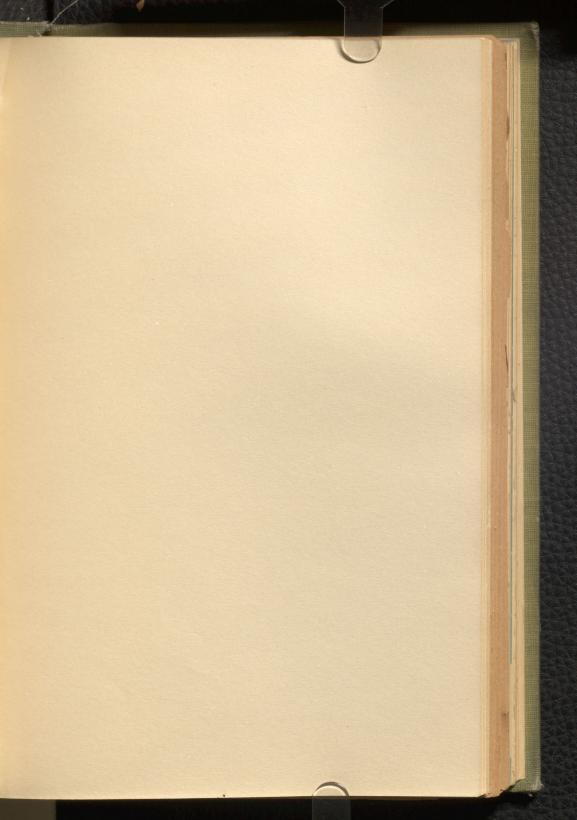


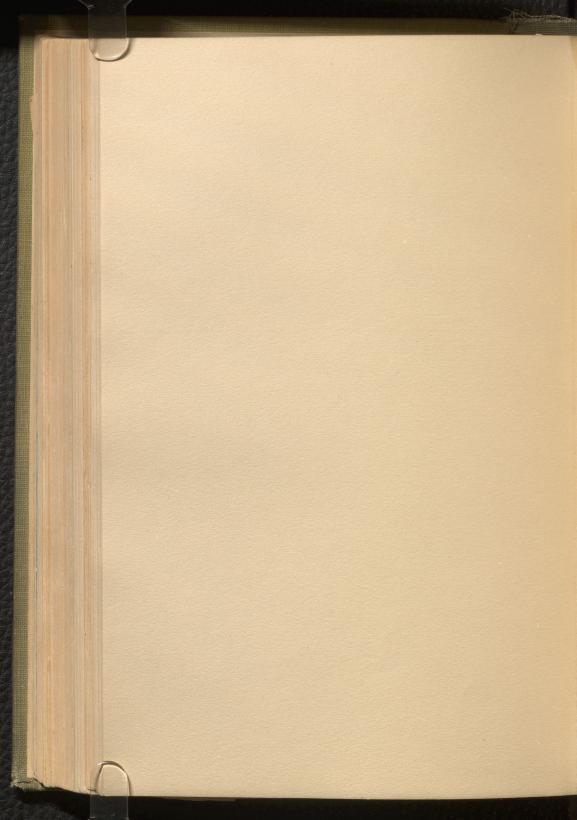


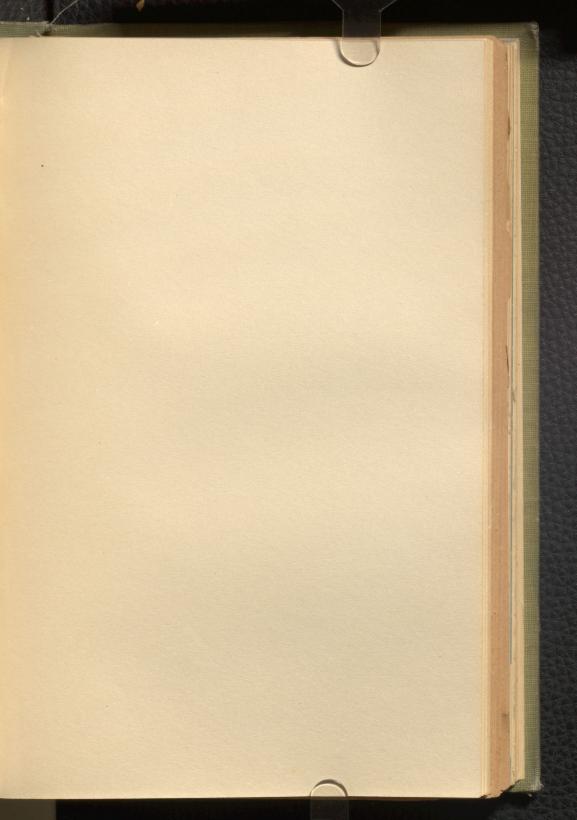


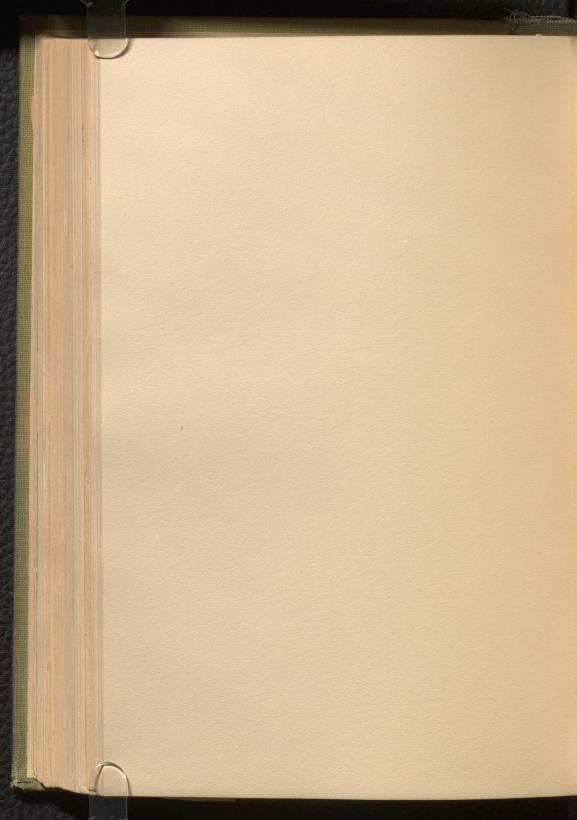


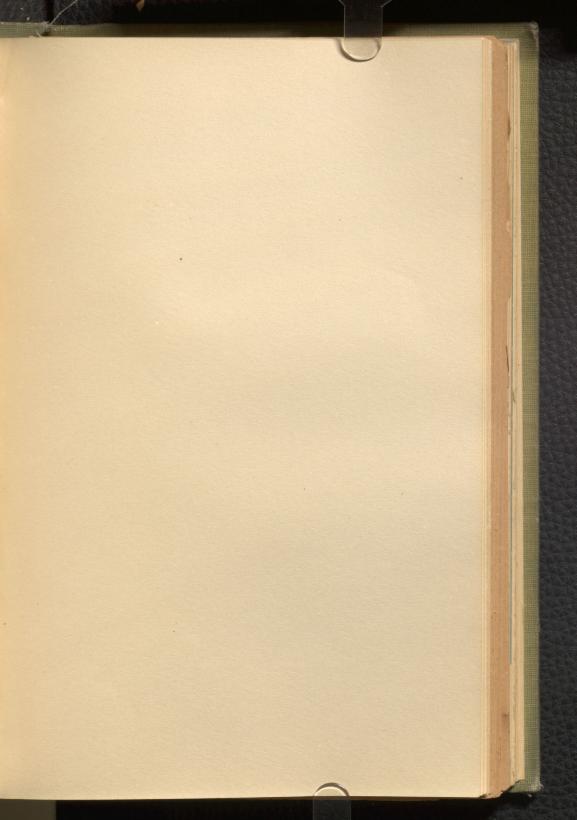


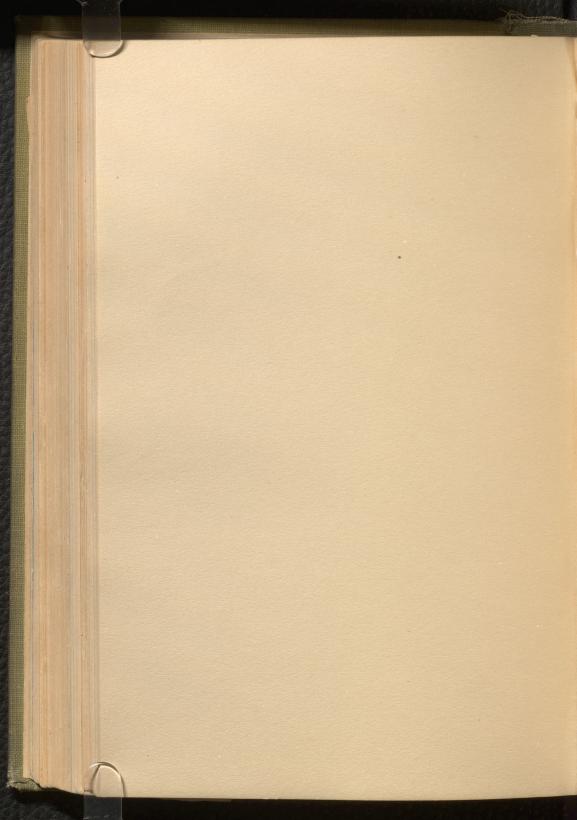


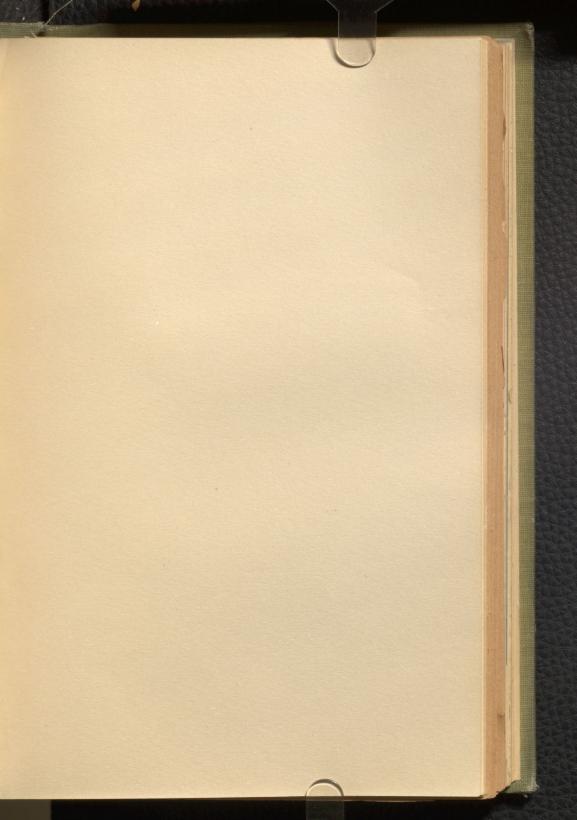


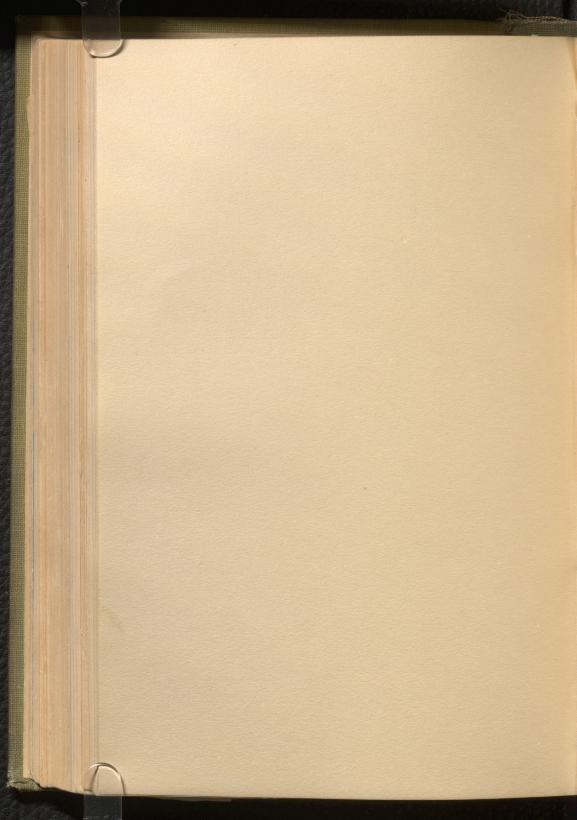


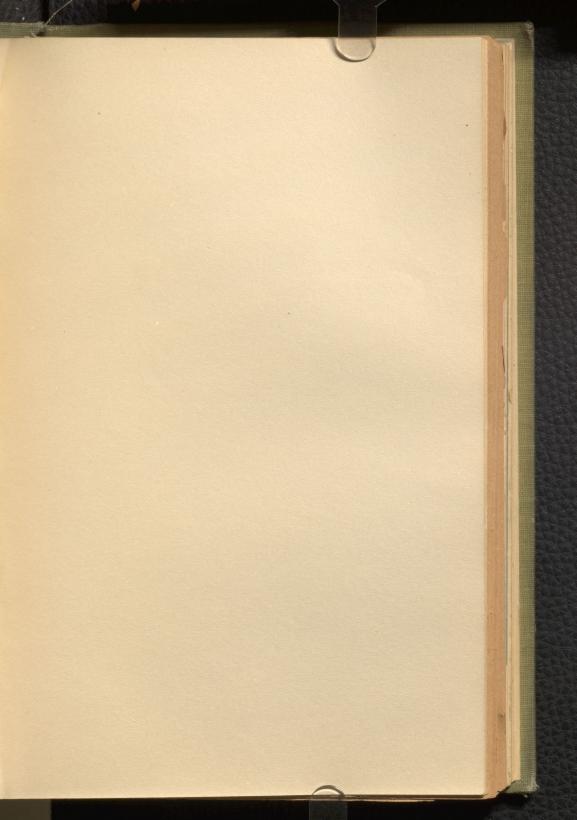


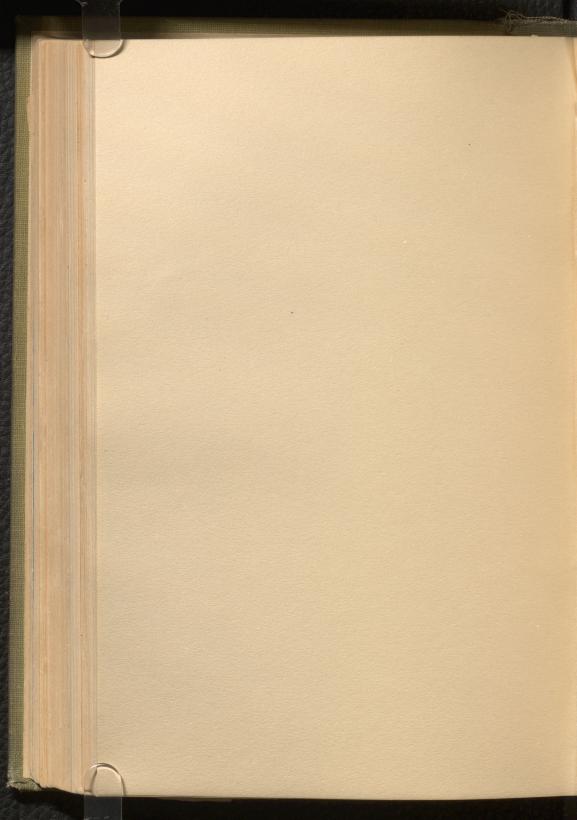


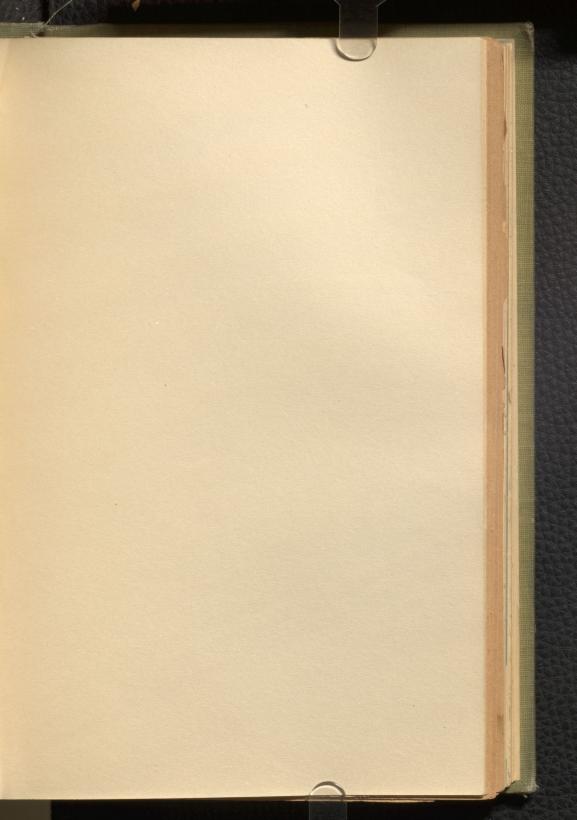


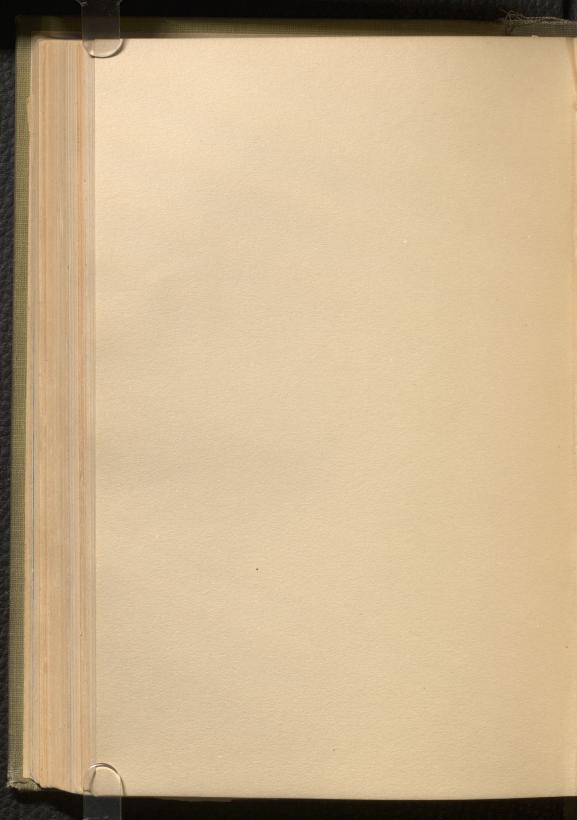


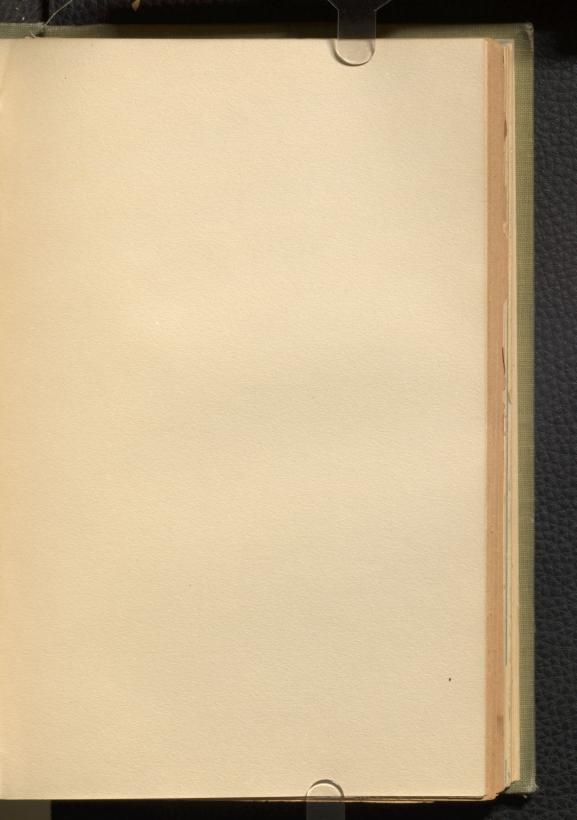


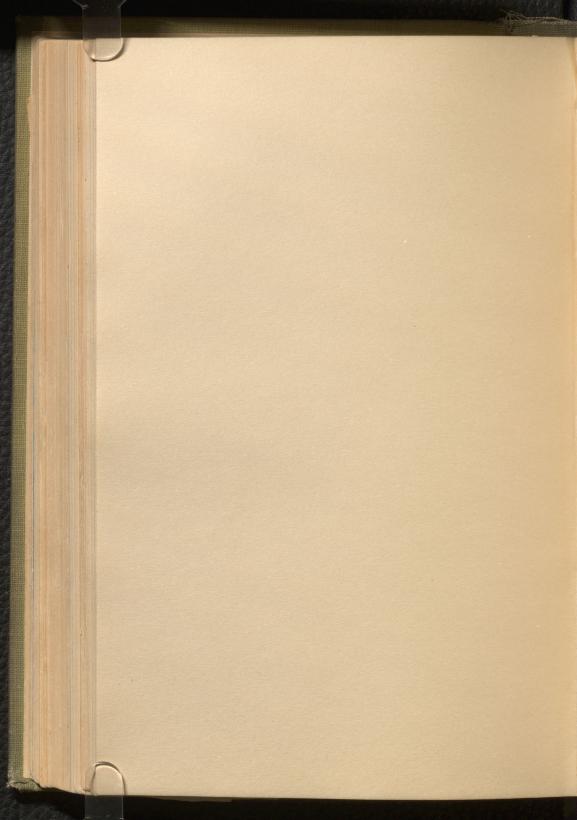


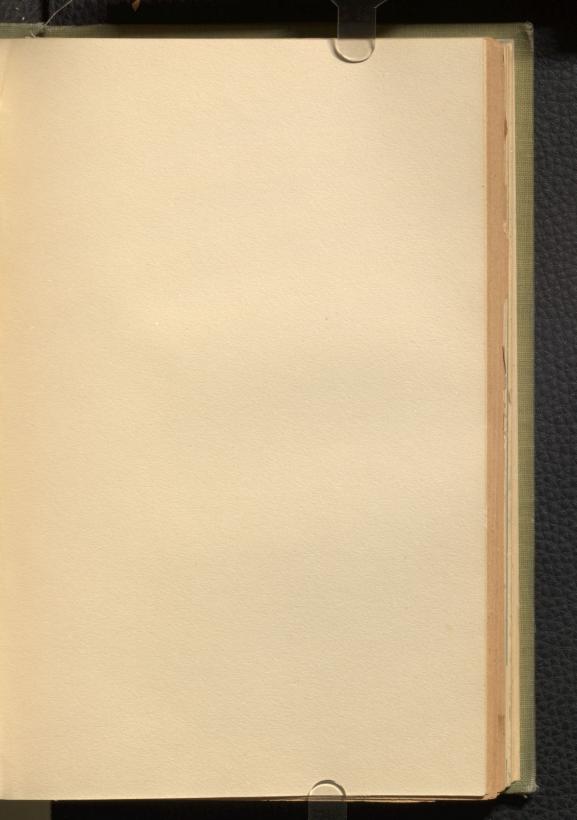


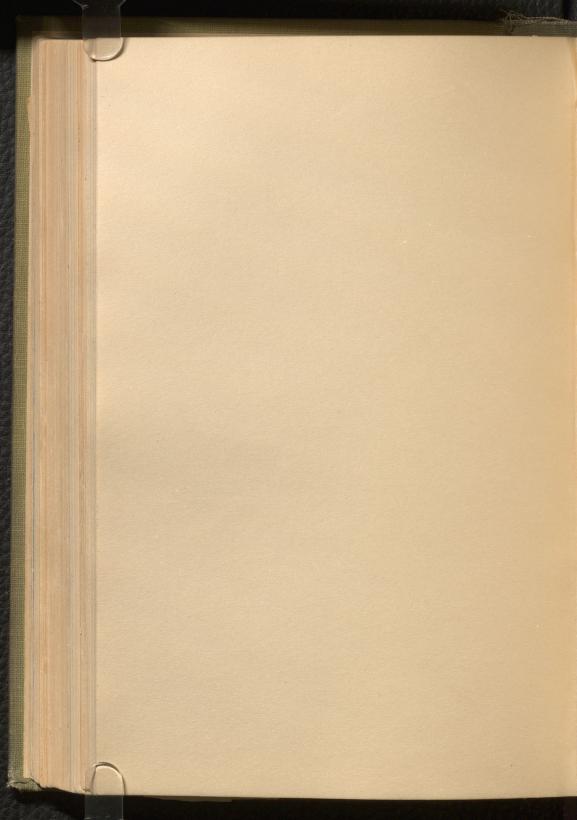


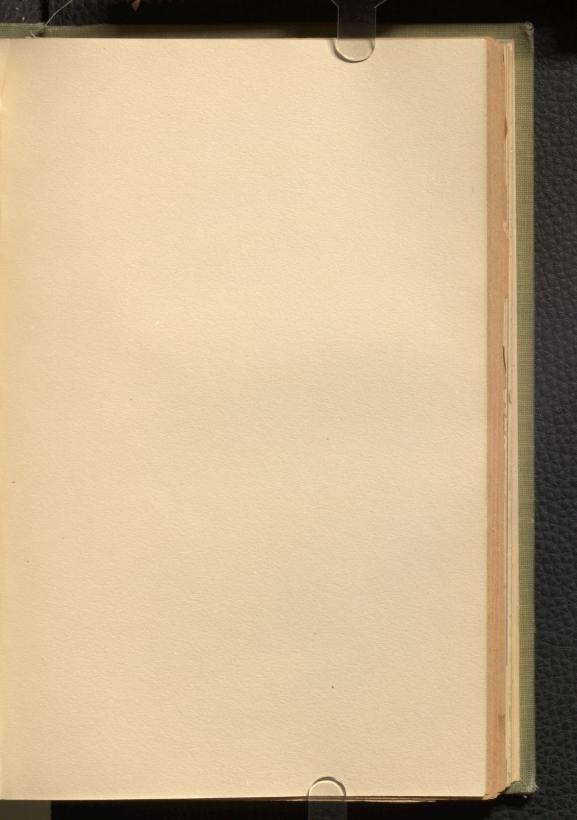


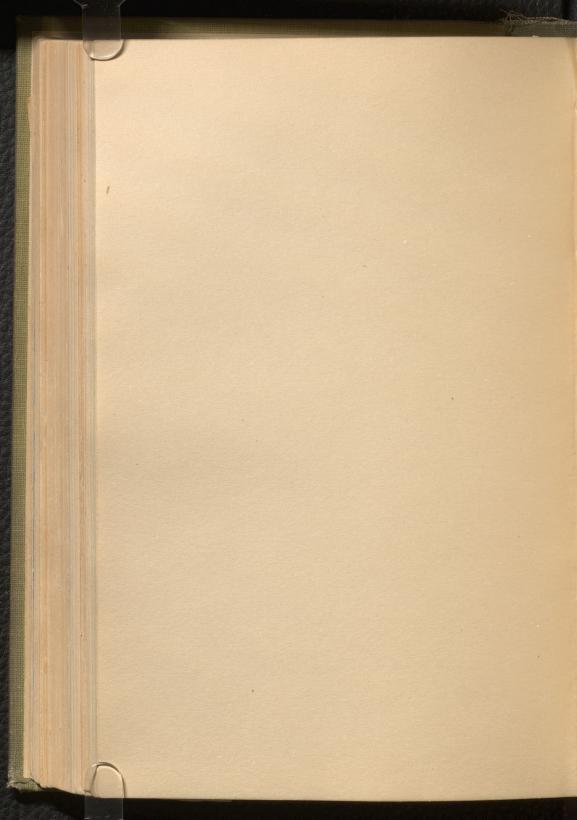


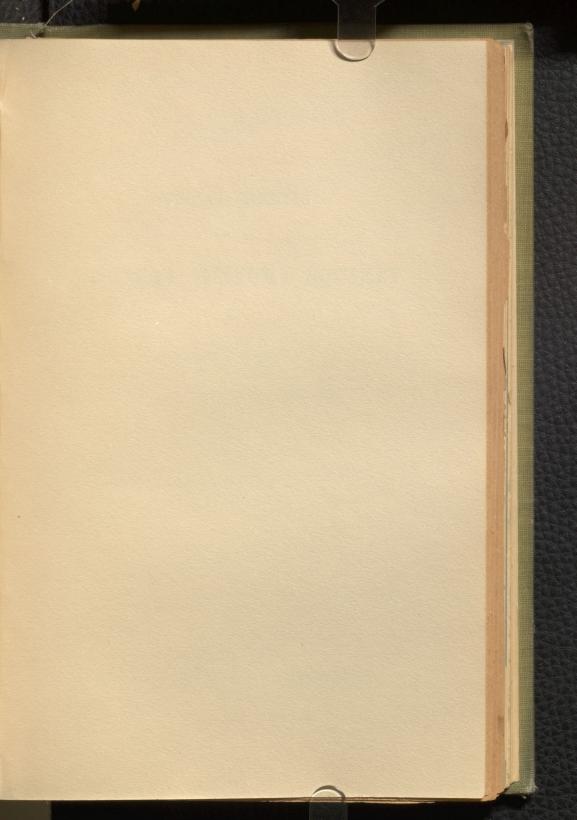


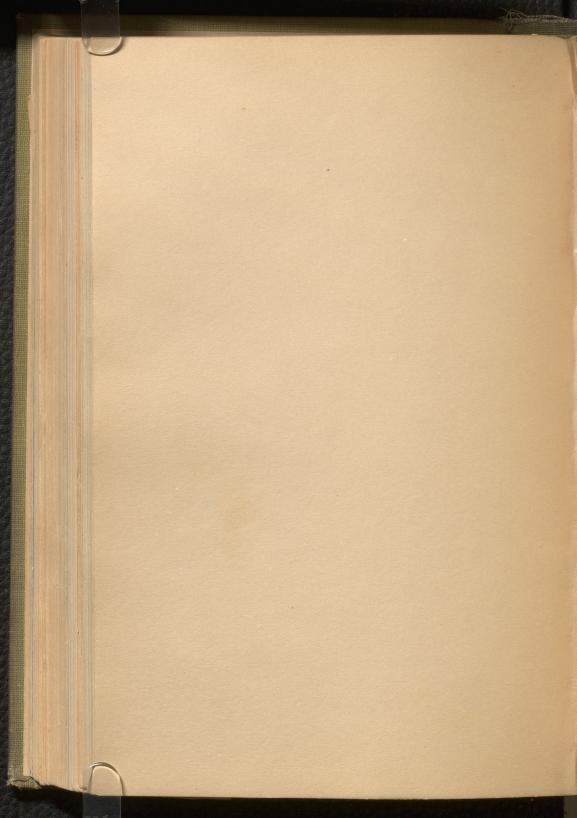












## PROCEEDINGS

v. +0 ,

AT THE

## ANNUAL MEETING

OF THE

# NATURAL HISTORY SOCIETY

OF

#### MONTREAL

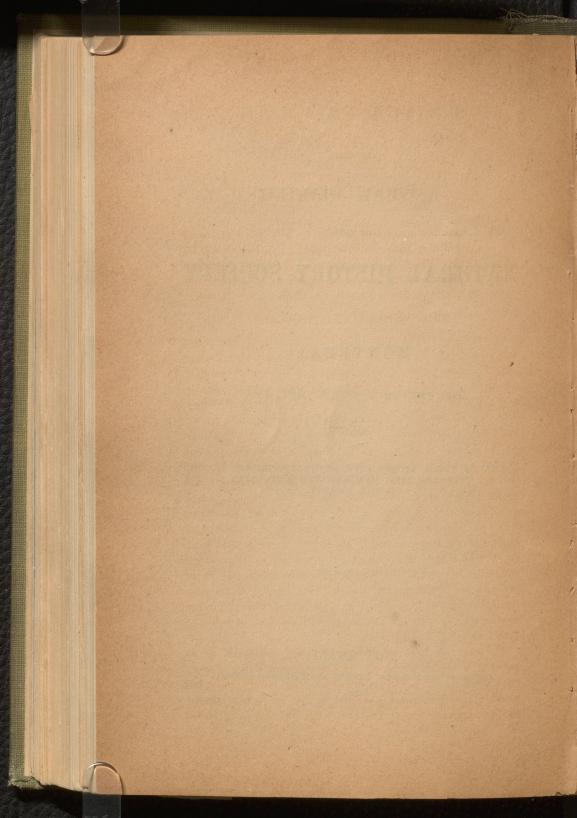
FOR THE YEAR ENDING MAY, 1868:

WITH

A LIST OF THE OFFICERS, LIFE, ORDINARY, HONORARY AND CORRESPONDING MEMBERS AND ASSOCIATES OF THE SOCIETY.

#### MONTREAL:

PRINTED BY THE MONTREAL PRINTING AND PUBLISHING COMPANY.
1868.



### PROCEEDINGS.

The annual meeting of this Society was held at its rooms on the evening of May 18th, the President, Rev. A. DeSola, LL.D., in the chair. Mr. J. F. Whiteaves, the Recording Secretary, read the minutes of the last annual meeting; after which the usual annual address of the President was delivered, as follows:—

#### THE PRESIDENT'S ADDRESS.

LADIES AND GENTLEMEN, -As the Chairman of the Council will present you with a resumé of the work done during the past year, I propose to devote the remarks which, as your President, I am expected to make on this anniversary occasion, to the consideration of a few points of interest in the study of Natural History. I do this, not because I conceive that I can say anything worthy the scientific attainments of those I have the honor to address; on the contrary, I feel constrained to apologize for the infliction of what must prove to them but a thrice-told tale. Yet, I believe they will fully sympathize with the design of my remarks, which are intended in the interests of this Society and of the subjects it more immediately discusses, and in humble emulation of the spirit which pervades its operations, to invite those out of it (a far larger number of whom are reached by the Report of our Annual Meeting than by that of any other of our reunions) to its privileges and higher enjoyments, which we desire to share with them. To the non-members of the Natural Society, then, equally, if not more particularly, have I desired to address the remarks which I venture now to make, Ladies and Gentlemen, with the hope of receiving your kind sympathy and indulgence.

The study of Natural History, if merely considered in its aspect of a branch of human knowledge, has a claim on every one's attention. It is a knowledge which is not merely power, but pleasure; and has claims great and peculiar on both the theoretical and practical man. The theoretical will find in it almost

boundless scope for absorbing and interesting cogitation in such inquiries as the origin of species, spontaneous generation, animal or vegetable character of certain obscure forms of life, the correlation of physical forces, mutual relations of the physical and vital forces, and similar modern engagements of human thought. The other great class, the practical, who have been taught by the books of their earliest youth to appreciate the difference between " eyes and no eyes," will also be prepared fully to admit with the student of Natural History that, merely to see an object, or to remember its name, is not to know it; and that if thoroughness of knowledge be essential or desirable in all the practical engagements of life, it must be equally so in our study of the countless objects of nature's universal domain-objects that are inseparably connected with the supply of all human necessities and comforts. But this knowledge is not merely useful, it is also elevating and interesting in the highest possible degree; and this I will proceed to show as far as I can in the brief limits to which I must confine myself, by seeking in the three great kingdoms of nature some practical illustrations of the truth of these assertions.

The animal world, from which we may take our first illustration, presents, from its lowest to its highest forms, a series of organic structures progressing with almost imperceptible gradation in perfection of development and complexity of organization. Amongst the simplest of its representatives are the Protozoa, the great majority of which are too small to be distinguished They are graphically without the aid of the microscope. described by Dr. Wm. B. Carpenter as consisting of "seemingly structureless jelly." They perform those vital operations which we are accustomed to see carried on by an elaborate apparatus without any special instruments whatever-a little particle of apparently homogeneous jelly changing itself into a greater variety of forms than the fabled Proteus; laying hold of its food without members, swallowing without a mouth, digesting without a stomach, appropriating its nutritious material without absorbent vessels or a circulatory system, moving from place to place without muscles, feeling (if it has any power to do so) without nerves, multiplying itself without eggs, and not only this, but, in many

instances, forming shelly coverings of a symmetry and complexity not surpassed by those of any molluscous animal. And yet these creatures have performed, and are still performing, one of the chief parts in the history of this globe. With them, we arrive at that mysterious border-land which divides, and yet seemingly blends, the organic and inorganic world; where we find arising the simplest vegetable and animal structures scarcely distinguishable from each other, and beyond which we cannot proceed in our search for the beginning of life. Yet the earnest student, when examining them, feels, with more than ordinary intensity, the profound mystery of life, and will continue to investigate the phenomena they present in eager hope of new revelations. But the Protozoa have not ungenerously left without reward the researches made in their behalf. They have presented to man's astonished sight objects of marvellous beauty in the form and structure of the microscopic shells of many of them. They have also enabled him to obtain enlarged conceptions respecting the nature of species and the laws of organic life, and have taught him to recognize in these minute organisms some of the chief builders of the earth's crust-many of its component rocks being the stupendous monuments of their labors, and in which they lie entombed.

Not without interest, also, will be found the study of the shell-fish, long considered the most inert and stupid of all animals. "Les mollusques," wrote Virey, even within our own time, "sont les pauvres et les affligés, parmi les êtres de la création; ils semblent solliciter la pitié des autres animaux." On the other hand, Lorenz Oken exclaims, "Surely a snail is an exalted symbol of mind slumbering deeply within itself!" Shakespeare's fool hit the happy medium between extremists, when he told King Lear that the reason why the snail has a house was "to put his head in, not to give it away to his daughters, and have his horns without a case." Lucian ridiculed the philosophers who spent their lives inquiring into the soul of an oyster; but a modern writer is yet more severe on the conchologists when he says "Lucian's wiseacres were respectable when compared with their brethren, who care for neither an oyster's soul nor body, but con-

centrate their faculties in the contemplation of its shell." But this writer may have forgotten that the conchologist—reversing the procedure of the lawyer of the fable, who gave to his clients the shells and kept the oyster to himself-may be as much warranted to examine the waves, scales and ribs of the shell, as is another to anatomize the contained creature, which, says Lentitius, "animal est aspectu et horridum et nauseosam, sive ad spectes in sua concha clausum, &c." Without claiming too much for the shell-fish, we may assert that the student will find them possessing quite a sufficiency of acuteness and sensibility, and their instinctive proceedings are often very surprising. Some of these proceedings of mollusks, it is true, we are not always inclined to admire; for instance, those of the teredo, or ship-worm, that terrible destroyer of ships, landing-piers, and dockyards; though, perhaps, he may consider he is only offering just retaliation for man's unceasing warfare against his cousins--the oysters. may not stay to take a more particular view of the mollusks, but will proceed to notice a few points of interest in the study of the vegetable kingdom.

About a century and a quarter ago, Linnæus declared the number of the different kinds of plants to be 5,938. Half a century afterwards, the estimate had increased five-fold. In 1847 it was announced as 92,920; and now, Meyens and others calculate the entire vegetation of our planet to consist of some 200,000 species. The aborigines of New Zealand have learned to distinguish by name some 700 trees and plants produced on their own island, a number considerably greater than that of the species described by Theophrastus in the first history of plants ever given to the world. But besides those plants which the pious and philosophic Rae says "are by the wise disposition of Providence proper and convenient for the meat and medicine of men and animals"—besides those which enable the botanist, like his prototype in Milton's Comus, to

"Ope' his leathern scrip
And show simples of a thousand names,
Telling their strange and vigorous faculties,"

we find vegetable life in its most simple form and develop-

ment represented by the mere primary cell; and of the onecelled plants the most interesting order is the Diatomacæ. The yellow dust, which falls like rain on the Atlantic, near the Cape de Verde Islands, and occasionally drifts even to Italy and Central Europe, was found by Ehrenberg to consist of myriads of silicious-shelled microscopic plants. Darwin discovered that a cloud of dust, drifting through the air from the continent of America to Africa, and coming in contact with the rigging of the ship in which he was sailing, consisted of the shelly coverings of diatoms. The naturalists of the Antarctic Expedition constantly found them adhering to the lead, after sounding depths in the ocean which would have engulphed the loftiest peaks of the Andes. Humboldt, on the other hand, has shown that they float in the upper currents of the atmosphere perhaps for years, until brought down to the earth by vertical currents. But, turning from these and the almost equally interesting family of the Fungi, which are so destructive, however, to our bread, fruits, and other objects of domestic economy, I would now, on the Solomonian principle of ascending from the hyssop to the cedar, say a few words respecting some of the giants of vegetation. I take, as an illustration, the celebrated Big-trees of California. This group of huge coniferous trees (placed botanically between the pine and the juniper) was discovered in 1850 by some hunters pushing their way through a hitherto unexplored forest in the Calaveras county, about 240 miles from San Francisco. It is deeply to be regretted that cupidity and vandalism have led men to hew down the largest of the group, for the purpose of making a show of One measured 96 feet in circumference, its surface smooth, and afforded ample space for 32 persons to dance on it. Theatrical performances were given on it in 1835. As it lay on the ground, it measured 302 feet. The so-called "Mother of the Forest" is 90 feet in circumference, and 327 in length. The largest, called the "Father of the Forest," is 42 feet in circumference and 450 feet long-only a few feet lower than the Pyramids of Egypt. As a set-off to the barbarity which, be it said, no where called forth greater indignation than in the United States, the Wellingtonia, as these trees were called by the English.

(Washingtonia by the Americans), have become acclimated in England and Scotland, where their growth, first recorded in inches, is now annually reported in feet. The propagation of these trees may lead us to examine, as points of interest in the vegetable kingdom, the more general subjects of the propagation of plants, by nature's wondrous provisions, their fertility and preservation. I will here only cite, in the words of a learned author, one instance of the prolific power with which the vegetable creation is endowed. It is the elm-tree. "At first one seed is deposited in the earth, from this one a tree springs, which, in the course of its vegetable life, produces one thousand five hundred and eight-four millions of seeds. This is the first generation. The second generation will amount to two trillions fivehundred and ten thousand and fifty-six billions. The third generation will amount to fourteen thousand six hundred and forty-eight quadrillions seven hundred and twenty-seven thousand and forty trillions, and so on, in sums too immense for the human mind to conceive. Now, when we allow the most confined space in which a tree can grow, it appears that the seeds of the third generation from the elm would be many myriads of times more than sufficient to stock the whole superficies of all the planets in the solar system."

Recurring for an instant to the Diatomacæ, I may here remark that the existence of these minute uni-cellular organisms may lead the uninitiated to doubt whether they could well answer that apparently easy question, What is a plant? Further investigation would show that it is difficult for the greatest adept to do so, and that when it is attempted to draw a line of demarcation between the primary conditions and forms of animal and vegetable life, no problem in the science of nature is more obscure; and the difficulty increases too with our knowledge. Perhaps this may be sufficiently shown by those familiar objects, the sensitive plant and the sponge. It was always held by naturalists that the property or character distinguishing animals from plants is feeling, which is evinced in the lower forms of animal life by their shrinking from the touch. But when we try vegetables as well as animals by this rule, we find many plants

(one example is the Mimosa pudica, or sensitive plant,) endowed with a far higher degree of susceptibility to external impressions than is evinced by some of the lower races of animals under the operation of tests which, if applied to the higher races, would amount to torture. Thus the arts of ingeniously tormenting have been exhausted in vain upon the imperturbable sponge, which is endowed with vital powers which appear to render its animal nature unquestionable. Lacerated with forceps, bored with hot irons and saturated with the fiercest acids of the chemist, it has never once given any symptom of suffering or sensibility. These facts may be sufficient to show that no difference of a physical or chemical description can be established between plants and animals in that low part of the organic world in which the two great divergent branches have their source, and that any attempt to separate them must be arbitrary and artificial. Here then the student of Natural History learns the great lesson of a fundamental unity prevailing throughout organic nature. He sees exhibited to him a sequence without interruption in the working out of the divine idea of creation-from man spiritual and immortal, in whose wonderful organization meet and culminate the structural perfections of all the animals, down to the primary cell in which vegetables and animal life exhibits its simplest form of development.

Turning now to the third of nature's great kingdoms, I would remark that no one has ever questioned the utility of that study which directs and guides us in our search within the bowels of the earth for the ores and other substances that are at once the sources of national wealth and the supply of human wants and comforts. But while the utility of the study of mineralogy is everywhere conceded, geological research, which is inseparably connected with it, has been regarded not without much suspicion and disfavor. Irrespective of the fact that all quarrying and mining undertakings must be properly based on, and directed by, geological knowledge, how different the aspect which a section of country exhibits to the eye of a geologist and of the uninformed spectator. Whether it present sand, gravel, or alluvial soil; and in its form hill or valley, solid rock or detached boulders—all add

to the interest and pleasure of the scientific observer. The stone turned up by the ploughman, and which would not interrupt his whistle or call forth the slightest interest in the stolid wielder of pick and mattock, has for the geologist, sermons and histories, exhibiting to him mighty changes and wondrous revolutions that have completely changed the surface of the globe he lives on. The careless laborer breaks the stones that have no other interest in his eye than that they are intended to mend the roads; and the quarryman cuts out his slabs, the highest utility of which he deems their appropriation to building or ornamental purposes. Both crush, or cut to pieces, in all the blindness of ignorance, the fossil forms of unknown animals contained in them, but from which the geologist teaches the botany and zoology of former phases of the world, and even enables him to speak of great changes to take place in the future. The achievements of geology are, however, too numerous and important even to glance at within my limits, but I would venture to say something respecting one of its sub-divisions-Ichnology, or the study of fossil footsteps, revealing to us wonders of the past such as the imagination of even a Milton or a Dante could never conceive.

Possibly Robinson Crusoe himself was not so much astonished at the footprints on the sand of his desolate island, as the naturalist who first saw the footmarks of birds on the slab of sandstone turned up by the plough of an American boy in 1802, at South Hadley, in the valley of the Connecticut River. From this valley, the tide of conjecture flowed over other continents, until it seemed finally to settle down into the theory that the Noachic flood had rolled over those sandstone slopes, the surface of which, when the waters subsided, was so soft as to readily receive the imprints of a bird's foot. The traces then were those by which the raven of Noah had written the historical fact of his standing on the earth itself; and so the foot-prints were finally set down as those of Noah's raven. For another quarter of a century and more, this dictum of popular ignorance remained uncontroverted, men of science paying but little attentiou to it, until a Scotch clergyman, Dr. Henry Duncan, of Ruthwell, in 1828, called attention to fossil tracks in connec-

tion with the sandstones of Corncocklemuir. Buckland, by means of his Bridgewater Treatise, gave wide circulation to Duncan's discoveries, showing that these impressions were found through a depth of forty-five feet of rock, not on a single stratum only, but on many successive strata, thus demonstrating that they had been made at successive intervals. The sandstones of Dumfrieshire are supposed to have been wide-spread expanses of sand of a littoral character, visited and covered by the ancient tides, some of these surfaces recording atmospheric conditions. Their faces are sometimes pitted with hollows, the results of a pelting shower, and these pittings have occasionally such a well-defined and distinct direction, that one can ascertain the direction of the wind, which bore along with it the rain clouds. The sandstones of Cheshire, again, exhibit sufficient evidences of solar influence. We find here the sun-dried surfaces of the clayey strata associated with the sandstone, over which animals formerly crawled, cracked and shrunk by the solar beams. Again, they present beautiful sand ripples, the result of a gentle breeze breaking the stiff surface of a shallow pool of sea water on these sandy shores. There may also be found instances of the evaporation of salt water, and the crystallization of sea salt, from the natural salt pans of the ancient beaches. Another noticeable fact is the almost constant and uniform direction of the impressions. They nearly all indicate that the animals, which Sir William Jardine shows must have belonged to some forms of tortoise, walked from the west towards the east. Further discoveries of fossil footsteps were made in the United States in 1835, the impressions again resembling the feet of birds, and found in the sandstone rocks near Greenfield. Dr. Hitchcock, President of Amherst College, showed that they were actually produced by the feet of living birds, and that one of the kinds of tracks had been made by a pair of feet, each leaving a print 20 inches in length Says the eminent Owen: "Under the term Ornithichnites giganteus, Dr. Hitchcock did not shrink from announcing to the geological world the fact of the existence, during the period of the deposition of the red sandstone of the valley of the Connecticut, of a bird which must have been at least four times larger than the

ostrich." "I have already referred," says Hugh Miller, "to flying dragons, real existence of the Oolitic period, that were quite as extraordinary of type, if not altogether so huge of bulk, as those with which the Seven Champions of Christendom used to do battle; and here we are introduced to birds that were scarcely less gigantic than the roc of Sinbad the sailor." I might add to Miller's remarks, that the Bar Yuchné, that enormous bird of the Talmudic legend, seems to find identification here.

But I must hasten to conclude these remarks, already too long. They must necessarily convey but a very faint idea of the boundless field of interesting and pleasurable inquiry awaiting the student of Natural History; still, I trust they will not be without effect in leading into this field, some of those who have not hitherto entered at all. To such, my concluding words would be in the accents of caution and advice. I would say, "You must needs fearlessly concede to modern science all that is claimed for it, to this extent, that in its dealings with the great physical powers or elementary forces which pervade and govern the material world, it has been led or even forced into a bolder form and method of inquiry-that inductions of a higher class have been reached, and generalizations attained, going far beyond those subordinate laws in which science was formerly satisfied to rest,that the precision and refinements of modern experimental research strikingly distinguish it from that of any anterior time,that physical researches generally in our own day have a larger scope and more connected aim, experiment being no longer tentative merely, but suggested by views which stretch beyond the immediate result, and hold in constant prospect, those general laws which work in the universe at large. But let it be ever remembered that there is also exhibited in our own day a marked fondness for what is new and difficult and unintelligible in philosophy—a spirit that takes pleasure in stigmatizing as hindrances to truth in physical science, all such opinions as are fostered by ancient and popular belief, including those which assume Scriptural authority for their foundation. In their too hot zeal against dogmatical authority, we find some falling into the opposite rashness of lending their authority and favour to

hasty and partial experimental deductions, or to doctrines still in their infancy, and checked or controverted by opposite opinions of equal weight. Let, then, the dangerous effects of gratifying too prevalent a taste for transcendental inquiries in science be duly marked and carefully avoided, regarding it as cause for gratitude and felicitation that they are corrected by the contemporaneous activity of those philosophers who make experiment and strict deduction the sole measure and guides of their progress.

The Chairman of the Council (Mr. A. S. Ritchie) then submitted the following:—

#### REPORT OF THE COUNCIL.

Your Council beg leave to present the following report of the proceedings of the Society for the past year, and in doing so would express the hope that this Society as it grows older may become more useful, and that a deeper interest for its welfare may be evinced by the whole community.

The many difficulties under which the Society has laboured for years, still exist in certain forms; one of these is its financia position. The debt on the building is still hanging over us. In regard to this, your Council recommend that those praiseworthy efforts of certain members of the Society in canvassing and obtaining subscriptions towards its liquidation be carried into effect by the collection of the amount already subscribed, and if possible to advise the necessity of a second attempt at canvassing so as to leave us with a clean debit sheet and something on the credit side at the end of another year. The thanks of this Council and of the members generally are specially due to those gentlemen who interested themselves in obtaining subscriptions.

The Government grant has been received, and it is hoped will be continued as usual.

The number of members has steadily increased, there having been eighteen members elected during the year. They may be classified in this manner: 15 ordinary members; 2 corresponding members; 1 non-resident ordinary member.

Another class of members have been admitted into the Society, viz., Lady Associates. Thirty-three have been enrolled during the last year, making an addition of new names on the list of membership of fifty-one.

Another feature to be noticed here is the election of sixteen life members in lieu of \$50 subscribed by each for the liquidation

of the debt.

There has been a number of resignations during the year.

Your Council would recommend to the new membership committee and to all the members of this Society the necessity of endeavouring to add to our list of fellow-workers in our labours to improve and benefit mankind.

Another new feature to be noticed in this report is the institution of field meetings. The first of these was held at St. Helen's Island, and was well attended, while everything tended to shew that all were satisfied and pleased with their trip.

The thanks of the Council are due to Dr. J. Baker Edwards, for revivifying an old idea of this Society in regard to field meetings, which, but for his zeal, might have only remained an idea. The thanks of the Council and Society are tendered to all who helped in the carrying out of these arrangements—and we would recommend to the new Council a continuance of these meetings, as the amount of good to the Society by their occurrence will no doubt stimulate to increased usefulness—and your Council hope that the second field meeting to be held on Her Majesty's birthday, may be crowned with success.

The next point to be mentioned is the opening of the Museum to the public on Saturday afternoon; and the thanks of the Society are due to the Corporation for their kindness in granting a policeman to guard the interest of the Society on these occasions.

Another question for the consideration of the new Council is the necessity of making the Library more useful to its members. This work has been already begun by our Curator, Mr. Whiteaves, as his report on the Library will shew. Your Council would recommend the suggestion of Principal Dawson for consideration, to provide tables where the scientific periodicals of the day may be available to the members of this institution.

The Somerville course of public lectures have been extremely interesting this session. The following is a list of the lecturers, with the titles of the subjects selected by each:

1st. On the Peninsula of Sinai and its Engraved Rocks. By the Rev. Dr. De Sola.

2nd. On Air Poisons and their Antidotes. By P. P. Carpenter, B.A., Ph. D.

3rd. Sources of Mineral Wealth. By Principal Dawson, LL. D., F.R.S., F.G.S.

4th. On the Game Laws. By Alfred Rimmer, Esq.

5th. The Races of Mankind. By Dr. Bessey.

6th. Coal and its Products. By Dr. J. Baker Edwards.

The following original papers were read before the Society:—Report on the Field Day. By Dr. J. Baker Edwards.

On Some of the Causes of the Excessive Infantile Mortality of Montreal. By Dr. P. P. Carpenter.

On Some Results Obtained by Deep Sea Dredging at Gaspé. By J. F. Whiteaves, F.G.S.

On Some Evidences of the Occurrence of Gasteropoda in the Devonian Period; and, on Some Points in the Structure of the Crinoidea. By E. Billings, F.G.S.

A Few Notes on the Habits of the Canadian Salmon. By D. A. P. Watt, Esq.

Obituary Notice of two British Naturalists lately deceased. By Dr. P. P. Carpenter.

A Communication on Some of the Phenomena in Geisslers Vacua Tubes; and, on the Spectra of Certain Vapours and Gases, with experiments. By Dr. J. Baker Edwards.

On Some New Facts Relating to the Huronian and Lower Carboniferous rocks of New Brunswick. By G. F. Mathew.

Remarks on the Doctrine of Geological Cycles. By Principal Dawson, LL.D., F.R.S.

Several of these have been published, or are in progress of publication, in the Canadian Naturalist.

In regard to the this journal, your Council recommends that action be taken at as early a day as possible by the new Council in procuring more subscribers, as with the present number the publishers feel their inadequacy to issue it as formerly—once every two months. Four numbers of Volume III. are printed, and the fifth, bearing date June, is in the press. Mr. Watt, of the editing committee, suggests if the Council, by personal canvass, could procure seventy or eighty new subscribers, the journal would go on as formerly.

The annual Conversazione was held on the 24th February, and passed off in a very creditable manner. Microscopes were exhibited, with microscopical preparations, by Dr. Edwards, also by Messrs. Ferrier, J. P. Clark, Muir, Baillie, and Ritchie. McGill College contributed philosophical instruments, under the superintendence of Professor Johnson and Dr. Smallwood. Dr. Edwards also exhibited the opaque lantern and dissolving view apparatus, likewise electrical tubes. The music was furnished by the choir of St. John the Evangelist's Church, under the charge of the Rev. Mr. Norman, and Mr. Meyerhoffer kindly officiated as pianist on the occasion, which contributed very much to the success of the entertainment. Objects of interest in the fine arts were also contributed by friends of the Society. The President Rev. Dr. DeSola, and Principal Dawson, favoured us with addresses, making our last Conversazione one of the most successful yet held.

The next point we would touch on is the improvements in the Museum. New cases have been furnished for both sides, which will be noticed in the report of the curator, Mr. Whiteaves. The thanks of the Society are due to him for his zeal and labours in its interest. The subject of ventilation in regard to the Lecture Room has been reported on, and we would recommend this circumstance to the consideration of the new Council.

We are also indebted to the untiring zeal of our Treasurer, Jas. Ferrier, jr., Esq., for the trouble he has always taken in the management of the financial matters of the Society.

The thanks of the Society are also due to Mr. Wm. Hunter for his efforts in its behalf; and for the many valuable contributions of birds and other specimens to the Museum. It was unanimously resolved to recommend to the Society at its annual meeting, That the Silver Medal of the Society be voted to Dr. Dawson, Principal of McGill College.

In conclusion your Council, in retiring from office, would fain hope that the incoming year may be more propitious, that our successors may find better days in store for them, and that before long, by the hearty co-operation of all the members, this Society may become what it ought to be—a benefit to the country and a public boon.

ALEX. S. RITCHIE.
Chairman of Council.

# REPORT OF THE SCIENTIFIC CURATOR AND RECORDING SECRETARY.

Since the last annual meeting considerable progress has been made, not only in the classification of the specimens already in the collection, but also in the acquisition of new objects of interest. In the department of mammalia five species have been added, three of which are new to our series. A specimen of the young, or blue variety, of the Artic fox has been presented by the Smithsonian Institute, and Mr. Barnston has kindly given us an example of the Rocky Mountain Rat, Ncotoma cinerea of Ord. By exchange with the Chicago Academy of Sciences we have obtained two specimens of the Leopard Spermophile, from Illinois, and one example of the Missouri pouched Rat (Geomys bursarius) from Iowa. Within the last two years our series of American mammals has been almost doubled, and within the past four years we have added to our series fifty new Canadian and nine new species of exotic mammals.

The principal feature of the past year has been the great improvement in our collection of birds. Thirty-six new specimens of Canadian birds have been procured, and beautifully mounted by Mr. Hunter. The Smithsonian Institute have contributed 11 rare species of N. American birds, mostly from Russian America.

Captain Bulger has forwarded a series of 200 specimens of the birds of the Himalayas, all carefully named. Unfortunately,

however, these have sustained such injury from damp during the passage that only 59 specimens could be saved.

The Rev. Dr. Greatorex, of London (England), has presented us with a specimen of the Yellow-billed Albatross. During the past twelve months 109 new specimens of birds have been added to the collection. Two large new cases have been erected in the Museum, one of which is devoted to the reception of Canadian birds, and the other to that of British and foreign species. The whole collection has been re-mounted upon separate stands, each of which has been made on the premises. The Canadian birds have been re-grouped, classified and named in exact conformity with Prof. Baird's Monograph on the Birds of North America. This part of the collection is now in perfect order, and the whole of the series is carefully labelled. The Exotic species have been re-grouped and partly named, but the classification of this part is not yet finished.

To give an idea of the work entailed by this new and improved system of classification some details may not be out of place. The following is an estimate of the number of specimens of birds in our collection up to the present date.

Canadian Birds	373
United States Birds	
British Birds	
Exotic Birds	

934

How much progress has been made in this important branch of Natural History may be inferred from the fact that during the past year we have added 109 new specimens, and in the preceding session 120, giving an average of over 100 specimens per year.

Amongst the Reptiles several new specimens have been added, one of them a frog (Rana sylvatica) which has not heretofore been catalogued as inhabiting Lower Canada, also several critical species of the native genera Salamandra and Plethodon, and some others in addition, including three exotic forms.

Nine species have been added to our series of Canadian fishes; among the more interesting of these are Raia levis from the

Lower St. Lawrence, a very large specimen of Corvina Richardsonii, 3 species of Catastomus, Labrax notatus Richardson; also specimens of Anguilla acutirostris, and examples of the Canadian Herring and Mackerel.

During the past summer dredging operations were carried on in Gaspé Bay with considerable success. Twenty-one species of Mollusca, one of Echinodermata, and one of Alcyonidæ, new to the Canadian fauna, were procured, and specimens of most of these have been placed in the Museum. An interesting series of invertebrates, dredged by Mr. Packard in Labrador, have been presented by that gentleman to the Society. The collection of Crustacea and Echinodermata has been carefully gone through and re-classified.

The large herbarium of the Society has occupied a considerable portion of the time of the past year. The whole collection has been gone through, the loose plants have been fastened, and the whole of the valuable series of North American plants has been grouped in accordance with the classification adopted in Prof. A. Gray's Manual. Mr. D. A. P. Watt has kindly arranged the ferns, and has added many species that were wanting in this department. The collection of N. American plants now fills 24 large portfolios.

In the departments of ethnology and archeology several interesting specimens have been added.

Considerable attention has been paid to the Library; the periodicals are systematically arranged, and 31 vols. of the proceedings of American and English scientific societies have been bound. About 56 vols. of the proceedings of European societies, however, still want binding.

The Library is in great want of new books illustrative of the Natural History of N. America, no additions in this direction having been made for years. It is to be hoped that efforts will be made to supply this much to be regretted deficiency. Hardly any of the best monographs in the various departments of Natural History (books which are absolutely essential in the study of Canadian zoology, botany or geology) are to be found on our

shelves, and the study of physical science is in consequence much retarded.

J. F. WHITEAVES, F.G.S., &c., Curator & Rec. Sec. N. H. S.

The following abstract, shewing the financial position of the Society, was then submitted by the Treasurer, Mr. Jas. Ferrier, jun.

1868.       May 1.         To Cash paid, J. F. Whiteaves, salary.       \$400 00         "Wm. Hunter, do.       200 00         "J. E. Pell, commission for collecting.       44 30         "Interest.       216 00         "Gas Accounts.       47 24         "Water Account.       38 75         "City Taxes.       41 19         "Insurance.       39 00         "Repairs, and petty expenses.       160 16         "P. O. Account.       12 71         "Books, Printing, and Advertising.       167 98         "for Furniture.       227 22         "Mortgage, favor late Wm. Watson.       400 00         To Balance in Treasurer's hands.       219 59	" Life Members' subscriptions         2.           " Donations received towards liquidation of debt.         8           " Members' yearly subscriptions         88           " Museum entrance fees         1           " Rent of Lecture Room         15           " Proceeds of Conversazione         4           " Field Day         2	28 9 50 0 50 0 95 0 81 0 113 5 36 0 411 3 20 5 413 41
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JAMES FERRIER, Jr., Treasurer, N. H. S.

STATEMENT OF LIABILITIES, MAY 1st, 1868.

Mortgage on Society's Building, favour Royal Institution........\$2000 00

It was moved by Jno. Leeming, seconded by Dr. David, and carried by acclamation:

That the silver medal of the Society be voted to Principal Dawson, for his services to the cause of science in British America.

It was next moved by Mr. Marler, seconded by Mr. Shelton, and unanimously resolved:

That the foregoing reports be adopted, and that they be printed for distribution to the members.

Mr. T. J. Claxton moved, and Mr. W. Muir seconded, a resolution to the effect:

That the thanks of the Society be given to the retiring officers, and that we desire more especially to express our sense of the importance of the services of Mr. Whiteaves, as Scientific Curator, and our desire that he may continue to occupy that position.

The following gentlemen were elected office-holders for the coming session:—

#### OFFICERS FOR 1868-69.

President.—Principal Dawson, LL.D., F.R.S., &c.

Vice-Presidents.—Rev. A. De Sola, LLD.; E. Billings, F.G. S.; Sir W. E. Logan, LL.D., F.R.S., &c.; C. Smallwood, M.D., LL.D., D.C.L.; Dr. T. Sterry Hunt, F.R.S.; The Right Rev. the Lord Bishop and Metropolitan; Jno. Leeming; Dr. P. P. Carpenter; G. Barnston.

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Corresponding Secretary.—Prof. P. J. Darey, M.A.

Curator, Recording Secretary, and Sub-Librarian.—J. F. Whiteaves, F.G.S., &c.

Librarian.—E. E. Shelton.

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Editing Committee of the "Canadian Naturalist."—D. A. P. Watt, Acting Editor; Principal Dawson; Dr. T. Sterry Hunt; E. Billings; J. F. Whiteaves; Prof. P. Darey.

Library and Membership Committee.—W. Muir; Alexander Gordon; M. H. Sanborn; D. Rose; and R. McLachlan.

## LIST OF DONATIONS TO THE MUSEUM.

From May 27th, 1867, to April 27th, 1868.

The dates refer to the meetings of the Soclety, at which the objects were presented.

Donars' Names.	DONATIONS.
R. J. Fowler, Esq  Jas. Ferrier, jun., Esq  Mr. W. Hunter.  Prof. Darey  Smithsonian Institute, (Washington, U. S.)  A. S. Ritchie, Esq	May 27th, 1867.  2 Red Breasted Mergansers. (Mergus serrator Linn.) Male American Mallard. (Anas boschas, Linn.) Pair of Buffel-headed Ducks. (Bucephala albeola.) Male Ring-necked Duck. (Fulix collaris, Baird.) Male Green-winged Teal. (Nettion Carolinensis.) Pileated Woodpecker. (Hylotomus pileatus.) Male Loon. (Colymbus torquatus, Brunnich.) A series of ethnological and other objects of interest from the Mackenzie river, and from the islands of the Pacific.
W. Abbott, Esq G. Barnston, Esq R. J. Fowler, Esq J. F. Whiteaves, Esq  Rev. Dr. Greatorex, (London, England) Smithsonian Institute, (Washington, U. S.)	October 28th, 1867.  Indian Pipe Bowl, from the supposed site of the Indian village of Hochelaga. Skin and Skeleton of the Rocky Mountain Rat. (Neotoma cinerea, Ord.)  American Hare. (Lepus Americanus, Erxleben) species of Canadian Marine Shells, 3 of Canadian echinoderms, 1 Sertularia, and Aleyonium rubiforme, all dredged in Gaspé Bay.  4 species of Shells from the United States, and 15 exotic species.  Skin of an Albatross. (Diomedea—?)  Skins of the Arctic Fox. and of the following birds, from Rusian America:  Varied Thrush. (Turdus nævius, Gmel.)
	Water Ouzel. (Hydrobata Mexicana.) Chestnut-backed Tit. (Parus rufescens, Townsend. Steller's Jay. (Cyanura Stelleri, Swainson.) Harlequin Duck. (Histrionicus torquatus, Bon.) Fork-tailed Petrel. (Thalassidroma furcata, Gould)

## LIST OF DONATIONS TO THE MUSEUM.

DONARS' NAMES.	Donntions.
Smithsonian Institute. (Washington, U.S.)	1 Pomarine Skua. (Stercorarius pomarinus, Temm.) 1 Buffons Skua. (Stercorarius cepphus, Ross.) 1 Black-throated Diver. (Colymbus arcticus, Linn.) 1 Tufted Puffin. (Mormon cirrhata, Bon.) 1 Horned Puffin. (Mormon cornicula, Naum.)
	November 25th, 1867,
Mrs. Banner Price, (through Dr. Hingston).  Mr. Higginson	3 specimens of the Herculus beetle. (Dynastes Hercules.) 1 young Alligator and 3 Lizards. Male Goshawk (Astur Astricapillus.) 2 lampreys, from the Lachine Canal. 2 intestinal worms. A Canadian grey Squirrel. An Esquimaux stone kettle, a blubber and a flinching knife, dug up near Ungava, Hudsons Bay Territory.
	December 29th, 1867.
Alconbrack, Esq., (Bedford, P. Q.)	Specimens of Maclurea magna (a fossil shell) from the Chazy limestone. Geode, lined with Quartz crystals; from Keokuk, on the Mississippi river. Specimeus of the following fossil plants, from the coal fields of Norris, Illinois:—Pecopteris abbreviata, Neuropteris hirsuta,
Chicago Academy of Sciences	Asterophyllites and Calamites—sp. 2 Skins of the Leopard Spermophile (Spermophilus tridecem-lineatus) from Illinois. 1 specimen of the Pouched Gopher (Geomys bursarius) from Iowa. 3 species of drift fossils from the neighbourhood of Montreal, and a large specimen of Lunatia heros, from Portland, Maine.
	February 24th, 1868.
J. G. Ascher, Esq	Aleyonium, Scolopendra, Corals and Shells, from Bermuda.
	March 30th, 1868.
M. H. Sanborn, Esq	3 coins, vix.: 1 Californian gold half dollar, 50 centimes of the French Republic, 1851, and two annas of the East India Company.

## LIST OF DONATIONS TO THE MUSEUM.

Donars' Names.	Donations.
BtMajor G. E. Bulger, F.L.S., F.R.G.S., M. Z.S., 2nd battalion, 10th foot.	April 27th, 1868.  A valuable series of 200 specimens of the birds of the Himalaya's, all carefully named.
C. Robb, Esq	10 varieties of Canadian marbles, cut and polished, and 6 specimens of minerals from Canada and New Brunswick.
Dr. A. S. Packard, jun	A collection of Marine Invertebrates from
	Labrador, and from Eastport, Maine.  Specimens of the following mammals and birds from Morrison's Island, opposite Berthier, P. Q.:—
	2 Meadow mice. (Arvicola riparia, Ord.) 1 Tyrant Flycatcher, male. (Tyrannus Carolinensis.) 2 Short legged Pewee. (Contopus Richardsonii.)
	Red winged Starling. (Agelaius phæniceus.) "Boblink." (Dolichonux oruzivorus)
Jno. B. Goode, Esq	Spotted Sandpiper. (Tringoides macularius.)  Downy Woodpecker. (Picus pubescens.)  Ruby crowned Wren, male. (Regulus.)
Mr. W. Hunter	satrapa.) Hairy Woodpecker, (Picus villosus.) Yellow bellied Woodpecker. (Sphyropicus varius.)
	Golden Winged Woodpecker. (Colaptes auratus.
	Chimney Swallow. (Chætura pelasgia.) Great Crested Flycatcher. (Myriarchus crinitus.)
P	air of Yellow Warblers. (Dendroica astiva.) air of the Solitary Vireo. (Vireo solitarius.) air of the Warbling Vireo. (Vireo gilvus.)
P	air of the Yellow throated Vireo. (Vireo flavifrons.)
	Grass Finch. (Poocætes gramineus.) Northern Phalarope. (Phalaropus hyperboreus.) Snipe. (Gallinago Wilsomii,)
1	Tell Tale Tatler. (Gambetta melanoleuca.) wo specimens of the "Black Trigger Fish"
W. Rodden, Esq A	(Balistes ringens) from Brazil. Canadian Rattlesnake. (Crotalus durissus.)
	Pin-tail Duck, male. (Dafila acuta.) American Widgeon. (Mareca penelope.) Scaup Duck, Male. (Fulix marila.)
Pa	"Maîachegan." (Corvina Richardsonii.) ir of English Partridges. (Perdrix cinerea.) English Jack Snipe. (Gallinago gallinula.)

Donors' Names.	DONATIONS
Executors of the late }	Reliquiæ Aquitanicæ. London 4to. Parts
W. Christie, Esq S Dr. P. P. Carpenter	4-6. Proceedings of the Bristol Natural History Society for 1866, and for January, 1867.
The Geological Survey & of Canada	Catalogue of the Silurian fossils of the Island of Anticosti, with descriptions of some new genera and species, by E. Billings, F.G.S.
The Author	A brief account of the Thesaurus Siluricus, by J. J. Bigsby, Esq., M.D., F. G. S., &c.
U. S. Sanitary Commission	Documents of the U.S. Sanitary Commission. New York. Vols. 1 and 2, 1866. United States Sanitary Bulletin. New York, 1863-65.
The Author	Cephalopodes Siluriéns de la Bohéme. Introduction, par Joachim Barrande.
G to the Treatitude )	Three Scientific Pamphlets from Leipsig.
Smithsonian Institute, Washington, U.S	Smithsonian Miscellaneous Collections. Vols. 5, 6, and 7. 8vo. Washington, 1864-1867. Smithsonian Contributions to Knowledge. Vol. 14. Washington, 4to.
Natural History Society, }	Memoirs read before the Boston Natural History Society. Vol. 1, Part 2, 1867, 4to.
Boston, Mass 5 The Author	On the Classification of the Subdivisions of McCoy's genus Athyris, as determined by the laws of Zoological Nomenclature. By E. Billings, F. G. S.
	List of the brachiopoda from the Island of Anticosti. By N. E. Shaler.
Mrs. Edwin Atwater	French Bible, translated by Jean Diodati. Geneva, 1644. Dr. Haweis' Commentary on the Scriptures.
Joel Mansell, Esq	Glasgow, 1765. History of the Albany Penitentiary. Dyer
Natural History Society, Boston, Mass	Albany, N. Y. Condition and Doings of the Boston Society of Natural History, as exhibited by the annual reports of the Custodian, Treasurer,
J. D. O. McBean, Esq., }	Librarian and Curators. 1867. Dakotah Grammar and Dictionary.
[Berthier en haut ] Rev. Dr. De Sola	Insectorum sive minimorum animalium the-
u	atrum. London, 1634. Horticultural Essays. No. 1. On the Natural Order Proteece. By J. Knight, F. H. S.
	A General View of the Writings of Linneus.
	By R. Pulteney, M. D., F. R. S., &c. 2nd Edition. Edited by W. G. Maton, M. D., F. R. S., &c. London, 1805.

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Rev. Dr. De Sola	Sur les principes de la Zooclassie, ou de la classification des animaux; par M. H. de
The Authors	Blainville. Paris, 1847. Bombay Magnetic and Meteorological observations. 1864.
Per J. Robertson, Esq	Cape of Good Hope. Report of the Colonial Botanist for 1863, 1864, 1865 and 1866.
The Author	Cape Town.  Modern Scientific Investigation; its methods and tendencies. By Prof. J. S. Newberry.
The Author	Carolina. Part 3. Botany. By Rev. M. A.
U.S. Patent Office	Curtis, D. D., &c. Patent Office Reports for 1862, 1863, 1864 and 1865. 7 vols. 8vo.
M. J. Mitcheson, Esq	48th Annual Report of the Controllers of Public Schools of the 1st School District of
Thos. Rimmer, Esq.,	Pennsylvania. Philadelphia, 1867. Colorado in the U.S. Schedule of Ores, &c. By J. P. Whitney.
The Author	On Natro-boro-Calcite; its formula and associations. By Prof. How. D. C. L., &c.
	Nederlandsch Meteorologisch Jaar-boek voor 1866, 1861-1862, Utrecht
Royal Society, Christiania.	Meteorologiske paa Christiania Observato- rium, 1864, 1865 and 1866. Meteorologiske Beobachtungen aufgezeichnet
"	auf Christiania Observatorium, 1-2, 1862. 3 and 4, 1848-55; and vol. 1, 1837-63.
"	Meteorologiske Iagttagelser det Sydlinge Norge. 1863-66.
"	Acta Universitatis Lundensis. 1865. 3 divisions.
"	Etudes sur les affinités chimiques par C. M. Guldberg and P. Waage. Christiania.
	Beretning om Fisteri Udstillingen i Aalesund; Christiania.
	Report of the Geological Survey of the State of Iowa. 1868.
	Investigations of a Naturalist between Mingan and Watchicouti, Labrador. By W. Couper.
(Snipton, P.Q.)	The Intellectual Observer. London. Nos. 55 to 64, inclusive
exchange for the Naturalist	Canadian Journal. Toronto.  Transactions of the Literary and Historical Society. Quebec.

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exchange for the Naturalist .....

From the Publishers in | Journal of the Board of Arts and Manufactures of Upper Canada.

Transactions of the Nova Scotian Institute. Silliman's American Journal.

Proceedings of the Academy of Sciences of Philadelphia.

Annals of the Lyceum of Natural History of New York.

Boston Journal of Natural History. Proceedings of the Essex Institute.

Franklin Institute. Entomological Society of Do

Philadelphia. Journal of the Portland (Maine) Society of

Natural History.

Transactions of the Academy of Sciences of St. Louis.

Fransactions of the Albany Institute. Albany,

Annals of Iowa.

Proceedings of the American Philosophical Society.

Proceedings of the American Antiquarian Society.

Historical Magazine.

The American Naturalist. Salem, Mass. Proceedings of the American Academy of

Arts and Sciences.

Proceedings of the Linnaan Society. Proceedings of the Dublin University Zoological and Botanical Association.

Proceedings of the Tyneside Naturalist's

Field Club. Journal of the Society of Arts. London. Proceedings of the Natural History Society of Dublin.

Quarterly Journal of Science. London. The Popular Science Review. London.

Transactions of the Geological Society of Glasgow

The Geological Magazine. London.

Bulletin de la Société Imperiale des Naturalistes de Moscou.

Zeitschrift der Deutschen Geologischen Gesellschaft, 1861 and 1862, (From the Geological Society of Berlin.)

Mittheilungen der Kaiserlich-koniglichen Geographischen Gesellschaft. Vienna.

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exchange for the Na-	Sitzungsberichte der koniglichen, bayer Akamedie der Wissenschaften Zu Munchen. Munich. Forhandlinger i Videnskabse Selskabet i Christiania. Christiania. Novorum Actorum Academiæ Cæsareæ Leopoldino-Carolinæ Germanicæ naturæ Curiosorum. Dresden. Berichte über die Verhandlungen der Koniglich Sachsischen Gesellschaft der Wissenschaften zu Leipsig. Abhandlungen herausgegeben vom naturwissen-schaftlichen Vereine zu Bremen. The Isis. Dresden. Giornale di Scienze Naturali ed Economische.
Government of Canada	Palermo.
do teliment of canada	Statutes of Canada.
Education Office, L.C	Journal of Education.
The Publishers	The Canadian Naturalist and Geologist.

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#### UNITED STATES.

Natural History Society	Portland, Maine.
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### GREAT BRITAIN.

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Journal of Natural and of Economic	
Science	
Royal SocietyLeipzig.	
Academiæ Cesareæ-Leopoldino-Carolinæ	
Germanicæ naturæ curiosorumDresden.	
The IsisDresden.	
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Arsenal, Woolwich.
Aimé Bouchard, M.CAcademie des Sciences, Paris
Bouchard, M.CAcademie des Sciences Paris
Feb. 28 '52 Dueferson T. 1 T. " " "
20, Joseph Henry Secre-
tary of the Smithsonian Insti-
of the Shittisonian Insti-
March 28 '52 D. Par Washington.
March 28, '53Dr. Rae washington.
T. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.
Jan. 5, '54O'Bryan Bellingham, M.DDublin.
Mary 10 152 G Stylin Dollingham, M.D Dublin.
may 19, 30 C. Smallwood, M.D. T. T. D. Mantager
Sept. 29, '56Professor James HallAlbany, N. Y.
2, 50 Foressor James Hall Albany N V
Professor Dunglison Dill
Oct. 26 '56 Professor DunglisonPhiladelphia.
Cambridge - D
Oct. 26, '56Professor AgassizCambridge, nr. Boston, U. S.

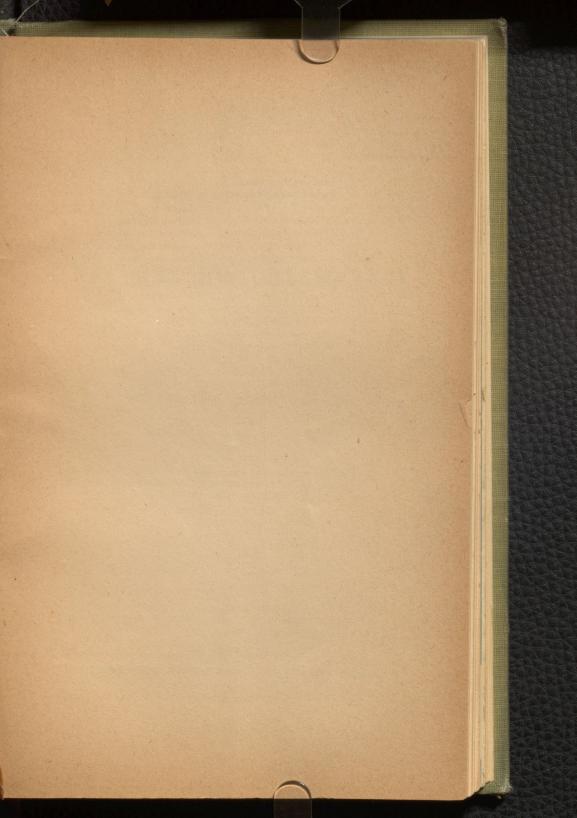
## Corresponding Members.

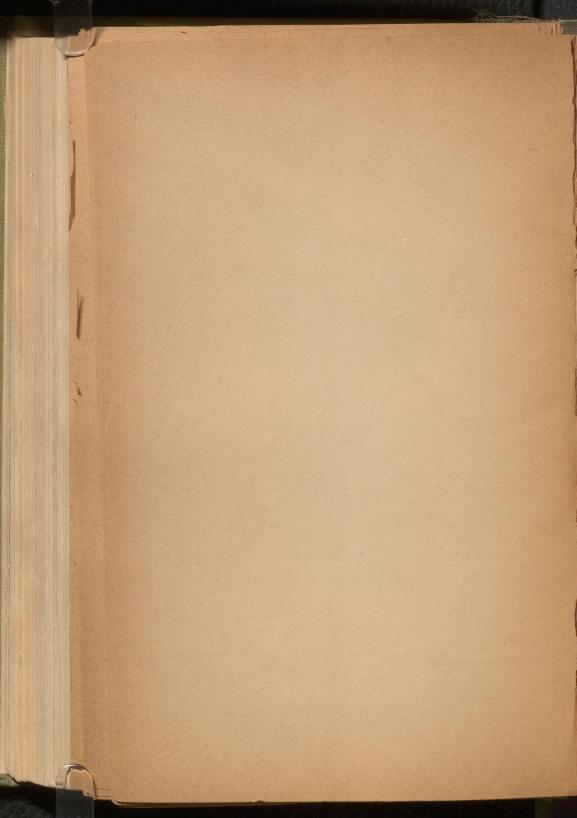
DATE O	F ELECTION.
Aug. 26,	'37Dr. Sabourin
Sept. 29,	45Major Kendall
June 26,	'46Dr. W. Newcomb Troy N V
June 25,	'47J. W. LeaycraftQuebec
Nov. 20,	'47Henry Holmes Croft, Professor
	of Chemistry, University Col-
	legeToronto.
April 24,	'48Major LachlanCincinnati
June 25,	'49Dr. John Hillier Blount Birmingham Franch
July 30,	49Quebec.
	Charles Payn, M.D., United States
May 20,	'50T. McDonaldJamaica.
Jan. 27,	'51Cecil Percival Stone
April 25,	'52Samuel Kneeland, M.D.,Boston, Mass.
Aug. 30,	Dr. Robert M. HustonPhiladelphia, Penn.
	William RogersonRoyal Observatory, Goeen-
	wica.
	William AndrewsQuebec.
Cont 0	J. Adolphus ThurbergLouisiana.
pept. o,	'52M. C. BrodieBeanharnois.
Oct 25	E. A. H. AllenTroy, N. Y.
000. 20,	'52Wm. Goodenough Wheeler,
	M.D.,
Nov. 29	Rev. William ScottSherbrooke, C. E.
2101. 20,	252B. P. Johnson, Secretary, Agri-
	cultural SocietyNew York.
	Samuel WalkerRoxbury, Mass.

Sir John P. Boileau, Bart.,
F.R.S. London.
John L. LeConte, M.DHhiladelphia.
J. Eliot Cabot, Cor. Sec. of the
Boston Society of Natural
HistoryBoston, Mass.
John CassinPhiladelphia.
John Gundlach, M.DCardenas, Cuba.
Prof. W. BucklandToronto.
Feb. 28, '53Dr. Charles Huguet LatourSt. Rémi.
Dr. J. W. SalisburyAlbany.
George Webber BretonParis.
George Genhson RumleyDublin.
Archibald CameronPointe du Chêne.
1 20 252 Hon Jos Cauchon, M.P.PQuebec.
Panjamin Franklin Niles washington, D.
Francis Markoe, jrWashington, D. C.
Samuel DuttonGnernsey.
H. ThielekeQuebec.
François Xavier GarneauQuebec.
Chas. Laberge, EsqSt. Johns, P. Q.
Rev. F. Pilote, College of Ste.
Anne de la Pocatière
Dr. Théop. Huguet Latour,Boucherville.
April 27, '53Vertue EdwardsLondon, England.
Pierre Martial Bardy, M.DQuebec.
Thomas Wakley, jrLondon.
William BellLondon.
Philip Claiborne Gooch, M.D.,Richmond, Va.
Col. Campbell, C. BSt. Hilaire.
Eben. Wight, M.DBoston, Mass.
Alexander MurrayWoodstock, C. W.
July 26, '53George G. FrancisSwansea, England.
Geo. Prev. de BouchervilleSt. Hyacinthe.
Rev. G. LangevinQuebec.
Albert Baker, M.DStancross, Devon, England.
John GilsonRome, Italy.
John Guson
Nov. 28, '53Casimir DessaullesSt. Hyacinthe.  Hamilton D. Jessup, M.DPrescott.
M. Turcot, M.DSt. Hyacinthe.
Rev. M. LavalléeSt. Vincent de Paul.
Rev. M. Lavallee
April 24, '54Rev. Michael AshtonAdelaide, Australia.
June 30, '54Rev. M. A. TrudeauBuffalo, N. Y. Edward Crisp, M.DLondon.
Edward L. Ormerod, M.BBrighton.
Edward L. Ormerou, M.B. Pointe Claire.
James SpencePointe Claire.

Oct. 30, '54Rev. Louis Ed. BoisMaskinongé.
Dr. Amédée WeilbraimTournay, Belgium.
Jan. 29, '55Sir James Ed. Alexander
June 25, '55General Rowan
Dr. LitchfieldKingston.
Oct. 29, '55William CouperOttawa.
March 31, '56Sir G. E. Cartier, M.P., Bart.
A. BrunelToronto.
Rev. W. Brethour, M.AOrmstown.
April 28, '56Hon. Judge SicotteSt. Hyacinthe.
May 19, '56Asst. Com. Gen. Ibbotson
Jan. 28, '56P. L. McDougall, AdvocateToronto.
J. C. Lee, M.D London, C. W.
Prof. P. J. HeyfelderFinland.
Dec. 29, '56H. P. GosselinClarendon.
Alexander CopelandHinchinbrooke.
Feb. 25, '57Prof. O. P. Hubbard, M.D.,
Darmouth CollegeHanover, N. H.
Rev. A. J. Tellier, President St.
John's College, N. YFordham.
R. L. PellNew York.
April 27, '57Jules Flavien GingrasQuebec.
July 27, '57Count MotschulskySt. Petersburgh.
April 27, '57Rev. M. Curtis, D.DHillsborough, U. S.
W. S. SullivanColumbus, Ohio.
S. Durkee, M.DBoston, Mass.
May -, '60Rev. Louis WurteleActonvale.
July -, '60M. J. MitchesonPhiladelphia.
Oct, '60Henry PooleHalifax, N. S.
Rev. D. Honeyman, F.G.SAntigonish, N. S.
Ed. Bowen, M.DBrantford.
Nov. —, '60Barnard R. RossFort Simpson, Rupert's Land.
Jan, '62Thomas MacfarlaneActonvale.
June 30, '62Professor BairdSmithson'n Inst., Wash'gton.
W. Stimpson, M.D " " "
Rev. A. Forrestor, D.DPrincipal of Normal Schools,
Truro, Nova Scotia.
Sept. 29, '62Dr. Lowe, F.R.S., &cBrighton, England.
Nov. 24, '62S. H. ParkesBirmingham, England.
March 30, '63Hugh E. MontgomerieLondon, England.
Professor J. W. BaileyFredericton, N. B.
N. W. BethuneOttawa, C. W.
Oct. 26, '63W. SaundersLondon, C. W.
A. S. PackardBrunswick, Me.
H. RoseGranby, C. E.
G. F. MatthewSt. John, N. B.

Oct. 26,	'63Professor HowNova Scotia.
Nov. 30,	'63John Brown
Sept. 26,	'64Professor R. Bell, F.G.SKingston, C. W.
Oct. 24,	'63Rev. R. McDonald
	Professor H. Y. HindWindsor, N. S.
Nov. 28,	'64Captain Rooke, S.F
March 27,	'65Captain P. G. Fortin Laprairie.
Nov. 29,	'65Professor WestwoodOxford, England.
	Professor Daniel WilsonToronto.
	G. F. Angas, Esq., F.Z.S., &c.London, England.
Jan. 29,	'66Alexander AgassizCambridge, Mass.
	'66Rev. T. RobinsonAbbotsford.
	'67H. Woodward, EsqBritish Museum.
	Bryce M. Wright, Esq London, England.
	Thomas J. Moore, EsqLiverpool, England.
Nov. 25.	'67Sandford Fleming, EsqHalifax, Ont.
Feb. 24,	'68John Macoun, EsqBelleville, Ont.
	'68Bt. Major G. E. Bulger, F.L.S., India.
	&c., &c.





# PROCEEDINGS

AT THE

## ANNUAL MEETING

OF THE

# NATURAL HISTORY SOCIETY

OF

MONTREAL,

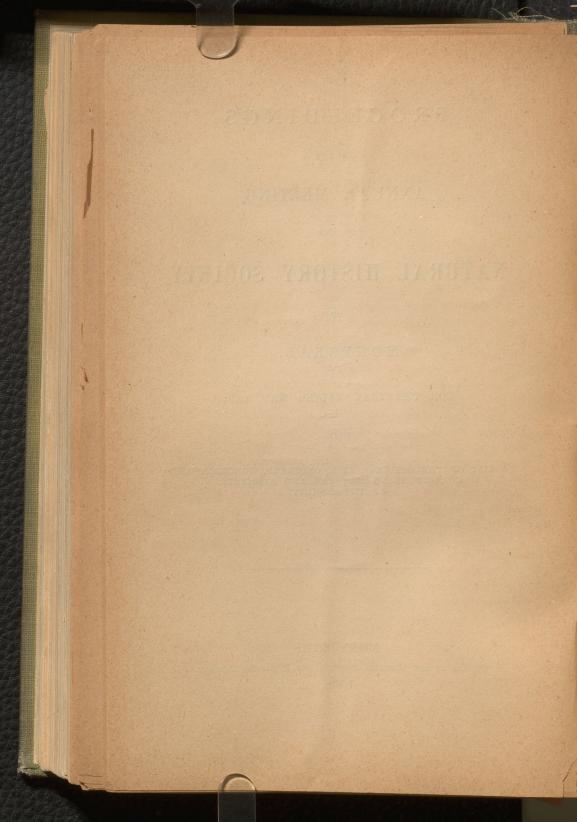
FOR THE YEAR ENDING MAY, 1869:

WITH

A LIST OF THE OFFICERS, LIFE, ORDINARY, HONORARY AND CORRESPONDING MEMBERS AND ASSOCIATES OF THE SOCIETY.

#### MONTREAL:

PRINTED BY THE MONTREAL PRINTING AND PUBLISHING COMPANY. 1869.



## PROCEEDINGS.

The annual meeting of this Society was held at its rooms on the evening of May 18th, the President, Principal Dawson, LL.D., F.R.S., &c., in the chair. Mr. J. F. Whiteaves, the Recording Secretary, read the minutes of the last annual meeting; after which the usual annual address of the President was delivered. An abstract only is given here, the entire address will be found in Vol. 4, pages 121 to 138 of the New Series of the Canadian Naturalist.

The President commenced by saying: -

The sphere of this Society, as a modest preserver and collector of local facts in Natural History, does not preclude its glancing at the more difficult and abstruse questions which agitate Naturalists elsewhere; and perhaps no place is more fitting for this than the annual address of the President. I propose, therefore, on the present occasion, to direct your attention to the present state of those exciting questions agitated in our day by Geologists, Zoologists and Botanists, as to the origin of Species and Genera, and the law of their creation.

He then proceeded to an elaborate discussion of the various theories of Derivation, more especially those promulgated by Lamarck, Darwin, Owen and Cope; and concluded as follows:

What that law will ultimately prove to be, and to what extent it may include processes of derivation, it is impossible now to say. At present we must recognize in the prevailing theories on the subject merely the natural tendency of the human mind to grasp the whole mass of the unknown under some grand general hypothesis, which, though perhaps little else than a figure of speech, satisfies for the moment. We are dealing with the origin of species precisely as the Alchemists did with Chemistry, and as the Diluvialists and Neptunists did with Geology; but the

hypotheses of to-day may be the parents of investigations which will become real science to-morrow. In the meantime it is safe to affirm that whatever amount of truth there may be in the several hypotheses which have engaged our attention, there is a creative force above and beyond them, and to the threshold of which we shall inevitably be brought after all their capabilities have been exhausted by rigid investigation of facts. It is also consolatory to known that species, in so far as the Modern period, or any one past Geological period may be concerned, are so fixed that for all practical purposes they may be regarded as unchanging. They are to us what the planets in their orbits are to the Astronomer, and speculations as to origin of species are merely our nebular hypotheses as to the possible origin of worlds and systems.

One word, in conclusion, with reference to our own work here as a Society, and as individual collectors of facts. We may not be in a position to take any leading place in the agitation of the questions to which I have referred; but we are well situated for the useful task of accumulating the necessary data for their settlement. The broad area of the American continent, the wide space occupied by its geological formations, the completeness of the series of its palæozoic rocks, the unbroken connection of its post-pliocene and modern fauna and flora, the meeting on this continent within recent times of multitudes of indigenous and exotic species of plants and animals, the existence up to our own time of feral and aboriginal conditions which are pre-historic in the Eastern continent,-these are all points of vantage on which we can seize in dealing with these questions; and if we properly inform ourselves as to what is being done elsewhere, and diligently improve our own opportunities, I see nothing to prevent us from taking the lead of those who in the Old World are pursuing such enquiries in a comparatively narrow field, and under conditions in many respects less favourable. I must insist, however, that this is not to be done by vieing with them in crude speculations and hypotheses, or in building up specious fabrics of conjecture to dazzle the popular eye, but in patient, honest, and careful accumulation of facts.

We should also bear in mind that in the greater centres of literary and scientific life there is a strong temptation, especially on the part of ambitious men who have their own fortunes to build up, to deal in that sensation science with which the popular literature of the day is deluged. In our own comparatively obscure field there is little inducement to this or opportunity for its display, and this is so far in favour of a healthy scientific tone, which we should endeavour to preserve and cultivate. Our danger arises from being too ready to follow the extreme views put forth elsewhere, and from impatience with the slow returns for honest and careful work.

The Chairman of the Council (Dr. J. Baker Edwards, F.C.S.,) then submitted the following:—

#### REPORT OF THE COUNCIL.

Your Council, in reviewing the work of the past year, believe they may congratulate the members on the amount of progress attained.

The ordinary meetings have been fairly attended, and much interest has been evinced in the subjects brought forward; some of which have been of a highly practical and interesting social character, viz.:—

- 1. Oct. 26, 1868.—On some Specimens of Palæontological interest. By Principal Dawson.
- 2. "On the remains of Mastodon found at Dunville, Ont. By E. Billings, F.G.S.
- 3. Nov. 30, 1868.—Notes on Beetles collected in the neighbour-hood of Montreal. By A. S. Ritchie.
- 4. Dec. 28, 1868.—On some Recent Additions to the Society's Collection of Birds. By J. F. Whiteaves.
- Jan. 25, 1869.—On the Prevention of Cruelty to Animals.
   By F. Mackenzie.
  - " " (On the) Vital Statistics of 1868. By Dr. P. Carpenter.

6. Feb. 22, 1869.—Notes on a Cruise in the Gulf of St. Lawrence. By John Bell, M.D.

7. " Notes on the Introduced Plants of Ontario and Quebec. By A. T. Drummond, B.A., LL.B.

8. March 29, 1869.—On the Geology and Silver Ore of Wood's Location, Thunder Bay, Lake Superior.

By Thomas Macfarlane.

9. " On the Application of Manures to Agriculture. By Dr. G. P. Girdwood.

10. "On Easy Methods for Securing Ventilation and Drainage in Dwellings. By Dr. P. P. Carpenter.

11. April 26, 1869.—On some Rare Exotic Birds recently added to the Collection. By J. F. Whiteaves.

12. " On Disinfectants. By Dr. J. Baker Edwards.

During the summer recess, the Society held a second field meeting at St. Ann's. Owing to unsettled weather, the party was a comparatively small one, but those who ventured were well repaid.

The excursionists were, by courtesy of the Grand Trunk authorities, conveyed by special train, which stopped first at Pointe Claire, allowing an interval, during which the party walked to the Quarries, and listened to an interesting address from Principal Dawson on the Geological features there exposed. Many fossils were obtained and the rocks closely examined.

The train then proceeded to St. Ann's, where the company separated into groups; the first, to collect fossils, under the guidance of Dr. Dawson; the second, to Fort La Berre, on the property of the Hon. J. Abbott, who gave a brief history of the old fort, and kindly entertained the party, which was conducted by Dr. Girdwood and Mr. Ritchie; and lastly, a botanical and microscopical party, in charge of Messrs. Whiteaves, McCord, and Edwards, who crossed over the river to Isle Perrot, where a large number of specimens in flower were obtained. After the return to the station, the prizes were announced as follows:

Largest number of named species of Flowering Plants, Mrs. Dr. Girdwood.

" unnamed, Miss Dawson.

Juvenile Prize for Bouquet, Miss Edwards.

The Course of Somerville Lectures was of considerable and general interest, it embraced the following subjects:

- 1. On Palæozoic Land Animals. By Principal Dawson, F.R.S., &c.
- 2. On the Chemistry of Soap-making. By J. Baker Edwards, Ph. D., F.C.S.
  - 3. On the Zoology of the Bible. By Rev. A. DeSola, LL.D.
- 4. On Primæval Chemistry. By Prof. T. Sterry Hunt, LL.D., F.R.S.
  - 5. On the Recession of Niagara Falls. By Charles Robb.
- 6. On the Adulteration of Food. By G. P. Girdwood, M.D., &c.

The thanks of the Council and members are due to the gentlemen who have thus volunteered their exertions on the behalf of public instruction in Science.

The Conversazione, held on the 18th of February, was lively and interesting, and the Council believe was very acceptable to the members generally. The President gave an interesting address on the value of Scientific Education and Schools of Science for Adults. Prof. Johnson and Dr. Smallwood exhibited and explained a variety of philosophical apparatus, kindly lent by McGill College. Dr. J. B. Edwards exhibited and floated in the Museum, Plateau's Soap Bubbles charged with gas, which Mr. Charles Baillie illuminated with the Electric Light and maintained it steadily throughout the evening. A programme of excellent music was provided by Herr Mayerhoffer and his friends, the German Choral Society. A good display of Microscopes under the charge of members of the Montreal Microscopic Club, attracted great attention in the Library, which was also adorned with some valuable works of art, arranged by Mr. J. P. Clark

On the 2nd February, an address was presented at the Court House, to the Governor General, Sir J. Young, who accepted the same with cordiality, and expressed his willingness to lend his aid to the Society, by becoming its Patron. The following day His Excellency visited the Museum, and was received by the Officers of the Society. He carefully examined the collections, and expressed his pleasure and interest therein.

We are indebted to the exertions of our esteemed Scientific Curator, Mr. Whiteaves, for very valuable additions to our Museum, partly presented and partly purchased, which will be enumerated in his report. These add greatly to the attractive character of the collection.

The membership of the Society during the year has somewhat diminished. The additions have been 14—losses 17; other sources of income are below the average; and in consideration of the loss of income by the presentation of Life membership to subscribers towards the debt, it becomes the duty of the friends of the Society to seek further additions to its ranks, and your Council would recommend an active canvass for new members and for subscribers to the Quarterly Journal, during the coming year. To the active officers of the Society, especially our industrious Curator, Mr. Whiteaves, our skilful bird-stuffer, Mr. Hunter, and our indefatigable Treasurer, James Ferrier, jun., Esq., the Society owes its best thanks for steady and hearty co-operation.

The Council have much pleasure in recommending to the Society that the silver Medal be presented to Dr. T. Sterry Hunt, F.R.S., for his valuable contributions to Science, in connection with the Geological Survey, and in the advancement of Chemical Geology in Canada.

The ventilation and lighting of the Lecture Room received the attention of your Council in the early part of the session, and some improvements in the admission of air were effected; it was found, however, absolutely necessary to provide means for carrying off the products of combustion, and by the kind assistance of Mr. M. H. Sanborn, the necessary amount was raised by voluntary

contribution to complete the plan, by exchanging the open light for a Liverpool sunburner, which, being connected with a chimney, carries off all foul air, and will in future provide for the comfort and health of the audiences. One or two more improvements only require the necessary funds for their adoption, and your Council would appeal to some of the members to assist the future Council in carrying out these arrangements, viz., to provide a vestibule in the hall, and close in the lobby for a Curator's room, to fit double windows in the Lecture Room and Museum, and to colour and paint the premises.

In the Library a reading desk has been provided and the periodicals may there be found by members. The Library, however, requires urgently some clearances and additions, which duty we commend to the early attention of our successors.

During the year, the Canadian Naturalist has been put on a new and more popular basis, which your Council hope will make it more generally subscribed for among the members, and more acceptable to the public than heretofore. The Editing Committee has been re-organised, with a view to issue the Journal with greater regularity, and it will now appear Quarterly instead of Bi-monthly. It will contain a greater variety of matter, and be of a more popular scientific character. The Committee regret the delay in the appearance of the first number, which was partly due to the backward state of the two numbers of the last series, and partly to the printers' strike. The first number is now laid on the table and will be immediately in the hands of subscribers. Mr. Whiteaves, the Acting Editor and Recording Secretary, will be glad to receive the names of members who have not already subscribed for this Journal, and to receive communications or papers for publication therein, on subjects of natural or general science. The Society is responsible for 100 copies of the Journal which will be supplied to members at \$2 per annum.

> J. B. Edwards, Ph. D., F.C.S., Chairman of Council.

After which Mr. Whiteaves read the following

# REPORT OF THE SCIENTIFIC CURATOR AND RECORDING SECRETARY.

During the past session, a large portion of the time has been spent in the active collection of new specimens. The additions to the Museum have been as follows:—

#### MAMMALIA.

Thirteen fine specimens of exotic mammals, new to the collection, have been added. These have been mounted, named, and placed temporarily in one of the large cases in the Museum. Two species have been added to our American series, a fine example each of the Water Mole (Scalops aquaticus), and of the Missouri pouched Rat (Geomys bursarius). Want of the necessary cases compels a temporary arrangement of many of the exotic mammals.

Several of the Canadian mammals are represented by very old and badly-preserved specimens, and these, as opportunity offers should be renewed.

#### BIRDS.

Efforts have been persistently made for some years past to make the series of Canadian birds as perfect as possible. Old specimens have been weeded out, and their places filled with fresh examples. During the past twelve months, twenty-two specimens have been added to our local collection. In the department of Foreign birds, great progress has been made. About 164 specimens have been added, all species of much interest, and some of considerable rarity. Among these latter may be noticed, three species of birds of Paradise, two species of the beautifully-coloured fruit pigeons (Ptilinopus), of the Indian Archipelago, Sonnerats' jungle fowl, three species of albatross, &c. The whole of the new birds have been skilfully mounted by Mr. Hunter, and are all named.

#### REPTILES AND FISHES.

Thirteen species of reptiles and three of fishes have been added during the past session. The space allotted to this part of the collection is altogether insufficient to exhibit even the whole of our present series. It is for this reason that we have not done anything towards completing our series of Canadian fishes, as at present we have nowhere to put them.

There are quite a number of reptiles and fishes in alcohol, which we are unable to exhibit from want of the proper bottles, and of suitable cases. The same reason has prevented the forming of a collection of the smaller and more critical Canadian fishes.

#### INVERTEBRATA.

In the kingdom mollusca rather over 100 species have been added. Large series of Canadian insects have been received from Sir W. E. Logan, Mr. Billings, Mr. Ritchie, and Mr. Barnston. Over 500 species have been added, but many of these are duplicate specimens. Finally, five species of echinodermata, two of crustaceans, three cirrhipedes, two corals, and several sponges have been received.

#### GEOLOGY.

About 260 species of fossils, mostly from European formations, have been obtained. This has necessitated the re-grouping of the whole collection, which has been done, and the additions mounted, named, and incorporated with the general series. A few new minerals have also been received.

#### MISCELLANEA.

Several donations have been made to the ethnological and miscellaneous collections, but none of very special interest.

#### LIBRARY.

During the past year no new books have been purchased, and we still have to regret the absence of works of reference of recent date in every department of American natural history. Still, some improvements have been made in the library. By special application to the authorities we have succeeded in getting 35 volumes of the British Museum descriptive catalogues. During my stay in England efforts were made, with much success, to complete our series of English periodicals. Several of the numbers wanting to complete our American serials have also been procured, upon application to the editors; 20 volumes of serials have been bound since the last annual meeting; a reading-desk has been placed in the library, and the table re-covered.

Since the first of January considerable time has been spent in connection with the first number of the new volume of the Society's Journal, copies of which are now laid upon the table.

The most prominent wants in the Museum are additional cases for the series of mammalia, for fishes and reptiles, and for the formation of a collection to illustrate comparative anatomy and osteology. Further, special cases, with proper bottles, are urgently required to contain the collection of specimens preserved in alcohol, only a small portion of which can now be exhibited.

The additions to the collection during the session are the most important and numerous that have been received for years; and in conclusion, it is hoped that the work done has been in a satisfactory degree conducive towards the efficient carrying out of those objects, which it is the aim of this Society to foster and cherish.

J. F. WHITEAVES, F.G.S., &c., Curator and Rec. Secretary.

The following financial statement was submitted by the Treasurer, James Ferrier, jr.:

1868.		RECAPITULATION.			1
To Cash	paid,	J. F. Whiteaves, salary	\$400	00	1
66	**	Wm. Hunter, "	250	00	
46	"	J. E. Pell, commission on collection	26	35	
"	66	Interest	120	00	
"	46	for Wood and Coal	163	25	
"	"	Gas bills	71	40	ı
"	"	Water "	40	60	ı
11		City Assessments	45	40	
"	66	Insurance	39	00	I
- 56	66	Repairs, and petty expenses	119	85	
66	"	Books, Printing, and Advertising	124	54	
**	"	Fixtures	171	76	
**	"	Specimens	90	53	
1869.					
"	"	Excursion	64	99	
May 1st,	1869.	-Balance in Treasurer's hands	60	99	
			1788	66	

1868.		RECAPITULATION.		
By Cash	received,	Government Grant	\$750	00
"	"	Donations towards liquidation of debt		00
"	"	" Glass Cases	50	00
"	"	Members' yearly subscriptions	552	00
"	"	Museum entrance fees	38	00
6.	"	Rent of Lecture Room, &c	55	00
66	"	Sale of Old Cases	8	00
	"	Excursion tickets sold	56	50
"	"	Proceeds of Conversazione	9	57

\$1788 66

Montreal, May 1st, 1869.

DR.

(Signed,)

E. & O. E. J. Ferrier, jun., Treasurer.

STATEMENT OF LIABILITIES, MAY 1st, 18	69.		We, the unde
Mortgage on Society's Building, favour Royal Insurance			them with the
Co			
Dawson Bros.' account	128	75	
Total	\$2128	75	18 May, 1869.

We, the undersigned, have examined the vouchers and compared them with the entries, and find them correct.

(Signed,) G. L. MARLER.

(Signed,) ALEX. S. RITCHIE.

It was moved by W. Muir, seconded by L. A. H. Latour, and carried unanimously,

That the reports just submitted be accepted, printed, and distributed to the members.

On motion of Dr. Edwards, seconded by Dr. Smallwood, it was resolved:

"That the silver medal of the Society be voted to Dr. T. Sterry Hunt, F. R. S., to mark its appreciation of the value of his scientific labours, more especially in the department of Chemical Geology,"

A vote of thanks to the President for his able and interesting address, having been moved by John Leeming, and seconded by Dr. Smallwood, was carried with acclamation.

The following resolution was also carried, having been moved by John Leeming, seconded by J. H. Joseph:

"That the thanks of the Society be voted to the officers for the past session, particularly to the Scientific Curator."

The following officers were then elected, Messrs. A. T. Drummond and Dr. John Bell acting as scrutineers:—

## OFFICERS FOR 1869-70.

President.—Sir W. E. Logan, LL.D., F.R.S., &c.

Vice-Presidents.—Rev. Dr. De Sola: C. Smallwood, M.D., LL.D., D.C.L.; Principal Dawson, LL.D., F.R.S.; Dr. T. Sterry Hunt, F.R.S.; Dr. P. P. Carpenter; E. Billings, F.G.S.; John Leeming; G. Barnston; C. Robb.

Treasurer.—James Ferrier, Jun.

Corresponding Secretary.—Prof. P. J. Darey, M.A., B.C.L.

Curator and Recording Secretary.—J. F. Whiteaves, F.G.S., &c. Librarian.—A. T. Drummond, B.A., LL.B.

Council.—Dr. J. Baker Edwards, F.C.S.; A. S. Ritchie; D. A. P. Watt; D. R. McCord, M.A., B.C.L.; C. Baillie; G. L. Marler; J. H. Joseph; M. H. Sanborn; Dr. E. H. Trenholme.

Editing Committee of the "Canadian Naturalist."—General Editor, J. F. Whiteaves; Dr. J. B. Edwards (Chairman);

Principal Dawson; Dr. T. Sterry Hunt; Dr. Smallwood; E. Billings; Dr. Carpenter; D. A. P. Watt; A. S. Ritchie.

Library and Membership Committee.—E. E. Shelton; R. McLachlan; R. J. Fowler; Dr. John Bell; D. A. P. Watt; and M. H. Sanborn.

## DONATIONS TO THE MUSEUM.

Session 1868-69.

Donors' Names.	Donations.			
Captain Bulger	Il specimens of S. American Birds. Fine specimen of the Canadian Salmon. Head of a large Maskinonge. (Esox Estor.) A lamprey. (Petromyzon Americanus.) Marsh harrier. (Circus Hudsonicus.) Red headed Woodpecker. (Melanerpes erythrocephalus.) Cat-bird. (Mimus Carolinensis.) Pair of the American redstart. (Setophaga ruticilla.) Chipping Sparrow. (Spizella socialis.) Pair of the Purple Grakle. (Quiscalus ver-			
	sicolor.) Red Crossbill. (Curvirostra Americana.) Golden Plover. (Charadrius Virginicus.) Sanderling. (Calidris arenaria.) Kittiwake Gull. (Rissa tridactyla.) Bonaparte's Gull. (Chroicocephalus Philadelphia.) Short-tailed Tern. (Hydrochelidon plumbea.) Wilson's Tern. (Sterna Wilsoni.) Pair of English Sparrows. (Passer domesticus. Specimen of the Missouri Pouched Rat.			
G. Barnston, Esq Y.J. Gambly, Esq., (California)	copodium lepidophyllum) from Mexico.			
From the Proprietors of the Capel Mine, Len-	Nevada. Do. from the "Morning Star" Mine, Alpine County, California. Native Silver from the "Gould & Curry" Mine, Virginia city, Nevada. Gold Ore from Montana, U.S. 2 Poisoned Arrows used by the Shoshone Indians. "Undressed" specimen of Copper ore, containing 10-15 per cent of the metal.			
noxville, Quebec)	A sample rather above the average. One "dressed" specimen of the ore, containing 8-9 per cent of copper.			

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DONORS' NAMES.	Donations.
From the Proprietors of the Capel Mine, Lennoxville, Quebec	Specimens of roasted ore.  "Regulus" or matter containing 40 per cent of ore, as it comes from the furnace, Slag, which contains less than 5-10 per cent of copper, and about 28 per cent of metallic iron.
Jas. Hutchison, Esq	Specimen of the Black Hawk. (Archibuteo Sancti Johannis.)
Mrs. G. P. Girdwood Jno. Swanston, Esq G. Barnston, Esq	Male long-tailed Duck. (Harelda glacialis.) Indian bag from the North-West Territory. 28 specimens of Coleoptera (beetles) from the Mackenzie River.
A. S. Ritchie, Esq	A named series of Canadian coleoptera, comprising 73 specimens of 54 species.
E. Billings, Esq., F.G.S	Fine named collection of Canadian coleoptera, containing 733 specimens of 475 species.
Natural History Society (St. John, N.B.)	A collection of Devonian plants (35 specimens of 22 species) from the "Fern ledges" near St. John, N.B.; collected by Prof. C. F. Hartt.
Jas. Ferrier, Esq., jr	Specimen of the siliceous sponge, known as "Venus' flower basket" (Euplectella aspergillum), from the Philippine Islands.
Principal Dawson, LL.D., F.R.S., &c	Plaster models of 5 Indian pipes from the supposed site of the ancient Indian village of Hochelaga.
Sir W. E. Logan, LL.D., F.R.S., &c	1238 specimens of 378 species of Canadian insects, and a small series of fresh water shells.
Jas. Ferrier, Esq., jr	Pair of Barrow's Golden Eye. (Bucephala Islandica,) Female of the Common Golden Eye. (Buce-
Contracting the state	phala Americana.)
W. Carruthers, Esq. (of ) the British Museum)	A series of 25 named specimens of Grapto- lites from the Moffat shales.
A. Bell. Esq. (London, England)	Two molars of Elephas primigenius, 59 species of European fossils, and 70 species of exotic shells.
	150 species of European fossils. 4 rare minerals. 5 species of Echinodermata. 4 " " Crustacea.
	2 " " Corals. 7 skins of Jamaican birds. Specimen of the inner bark of the "Silk Cotton" tree (Eriodendron anfractuosim)
J. F. Whiteaves, Esq	and four species of seeds, all from Jamaica.  35 specimens of rare exotic birds.

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Liverpool Free Museum, } per T. J. Moore, Esq }	Lord Derby's Kangaroo. (Halmaturus Derbianus.)  Wandering Albatross.
	Black eyebrowed Albatross. Sooty Great Grey Petrel. (Procellaria hæsitata.) Two horned Chameleons from Fernando Po-
	2 Tapayaxins or horned Frogs, from Mexico. 1 Loggerhead Turtle. 4 species of exotic lizards and 4 of East Indian Snakes.
Jno. Turk Lacey, Esq Miss Thompson The St. George's Society, \}	4 Humming birds.
per Mrs. Simpson S By purchase	Jackal. (Canis aureus.) Tasmanian bush Kangaroo. (Halmaturus Bennettii.)
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The Author	Acadian Geology, by Principal Dawson, LL.D., F.R.S., &c. 2nd edition. 1868.
U. S. Coast Survey	U. S. Coast Survey Reports for 1863, 1864 and 1865. 4to. Washington.
Prof. James Hall	20th Annual Report of the Regents of the University of the State of New York. Albany. 1868.
L. A. H. Latour, Esq	Annuaire de Ville-Marie, suivi de recherches archéologiques et statistiques sur les Insti- tutions Catholiques du Canada. Tome premier.
The Author	Céphalopodes Siluriens de la Bohême. Grou- pement des Orthoceres. Par Joachim Barrande.
The Smithsonian Institute, Washington	Catologue of the Orthoptera of North America, described previous to 1867, by Samuel H. Scudder.
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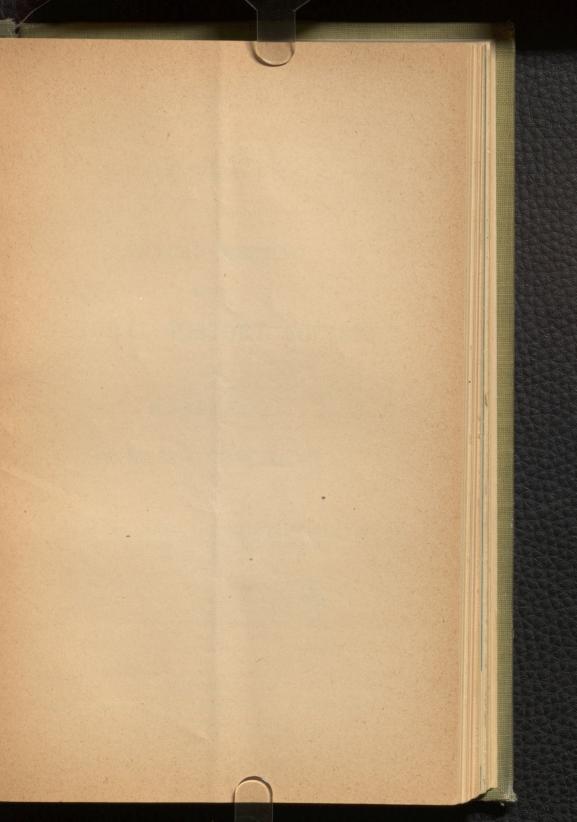
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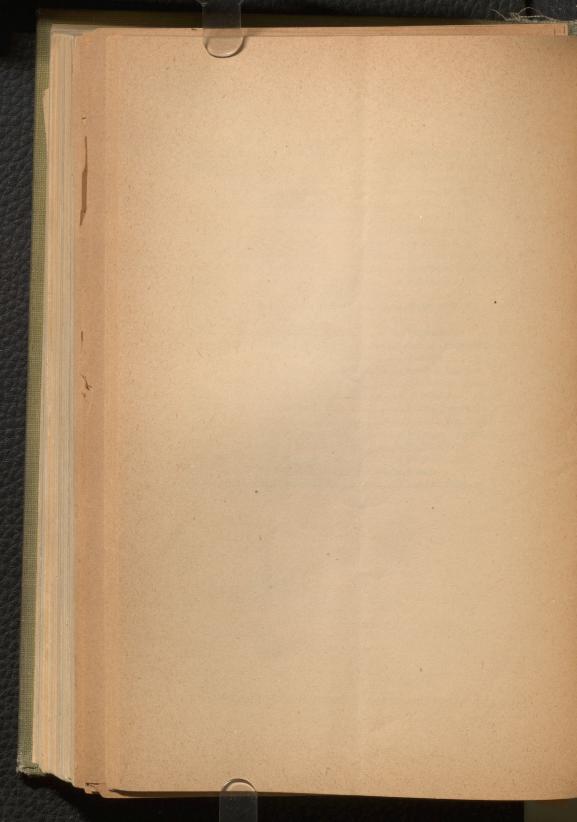
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Rev. D. Honeyman, F.G.SAntigonish, N. S.
Ed. Bowen, M.DBrantford.
Nov. —, '60Barnard R. RossFt. Simpson, Rupert's Land.  Jan. —, '62Thos. MacfarlaneActonvale.
June 30, '62Professor BairdSmithson'n Inst., Wash'gton
W. Stimpson, M.D
Rev. A. Forrestor, D.DPrincipal of Normal Schools,
Truro, Nova Scotia.
Sept. 29, '62Dr. Lowe, F.R.S., &cBrighton, England.
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DATE OF ELECTION.		
Nov. 24, '62S. H.	. Parkes	.Birmingham, England.
March 30, '63 Hug	h E. Montgomerie	.London, England.
Prof.	J. W. Bailey	.Fredericton, N.B.
	Bethune	
Oct. 26, '63W. S	aunders	.London, C. W.
	. Packard	
H. R	ose	.Granby, C. E.
G. F.	Matthew	.St. John, N. B.
Oct. 26, '63Profe	essor How	.Nova Scotia.
Nov. 30, '63John	Brown	.Hamilton, C. W.
Sept. 26, '64 Prof.	R. Bell, F.G.S	.Kingston, C. W.
Oct. 24, '63Rev.	R. McDonald	of the little of the later of the
Profe	ssor H. Y. Hind	.Windsor, N. S.
Nov. 28, '64Capta	ain Rooke, S.F	. Longit A. /
March 27, '65Capta	ain P. G. Fortin	.Laprairie.
Nov. 29, '65Profe	ssor Westwood	.Oxford, England.
Profe	ssor Daniel Wilson	.Toronto.
G. F.	Angas, Esq., F.Z.S., &c	London, England.
Jan. 29, '66Alex:	ander Agassiz	.Cambridge, Mass.
March 26, '66Rev.	T. Robinson	.Abbotsford.
Feb. 25, '67H. W	oodward, Esq	.British Museum.
Bryce	M. Wright, Esq	.London, England.
Thos	J. Moore, Esq	.Liverpool, England.
Nov. 25, '67Sanfo	ord Fleming, Esq	.Halifax, Ont.
	Macoun, Esq	
	aj. G. E. Bulger, F.L.S., &c	
March 29, '69Cyril	Graham, Esq	. London, England.





# PROCEEDINGS

AT THE

# ANNUAL MEETING

OF THE

# NATURAL HISTORY SOCIETY

OF

MONTREAL,

FOR THE YEAR ENDING MAY, 1870:

WITH

A LIST OF THE OFFICERS, LIFE, ORDINARY, HONORARY AND CORRESPONDING MEMBERS AND ASSOCIATES OF THE SOCIETY.

#### MONTREAL:

Printed at the Gazette Steam Printing House, 171 St. James Street. 1870.

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# NATURAL HISTORY SOCIETY

MONTREAL,

FOR THE YEAR ENDING MAY, 1870:

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LIST OF THE OFFICERS, LIFE, ORDINARY, HONORARY AND CORRESPONDING MEMBERS AND ASSOCIATED OF THE SOCIETY.

MONTHREAL:

Traces of the General State Parents, House, III St. James Crafts.

# PROCEEDINGS.

The annual meeting of this Society was held at its rooms on the evening of May 18th, the Acting President, Rev. A. De Sola, LL.D., in the absence of Sir W. E. Logan, in the chair. Mr. J. F. Whiteaves, the Recording Secretary, read the minutes of the last annual meeting; after which the usual annual address was delivered as follows:—

In the notice calling this meeting, it was announced that there would be an address by the Acting President. I fear, however, that I shall have now to prove there would be more of courtesy than of justice in dignifying my few remarks, illustrative of the work done in the past year, with a title that has frequently, even if not invariably, conveyed on such an occasion the idea of a scientific treatise. When I had the honor of last filling the presidential chair, I called your attention to "some points of interest in the study of Natural History"; but this evening, I do not follow this course, for two reasons, which I trust you will regard as quite sufficient. The first is, that I-and I venture to add most others in my situation-would but little desire to give opportunity of contrast with what, had he been present, our learned President, Sir Wm. Logan, would have favored us. And the second is, that multifarious and urgent official and other duties would have prevented me, however I might have felt disposed to intrude in such a direction. In uniting with me, as I am sure you will, in regretting the absence of our President on this occasion, we may yet have the satisfaction of recalling the fact that on Sir William Logan's recent retirement from the active duties of Director of the Geological Survey, this Society, which in the past had done something to help Sir William in creating the Survey, availed itself of the occasion of his withdrawal to present him with its silver medal, accompanied with

resolutions expressive of the Society's desire-although it could not add appreciably to the many honors which Sir William had received, by presenting to him its medal—yet its earnest desire to place on record, not merely on its own behalf, but on that of all the students of natural science in Canada, its high estimation of the value of his services in creating, as well as directing, the Geological Survey of this country; in promoting the development of its mineral resources; in stimulating and aiding the efforts of scientific institutions, and in extending throughout the world the name of Canadian science. The resolutions also express our high appreciation of Sir William's admirable personal qualities, our hope that he may be spared for many years to Canada and science, and that the relief from official cares may give him the opportunity to pursue to completion the researches in scientific geology in which he is now engaged. In the sentiments of these resolutions I am sure all who are here to-night, but who were absent when they were offered, will full and cordially concur, and at the same time unite with me in felicitating the "Survey" and the cause of geological science, that Sir William's mantle should have fallen on so worthy a successor as Mr. Selwyn, whose laurels, already gathered as director of the Geological Survey in Victoria, will doubtless multiply and extend themselves in the new and larger field to which he has been called.

The proceedings to which I have just adverted will find record in the Society's organ, The Canadian Naturalist, and it may be proper that I should here say a few words respecting this publication, especially as I have not been editorially or otherwise connected with the volume just completed. This volume forms the fourth of the new series and the first of its publication as a quarterly, and I venture to say that we have much cause for gratification and pride at its appearance, especially when we look to the difficulties attendant upon its production. These difficulties are both of a financial and literary character—the various valuable articles consisting entirely of voluntary contributions—and it is to be feared that not all the members of this Society sufficiently realize or ponder these great difficulties. It must be a source of congratulation to the Editing Committee that they have been

enabled to publish the volume within the year-a feat not always accomplished either by the Naturalist, or by the publications of sister societies in the Dominion. We need but look at the varied and valuable contributions in this volume to be satisfied that it has not been surpassed by any before it. And what will be considered a very gratifying fact is, that the original articles of the Naturalist are now copied in extenso in some of the scientific journals of the Mother Country and the United States. Thus, not less than six of these articles of the last volume have been wholly reproduced in the London Scientific Opinion, to wit, two by Dr. Edwards, one by Dr. Hunt, one by Mr. Ritchie, and two by Dr. Smallwood. Articles and the monthly proceedings of this Society are also copied in Nature and other periodicals. This important testimony to the value of the book must needs prove especially gratifying to those engaged in this labor of love, and should stimulate members to extend to the journal a more general and earnest support.

I would ask leave to bring before you here a list of the original papers read by members during the past year, some of which appeared in the *Naturalist* and reappeared, as I have said, in English periodicals. These are in addition to the interesting lectures given in the Sommerville course, which have been six in number, and which I will enumerate first:—

- 1. Feb., 10th, 1870. "Explorations in the Nipigon Country," by Professor R. Bell, C.E., F.G.S.
- 2. Feb. 17th. "Recent discoveries in Solar Physics, and the total eclipse of August 7th, 1869," by James Douglas, jr. President of the Literary and Historical Society, Quebec.
- 3. Feb 24th. "The Chemistry of Iron and Steel," by Dr. T. Sterry Hunt, F. R. S.
- 4. March 10th. "On Deep Sea Dredging," by Prinicpal Dawson, LL. D., F.R.S.
  - 5. March 17th. "On Gold," by Dr. G. P. Girdwood.
- 6. March 24th. "On Economic Mineral Deposits," by G. Broome, Esq., F.G.S.

I will notice and classify the papers read as follows: -

#### I. GEOLOGY.

Principal Dawson's paper on "some new Gaspé fossils," after giving a general sketch of the geology of the peninsula of Gaspé, adds some newly acquired information as to the fossil plants of the Devonian rocks of that locality, and records the occurrence in these beds of fossil fishes of the genus *Machairacanthus*, also of the genus *Cephalaspis*,—the first time this latter genus has been observed in America.

Mr. Billings has contributed two papers in the department of palœontology. In the first, he shows that the puzzling fossils called *Scolithus* and *Arenicolites* are not the burrows of marine worms, as was formerly supposed, but casts of sponges. In the other, he states that marine univalve molluscs, of the genus *Ophileta*, occur in beds several thousand feet lower down in the geological series than had been hitherto recorded.

#### II. ZOOLOGY.

Mr. A. S. Ritchie has brought before the Society three suggestive papers in this department of Natural History. In the first, the history of the introduction of the white cabbage butterfly, from Europe to the immediate vicinity of this city, is given. A careful description follows of the species in its three stages, with its peculiar habits, and suggestions are offered as to the best means to be adopted to check the ravages of the caterpillar of this species in our fields and gardens. The second attempts to answer the difficult question: "Why are insects attracted to artificial light?" The third is an interesting account of the habits of some of our smaller fresh water fishes, reptiles, and crustaceans, as observed in the writer's own aquarium.

Professor R. Bell has contributed observations on the Zoology and Botany of the Nipigon country, a district rarely visited by the naturalist. It is to be regretted that when parties are sent by the Geological Survey to explore places of which little is known, that a Zoological and Botanical investigation of the region

in question should not, as in the United States, be made in addition to the Geological Survey. Professor Bell also read a paper on the intelligence of animals. It seems a task of no ordinary difficulty to define where animal instinct ends, and the reasoning power is clearly seen to commence.

The recent dredgings by Mr. Whiteaves in the Gulf of the St. Lawrence, have added many facts to our knowledge of the creatures which inhabit Canadian seas. The marine mollusca have been carefully monographed, and instead of 60 or 70 species, we now know of nearly 130, the number having been thus nearly doubled. The careful identification of the inhabitants of the deep sea, in addition to its Zoological importance, will do much to illustrate the conditions under which the Canadian post-tertiary deposits have been accumulated.

Dr. P. P. Carpenter has given a verbal account of the recent dredgings by Mr. McAndrew, in the Red Sea, those of Captain Pedersen in the Gulf of California and by Mr. Dall in Alaska.

#### III. GENERAL.

The peculiar appearances of the rose-coloured prominences of the Sun's chromosphere during the solar eclipse of last August, have been described in detail in a paper read by Dr. Smallwood. On that occasion I referred to the want of good astronomical instruments in the city, and now revert to it as a circumstance much to be deplored by those interested in the progress of physical science in our midst.

Besides the subjects already mentioned Dr. Carpenter favored the Society with two papers. The first on the Vital Statistics of Montreal for 1869; with special reference to the great disproportion in death rate between the French, the Irish, and the English portions of the population. And the second, on different modes of computing Sanitary Statistics, with special reference to the opinions lately published by Mr. Andrew A. Watt.

Although not issued under the immediate auspices of the Natural History Society, yet I may be permitted here to refer to a publication emanating from one, of whose valuable services to this

society and to education generally, we can never too highly or too gratefully speak; one who, with our President, shares largely the respect and applause of the scientific world—I need scarcely say I refer to Principal Dawson, whom we trust to see soon among us again, occupying the highest place in the directorship of this Institution, for its benefit, and our gratification. The issue of the text-book of Canadian Zoology during the past year, must be a matter of congratulation to all members of this Society. The want of such a volume has been long felt, and the name of Principal Dawson is in itself a sufficient guarantee of the able way in which the subject has been treated. Let us hopefully look forward to a new edition, in which further details respecting the vertebrata of Canada will be included.

The list of papers just recited may be fairly regarded as evincing the desire of members to carry out as fully as possible the objects of the Society in one direction; but they have not been idle in others. One of their efforts to advance the study of natural science in the past year, and which is most likely to be crowned with useful and beneficial results, was their determination to avail themselves of an offer made them by their esteemed curator, Mr. J. F. Whiteaves, to place his private collection of shells and fossils in the Society's museum, in such a way as to be accessible to students and visitors, on the very liberal conditions that the collection be kept separate—that the Society find cabinets, &c., for its reception, and insure the collection, Mr. Whiteaves himself undertaking to mount and label the specimens. In availing themselves of such an offer, and voting the amount required to carry out its conditions, the Society was merely doing what other Societies in the mother country have done before them, and in this way: Possessors of a large and valuable collection which they were unable or unwilling to part with entirely, and still desired that the votaries of science generally should benefit by, would offer to deposit, under certain restriction, their collection in the museum of a society such as ours, which not having present means to acquire a valuable collection, would only be too glad to avail themselves of such an offer, and thus the cause of science would become well served. Now, although Mr. Whiteaves deposits his

collection in this way, and retains the right of withdrawing it after notice be given to that effect, yet I am sure I do but echo the general opinion that the Society is greatly indebted to that gentleman for his liberal and considerate offer, and indulge the hope that ultimately both Mr. Whiteaves and the Society will find the way of securing his unusually valuable and varied collection as a permanent addendum to the Society's Museum.

Another of the members' efforts in the good cause calling for notice on this occasion, was the originating of the Montreal Microscopic Club. Although formed in 1868, this Club has not hitherto received the notice at our annual retrospects of work done, which I think it deserves. Founded for the promotion of microscopic knowledge among its members, by regular meetings for practical microscopic work, and for the interchange of ideas and experiences on microscopical subjects, it has done good and useful work at its fortnightly meetings, which are eminently of a social character, and are held during the winter season. I need scarcely say here how very acceptable we find the presence of our microscopic-brigade, with their costly, improved instruments and beautifully prepared specimens, at our annual conversazione, and how pleasant we regard the evidences of their useful investigations, not merely on those occasions, but in the pages of the Society's journal and in other directions. In England, such clubs have proved very useful and successful. The modus operandi is very simple, and is thus described by the honorary secretary of our Montreal organization. "The club appoints a secretary, who arranges for the meeting, and suggests a special subject for illustrations at each. The host for the evening is the president of the club; minutes are recorded and read; visitors introduced; miscellaneous business discussed and microscopic investigations proceeded with. At 10.30 p.m., the president announces the adjournment, the microscopes are returned to their cases, and a parting cup of coffee closes the seance." The chairman of the Council, in his report, will doubtless refer to the Society's more general social reunions, the field day at Belœil, and the annual conversazione, both of which were very successful. The latter occasion was distinguished by the presence of His Royal Highness

Prince Arthur, to whom the Society presented an address. It was cause of great regret to the Committee to feel that, while they could safely direct the special attention of the Prince to the museum, at the extent and arrangement of which, indeed, His Royal Highness expressed to me much gratification and approval, they felt more than ever, that the library might be considered as displaying evidence of apathy and neglect—evidences which it is earnestly hoped will soon give way to others of a more fitting and gratifying character.

One of the most important measures contemplated by the Society outside its immediate sphere of action, during the past year, is the dredging of the Gulf and River St. Lawrence. Those who were privileged to hear Dr. Dawson's most interesting lecture on deep sea-dredging, delivered during the past winter's Sommerville course, will need no farther exposition of the importance for pursuing such investigation, as will certainly not those who have attentively read the proceedings of the last meeting of the British Association at Exeter. Professor Forbes had previously surmised as a result of his investigations in the Ægean and Mediterranean Seas, that life probably did not exist in the sea below 300 fathoms in depth. His views never received, however, anything like general acceptance with scientific men, and at that Exeter meeting, a most interesting letter was read from Professor W. Thompson on the successful dredging of H.M.S. "Porcupine," in 2,435 fathoms. Professor Sars, in a communication on the distribution of animal life in the depths of the sea, has enumerated not less than 437 species; and as a result of an expedition originated by the British Government, who sent the "Lightning" to dredge in the sea between the Hebrides and the Faroe Islands, we learn -and especially from an account of the expedition, given by Dr. Collins, in the Transactions of the Royal Society-that there were found to be currents of different temperature running side by side. In one place the temperature of the surface was 54°, and at the bottom 48°, and in the other the surface was 54° and the bottom 38°. Dr. Collins considered that one was the back current of the water that had coursed from the tropics to the poles. These and many other interesting facts which time will

not permit me to notice, however briefly, on this occasion, may be some warrant for the desire evinced by the Society to do its share of labour in this field, and would be sufficient apology, if any were needed, for the resolutions unanimously adopted by the Society in March last, which affirmed it to be important to the cause of science and conducive to the interests and reputation of this Dominion, that researches by dredging should be prosecuted in the Gulf and River St. Lawrence, in order to ascertain the character of marine life in the greater depths and at the confluence of the fresh and salt waters of the river. And as this Society and individual members thereof, have so far entered upon such researches as to prove their feasibility and importance, but have not the means of continuing them effectually, the Society was of opinion that aid should be afforded to such operations by the government, in the manner in which this has been done in Great Britain and other countries, especially by giving for a short time in summer, facilities on board a government vessel to a party to be furnished and fitted out by this Society, which would undertake to procure observers and scientific apparatus and make reports upon such results as might be obtained. A committee, consisting of Drs. Smallwood, P. P. Carpenter, and Messrs. E. Hartley and J. F. Whiteaves, was organized to correspond with the Dominion Government, through the Hon. the Minister of Marine, with the view of effecting the desired results, and Principal Dawson has been requested, while in London, to obtain information as to the best methods of making such subsidiary observations on the temperature, chemical quality, &c., of the water at great depths, as have been made by the recent dredging operations under the auspices of the British Government, and, if possible, to procure specimens of the necessary apparatus. I will only say further on this subject that the committee have already taken steps in the matter, which may be safely left in their hands for a successful issue, and should-which is by no means impossible-the Government decline to allow our investigators a free passage in one of their ordinary cruisers, it will then become the duty of this Society to decide whether they themselves will provide the necessary means for the investigations contemplated by the

resolutions, which would really not involve a very large expenditure.

I have already detained you so long, that I must leave for some other occasion a few minor topics on which I had proposed to say a few words. Permit me, before sitting down, to ask your earnest attention to the important matters referred to in the reports about to be read, and your cordial co-operation, not merely with reference to the details of those reports, but in all that can subserve the interests of the Natural History Society, and verify and realize its motto—Tandem fit surculus arbor.

The Chairman of the Council (Dr. J. Baker Edwards, F.C.S.,) then submitted the following:—

## REPORT OF THE COUNCIL, MAY, 1870.

In reviewing the scientific work of the past Session, your Council feel it especially due to the active members of the Society to recognize the valuable contributions placed on the Society's record, and which they believe will be found equal, both in value and general interest, to those of any preceding session.

Your Council have felt increasingly, of late years, the desirability of popularizing the proceedings of the Society as much as possible, so as to interest a larger number of members in the objects. To accomplish this they have established field meetings; invited ladies to join the Society as associate members; added to the attraction of the annual Conversaziones; secured more comfortable accommodation for their guests; and popularized the character of their scientific periodical, "The Canadian Naturalist."

They cannot but feel, however, that the response to their efforts has been but of a partial character, and much has yet to be done to establish that "entente cordiale"—that "corps d'esprit" amongst the members which actually prevails in European societies of a like nature.

It is also a matter of regret that a succession of our wealthy and influential citizens are retiring from the annual subscription

list, without placing their names upon the life members' roll, a course your Council would strongly recommend to those who desire to retire from active participation in the Society's affairs. A sufficient loss is felt by the Society even by such retirement; and the withdrawal of some fifteen members from active subscription to and interest in the work of the Society, to the roll of life membership, forms a serious episode in the history of the present year, as it too often follows that life members lose some of their interest in the practical working of a voluntary association.

A vigorous effort has been made during the past two years to extinguish the debt upon the building, and this effort has been attended with considerable success. The mortgage debt on the building amounts to \$2,600, and towards this \$1,630 have already been promised, and it behoves the earnest friends of the Society to raise the balance if possible during the present year. In the meantime it is absolutely necessary to pay some attention to the drainage of the building, which is now flooded in the winter, and to paint and whitewash the premises; and it may be necessary to devote some portion of this subscription to the temporary use of putting the premises in necessary repair. The Council, therefore, feel the necessity of a renewed effort towards the liquidation of this debt, and also to replace on the roll of annual subscribers the number of members who, from various causes, have retired therefrom.

Our losses have numbered thirty subscribers during the past session, whilst we have added only seven to the list. The number of lady associates we regret to say has not been extended. An appeal is therefore necessary to existing members to add to the ranks of the Society.

Theoretically, subscriptions are due in advance, in order to meet the current expenses of the year, but practically, members are apt to defer their payments, so that the income of the year becomes a debt instead of an asset. This practice is a source of embarrassment to the Treasurer, which your Council trusts will not become chronic.

Again, the "Naturalist" is a charge upon the Society of a grave character. In addition to the 100 copies purchased for the

members, the Society distributes, for the purpose of exchanges, about 70 copies gratuitously. It is quite necessary, therefore, that the subscription list should be free from arrears. At present 30 subscriptions only have been received out of a list of 85. The Council feel that it will be impossible for them to maintain the efficiency of this periodical, in which they take a literary pride, unless supported by the prompt discharge of those obligations which the subscribers have undertaken, and upon the good faith of which the Council have assumed the responsibility of its publication.

Three objects present themselves to your Council as most desirable to secure, and they commend their consideration to their successors, viz:—

1st. The funding of the Somerville bequest, so as to apply the interest thereof to the extension and success of the Somerville lectures.

2ndly. The discharge of the debt on the building, so as to enable the Society to be rent free.

3rdly. The appropriation of the Government grant to the main tainance and increased efficiency of the "Canadian Naturalist" and to the extension of the museum.

In order to secure these objects, your Council desire to see the current expenses of the Society borne by the annual income by subscription, and to this end feel the necessity of a large accession to the list of members and associates.

Your Council have been called upon to relinguish the services of their faithful janitor and skilful taxidermist, Mr. W. Hunter, under the painful circumstances of failing health and of domestic bereavement; and it has been a matter of anxious consideration whether his valuable services can be replaced.

The retirement of Sir Wm. Logan from the direction of the Geological Survey, has deprived the Society of his valuable presence and aid in the Presidental Chair; but your Council desire to express their obligations and thanks to the Senior Vice-President, Dr. DeSola, who has so efficiently filled his place during the present session. In his able hands the Council have left the review of the ordinary business of the past session.

The extraordinary meetings, with which so much pleasure was combined with science, were the charming excursion to Belæil, on the 9th June, to the success of which Dr. T. Sterry Hunt so largely contributed; and the Conversazione of 9th March, when the Society had the honor of receiving H.R. H. Prince Arthur. It is to be regretted that, whilst great efforts were made upon these occasions to interest the members, the amount of their response did not accomplish a financial success. The excursion prize was awarded to Miss J. McIntosh, for a large collection of named species, and juvenile prizes were awarded to Master R. Dawson and G. T. Robinson. Very creditable gatherings were also made by Master R. Lewis and E. P. Peavey. Full reports of these agreeable re-unions will be found in the "Naturalist."

Your Council has accepted the offer of our esteemed Curator, Mr. Whiteaves, to deposit his valuable private collection of shells and fossils in the Museum of the Society, for the inspection of members and students, which will add greatly to the attraction of the Society's collection.

The Council, in retiring, desire to acknowledge the very valuable services of their active officers, who have carried through the business of the session.

J. Baker Edwards, Chairman.

After which, Mr. Whiteaves read the following: -

## REPORT OF THE SCIENTIFIC CURATOR.

In consequence of the protracted ill health of our taxidermist, Mr. Hunter, also, in some measure, from the want of funds, my attention, so far as the Museum has been concerned, has been almost exclusively devoted to the lower animals, and to the Society's collection of fossils. Consequently, not many new mammals or birds have been added during the past session. A fine example each of the Canadian Otter, from Gaspé, and of the White-Bellied Mouse, from Labrador, have been added to our series of mammals. Six weeks, during the past summer, were spent in careful dredging round the peninsula of Gaspé, and the

results obtained are of considerable interest and importance. So many specimens were obtained that the whole of the material has not yet been worked up. Commencing with the molluscs, 16 species, new to Canada, one of which is new to science, were procured. This group of animals has been very closely studied; and where there were any doubts about the identification of species, the specimens have been sent to the best English authorities. An exhaustive monograph of the sea shells inhabiting the river and gulf of the St. Lawrence, has been published in the last volume of the "Canadian Naturalist." In it 118 marine shells and 5 naked molluses are described as inhabiting the seas of Canada, only about 65 species being previously recorded. Thus the dredging expeditions of 1867 and 1869 have just doubled the number of species previously known to occur in our waters. These Gaspé species are, in many instances (say 50 per cent. of the whole), conspecific with those discovered by Moller in Greenland, and described by him. Unfortunately, Moller's work on the shells of Greenland (published in Denmark) is very rare and out of print. Not having access to the work, my Gaspé shells have nevertheless been carefully compared with specimens in the British Museum and in the cabinets of Messrs. Jeffreys & Hanley, which had been named and distributed by Moller. The importance of such identifications will be apparent, not only to the student of Canadian zoology, but also to those interested in the study of Canadian post-pliocene fossils.

Twelve additional species of crustacea, mostly small species, were obtained in these dredgings, named species of each of which will be found in their proper place in the museum.

The Canadian Marine Polyzor have been submitted to a careful microscopical investigation, and the whole of the collection, including many recent additions, have been re-mounted and labelled. The recent receipt of an elaborate monograph of the recent Bryozoa of Scandinavia, by F. A. Smith, published by the Royal Society of Stockholm, will, however, necessitate a re-study of this group. The Foraminifera obtained in the recent dredgings have been also subjected to microscopical examination, and, so far, 22 species or varietal forms have been so far observed. It is

proposed to mount a series of the larger species for the collection, and a number of Canadian and exotic specimens have been put aside with that end in view. Materials are being collected for a paper on the distribution of the Marine Protozoa of the River and Gulf of the St. Lawrence which will embody some of the results of both Principal Dawson's and my own collections and study.

Several rare sponges and other marine animals, especially Hydrozoa, have been added to our fauna, but these have not yet been worked up. Duplicates of the rarer Canadian sea shells have been sent to well known collectors in England, in exchange for other specimens. In this way we have received a fine series of English cretaceous and crag fossils (about 80 species), and hope shortly to receive other interesting specimens which have been promised. The fossils above alluded to have been mounted and labelled.

I have concluded to place my own collection of recent shells and British Jurassic fossils, under certain restrictions, in the Society's Museum, so as to make it available for purposes of reference.

A large proportion of time during the past session has been devoted to the editing of the "Canadian Naturalist." Delays in the appearance of the journal have occurred more frequently than might be wished, this has been owing to the difficulty of getting sufficient original matter in time. It is hoped that the volume for the past year. notwithstanding some almost inevitable shortcomings, is, nevertheless, on the whole, creditable alike to the Society and to the Editing Committee. Attention has been given, as in former years, to the publication of abstracts of our proceedings in the public press, and in the "Naturalist." Copies of these reports have been punctually sent to the scientific journals in England, by whom they have been reprinted. In the library, as much work has been done as our limited means would allow; a few standard works have been added; some of our incomplete sets of periodicals have been completed and bound; and the two new microscopical journals, so far complete, have been added.

J: F. WHITEAVES, F.G.S., &c.

The following financial statement was submitted by the Treasurer, James Ferrier, jr.:—

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- "	"	Interest	120.00
- "	25	For Coal and Wood	167.12
- "	44	Gas Bills	22.82
	66	City Taxes, \$46.40, and Water ac-	7 40.65
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	tion	of mortgages on Building	886.15
			\$2604.49
		E E E E E E E E E	Ф2004.49

# STATEMENT OF LIABILITIES OF THE SOCIETY, MAY 1, 1870:

Mortgage on the Society's Building, favor Royal	Tanon 00
Institution	\$2000.00
Samuel Robertson's Account, Carpenter Work	. 16.20
Thomas Robinson's "Glazing	
Gas Account	
	P9045 75

186	69, May 1.		
By	Balance in Treasurer's hands	\$ 60.5	99
186	39 '70.		
By	Donations towards Liquidation of Debt	875.0	00
66	Government Grant		
66	Members Yearly Subscriptions	780.0	00
66	Subscriptions to "Naturalist"	30.0	00
66	Museum Entrance Fees		
66	Rent of Lecture Room	37.5	50
66	Life Member's Subscription—J. T. Molson	50.0	0.0

\$2604.49

Errors and Omissions excepted.

JAMES FERRIER, JR.

Montreal, 1st May, 1870.

It was then moved by Dr. John Bell, seconded by E. E. Shelton, and unanimously resolved:

"That the reports just read be adopted, printed and distributed to the members."

The following resolution, having been moved by John Leeming and seconded by Dr. Smallwood, was carried by acclamation:

"That the thanks of this meeting and of the Natural History Society be presented to Rev. Dr. De Sola, acting President, for his able and interesting address, also to the officers of the Society for the past session, and especially to Mr. J. F. Whiteaves as Scientific Curator, and for the deposition of his valuable collection of shells and fossils in the Society's Museum under the very reasonable restrictions which he has placed thereunto."

The following gentlemen were elected officers for the session 1870-71, Messrs. Ritchie and Marler acting as scrutineers.

#### OFFICERS FOR 1870-71.

President .- Principal Dawson L.L.D., F.R.S.

Vice-Presidents.—Dr. T. Sterry Hunt, F.R.S.: Rev. A. De Sola L.L.D.: Dr. P. P. Carpenter: E. Billings F.G.S.: C. Smallwood, M.D., L.L.D., D.C.L.: A. Selwyn: John Leeming: G. Barnston: Sir. W. E. Logan L.L.D., F.R.S.

Treasurer.—On motion of Dr. T. Sterry Hunt, seconded by Dr. Trenholme, James Ferrier Esq. Jun. was re-elected by acclamation, the form of balloting being dispensed with.

Corresponding Secretary.—Prof. P. J. Darey M.A., B.C.L.
Curator and Recording Secretary.—J. F. Whiteaves F.G.S., &c.
Council.—G. L. Marler: D. A. P. Watt: M. H. Sanborn:
A. S. Ritchie: J. H. Joseph: D. R. McCord, M.A., B.C.L.:
Dr. J. Baker Edwards F.C.S.: Champion Brown, and E. Hartley
F.G.S.

The library and membership committee of the past session were re-elected.

It was moved by Dr. T. Sterry Hunt, seconded by E. Hartley and duly resolved:

"That the meeting do now adjourn."

#### DONATIONS TO THE MUSEUM.

Session 1869-1970.

Donors' Names.	Donations.
R. J. Fowler, Esq	Brittle Star, (Ophiura teres? Lyman) from Panama.
A. Bell, Esq. (London, England)	A series of 40 species of rare British Crag fossils.
R. McLachlan, Esq W. McLennan, Esq. jr	
Mrs. Demaray	Mansfield St. Canadian Lynx, Lynx Canadensis. Chinese Bank note.
J. F. Whiteaves, Esq	A series of shells, polyzoa, hydrozoa, crustaceans, sponges, &c., dredged in Gaspé in
Major G. E. Bulger, F.L.S., F.R.G.S., &c	the summer of 1869. Lepcha Cups, from British Sikkim. Incense Rods, and pot of the material used
ting as scrutineous.	in making them. Sponge from Australia. Pot of Ambergris.
	"Frankincense. "Gum Myrrh.
P.R.R.	7 species of East Indian Seeds.
	Specimens of 15 different kinds of Himalayan woods.  Eggs of 4 species of E. Indian birds and
Donor unknown	various other objects from British India. Scalp lock and arrows, Snake River Indians.
	BY PURCHASE.
	Canadian Otter, Lutra Canadensis, from Gaspé.
	White bellied Mouse, Mus leucopus, from Labrador.

# DONATIONS TO THE LIBRARY.

Sesssion 1869-70.

Donors' Names.	Donations.		
The Author	Reliquice Aquitanice. Parts 9 and 10.  Discoveries in Science by the Medical Philosopher,  By Sir J. Duncan Gibb, M.A., M.D., L.L.D., F.G.S., &c.		

# DONATIONS TO THE LIBRARY.—(Continued.)

DONORS' NAMES.	DONATIONS.
The Anther	Fig. Cold
The Author	. Queries on the Red Sandstone of Vermont
	and its relation to other rocks. By Rev.
The Trustees	. Annual Report of the Museum of Compar-
	attive 20010gv at Harvard Coll Cambridge
	Mass., with Report of the Director. 1867-
eport of the American all u-	1000.
And Read Store Store	Bulletin of the Museum of Comparative Zoology at Harvard Coll., Cambridge,
m. a.	Mass. Nos. 9-13
The Society	History and Condition of the Portland
	Natural History Society from 1866 to
The Education Office	1869, with list of donations. 1869. Report of the Minister of Public Instruction
	of the Province of Onehoo for the man
The Covernment	1007 and in part for the veer 1868
The Government	General Report of the Minister of Public
	Works for the year ending 30th June, 1867 1868.
	Statutes of Canada 1900 0 000
The Society	manuscripts relating to the early History of
	Canada. Published under the auspices of the Literary and History Society of
The same of the sa	
The Author	Physical Culture in Amherst College. By
	Nathan Allen M I) Lowell Mass
	Réapparition du Genre Arethusina, Barrande: et faune Silurienne des environs
Expre Enstitute	de Hoi, en Bavière. Par Josehim Don
Du A Cottingen Chat	
Dr. A. Gottingen, State Librarian, Nashville, Tenn.	Geology of Tennessee. Safford. 1869.
The Author	On the Chemical and Mineralogical Compo-
THE RESERVE OF THE PARTY OF THE	Sition of the Dhurmsalla Meteoric Stone
"	By Rev. S. Haughton, M.D. FRS &c
***************************************	The Principal of Asthetic Medicine By
Royal Society, Christiania	Dr. J. P. Catlow.  Norsk Meteorologisk Aarbog for 1868.
The state of the s	Christiania.
	Le Glacier de Boium, en Juillet 1868. Par
THE REAL PROPERTY AND ADDRESS OF THE PARTY O	A. S. Sexe. Christiania
Billions & Johnson	En Anatomisk Beskrivelse afder Paa over- og Underextremiterne forekommende
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Marchand & Day of the	Plates. Christiania.
	Cemperature de la Mer entre L'Islando
A STATE OF THE PARTY OF THE PAR	L'Écosse et la Norvége. Avec 5 cartes. Par H. Mohn.
	THE TENTION OF THE PARTY OF THE

#### DONATIONS TO THE LIBRARY .- (Continued.)

Donors' Names.	Donations.	
" " E. Hartley, Esq., F.G,S	North America Oology. By Thos. Brewer, M.D. Part 1 Quarto, with uncoloured Plates. Zoology of H. M. S. Samarang. Fishes. By Sir John Richardson. 4to. Plates. A flora and fauna within living Animals. By Joseph Leidy M.D. Washington. Hooker's Icones Plantarum. London. 8vo. half Morocco. First Annual Report of the American Museum of Natural History. New York. 1870.	

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|Shaws Zoology. 28 Vols. 8vo. Illustrated.

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Board of Arts	-	Toronto.
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Laval University	-	Quebec.
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Le Naturaliste Canadien	12	Quebec.
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Natural History Society	-	St. John's, N. B.
Nova Scotia Institute of Nat. Science	-	Halifax, N. S.
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and Language alternacy		Menourne.

## UNITED STATES.

Natural History Society -	ety	- Portland, Maine.
Harvard College	-	- Cambridge, Mass.
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Natural History Society -	-	- Boston, Mass.
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Yale College	-	- New Haven, Conn.
Silliman's Journal	eois.	- New Haven, Conn.
Academy of Sciences	anta	- Chicago, Illinois.
Maryland Academy of Sciences	rep	- Baltimore, Md.
Academy of Sciences -		- St. Louis, Mo.

American Entomologist	Was.	rozi	Kirkwood, Mo.
Mining and Scientific Press			San Francisco.
California Academy of Sciences	, nas	- n	San Francisco.

#### GREAT BRITAIN.

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Nature	- London.
Popular Science Review	
Science Gossip	- London.
	- London.
The Geological Magazine -	- London.
The Student	- London.
Naturalists' Field Club	- Newcastle-upon-Tyne.
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	- Glasgow.
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May 29, '50A. M. McWhinnieLondon, England.
Nov. 29, '52General G. Lefroy, F.R.SRoyal Arsenal, Woolwich,
England.
Aimé Bouchard, M.CAcademie des Sciences,
Paris.
Milne Edwards, M.D " " " "
Feb. 28, '53 Professor Joseph Henry, Secre-
tary of the Smithsonian Insti-
tuteWashington.
March 28, '53Dr. Rae
Jan. 5, '54O'Bryan Bellingham, M.DDublin.
May 19, '56C. Smallwood, M.D., L.L.D., D.C.L.Montreal.
Sept. 29, '56Professor James HallAlbany, N. Y.
Professor DunglisonPhiladelphia.
Oct. 26, '56Professor AgassizCambridge, Mass.

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June 26, '46Dr. W. NewcombTroy, N. Y.			
June 25, '47J. W. LeaycraftQuebec.			
Nov. 20, '47Henry Holmes Croft, Professor			
of Chemistry, University Col-			
legeToronto.			
April 24, '48Major Lachlan			
June 25, '49Dr. John Hillier BlountBirmingham, Englan	d.		
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wich.			
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Sept. 8, '52M. C. BrodieBeauharnois.			
E. A. H. AllenTroy, N. Y.			
Oct. 25, '52Wm. Goodenough Wheeler, M.DChelsea, Mass.			
Rev. William ScottSherbrooke, C. E.			

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Pushes, Jone	cultural Society	
	Samuel Walker	Roxburv. Mass.
	Sir John P. Boileau, Bar	t.,
	F.R.S	London.
	John L. LeConte, M.D.	Philadelphia.
	J. Eliot Cabot, Cor. Sec. of t	the
	Boston Society of Natural H.	is-
	tory	Boston, Mass.
	John Gundlach, M.D	Cardenas, Cuba.
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	Dr. Charles Huguet Latour	
	Dr. J. W. Salisbury	Albany.
	George Webber Breton	
	George Gephson Rumley	
	Archibald Cameron	
March 28, '53	Hon. Jos. Cauchon, M.P.P	Quebec.
	Benjamin Franklin Niles	Washington, D. C.
	Francis Markoe, jr	Washington, D. C.
	Samuel Dutton	
	H. Thieleke	Quebec.
.00	Chas. Laberge, Esq	St. Johns, P. Q.
	Rev. F. Pilote, College of St Anne de la Pocatière	
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Appil 97 159	Vertue Edwards	Boucherville.
April 21, 35	Thomas Wakley, jr	London, England.
	William Bell	London.
	Philip Claiborne Gooch, M.D	Dishard W.
	Col. Campbell, C.B	S+ Hilains
-Snelgate in	Eben. Wight, M.D	Boston Moss
A	Alexander Murray	.Woodstock C W
July 26, '536	leorge G. Francis	Carron E. I.
G	eo. Prev. de Boucherville	St Hypeinths
7	Isgr. J. Langevin	. Rimouski
As, Pepp	Ibert Baker, M.D	Stancross Dovon England
-HOUSE WIOLET	oun Gilson	Rome Ttoly
Nov. 28, '53C	asımır Dessaulles	St. Hyacinthe.
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Nov. 29, '53M	L. Turcot, M.D	St Hypaintha
Nov. 29, 53R	ev. M. Lavallée	St Vincent J. D.
April 44, 04	ev. Michael Ashton	Adoloida And 1
June so, sth	ev. M. A. Trudeau	Ruffelo N V
E	dward Crisp, M.D	London.

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June 30, '54Edward L. Ormerod, M.BBrighton.  James SpencePointe Claire.
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Dr. Amédée Weilbraim Tournay, Belgium.
Jan. 29, '55Sir James Ed. Alexander
June 25, '55General Rowan
Dr. LitchfieldKingston.
Oct. 29, '55William CouperMontreal.
March 31, '56Sir G. E. Cartier, Bart., M.PMontreal.
A. BrunelToronto.
Rev. W. Brethour, M.AOrmstown.
April 28, '56Hen. Judge SicotteSt. Hyacinthe.
May 19, '56Asst. Com. Gen. Ibbotson
Jan. 28, '56P. L. McDougall, AdvocateToronto.
J. C. Lee, M.DLondon, C. W.
Prof. P. J. HeyfelderFinland.
Dec. 20, '56H. P. Gosselin
Alex. CopelandHinchinbrooke.
Feb. 25, '57 Prof. O. P. Hubbard, M.D., Dart-
mouth College
Rev. A. J. Tellier, President St.
John's College, N. Y Fordnam.
R. L. PellNew York.
April 27, '57Jules Flavien GingrasQuebec.
July 27, '57Count MotschulskySt. Petersburgh.
April 27, '57Rev. M. Curtis, D.DHillsborough, U. S.
W. S. Sullivan
S. Durkee, M.DBoston, Mass.
May -, '60Rev. Louis WurteleActonvale.
July -, '60M. J. MitchesonPhiladelphia.
Oct. —, '60Henry PooleHalifax, N. S.  Rev. D. Honeyman, F.G.SAntigonish, N. S.
Ed. Bowen, M.DBrantford.
Nov. —, '60Barnard R. Ross
Jan. —, '62Thos. MacfarlaneActonvale.
June 3, '62Professor BairdSmithson'n Inst., Wash'gton.
W. Stimpson, M.D " " "
Rev. A. Forrester, D.DPrincipal of Normal Schools,
Truro, Nova Scotia.
Sept. 29, '62Dr. Lowe, F.R.S., &cBrighton, England.
Nov. 24, '62S. H. ParkesBirmingham, England.
March 30, '63Hugh E. MontgomerieLondon, England.
N. W. BethuneOttawa, C. W.

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Oct.	26	, '63W. Saunders	London, C. W.
		A. S. Packard	Brunswick, Me.
		H. Rose	Granby, C. E.
		G. F. Matthew	St. John, N. B.
Oct.	26,	, '63Professor How	Nova Scotia.
Nov.	39,	, '63John Brown	Hamilton, C. W.
Oct.	24,	, '63Rev. R. McDonald	
		Professor H. Y. Hind	Windsor, N. S.
Nov.	28,	, '64Captain Rooke, S.F	
March	h 27,	, '65Captain P. G. Fortin	Laprairie.
Nov.	29,	'65Professor Westwood	Oxford, England.
		Professor Daniel Wilson	Toronto.
-		G. F. Angas, Esq., F.Z.S., &c]	London, England.
Jan.	29,	66Alexander Agassiz	Cambridge Mass
Marci	126,	, 66Rev. T. Robinson	Abhotsford
Feb.	25,	'67H. Woodward, Esq	British Museum.
		Bryce M. Wright, Esq	London, England.
3.		Thos. J. Moore, Esq	ivernool England
Nov.	25,	07Sanford Fleming, Esq	Halifax, N. S.
rep.	24,	68John Macoun, Esq	Belleville, Ont.
Oct.	26,	68Bt. Maj. G. E. Bulger, F.L.S., &c., 1	India
March	29,	'69Cyril Graham, Esq	ondon, England
Jan.	31,	'70Prof. J. W. Marsh	acific Coll., Forest Grove.
1 17		Josef make the land of the lan	Oregon.
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## PROCEEDINGS

AT THE

# ANNUAL MEETING

OF THE

# Natural History Society

OF MONTREAL,

FOR THE YEAR ENDING MAY, 1871.

WITH

A LIST OF THE OFFICERS, LIFE, ORDINARY, HONORARY AND CORRESPONDING MEMBERS AND ASSOCIATES OF THE SOCIETY.

#### MONTREAL:

MITCHELL & WILSON, PRINTERS, 464 NOTRE DAME STREET. 1871.

# PROCEEDINGS.

The Annual Meeting of this Society was held at its rooms on the evening of May 19, 1871, the President, Principal Dawson, L.L.D., F.R.S., in the chair. Mr. J. F. WHITEAVES, the Recording Secretary, read the minutes of the last annual meeting, after which the usual annual address was delivered as follows:—

#### THE PRESIDENT'S ADDRESS.

The first duty which devolves upon me in this address is a mournful one—that of referring to the departure from among us of two of our youngest and yet most useful and promising members, Mr. Alexander S. Ritchie, and Mr. Edward Hartley.

Mr. Ritchie died in December last, at the age of 34. He had been connected with the Society for six years, and had contributed to our proceedings seven original papers on Entomology and Microscopy. His papers were characterized by minute and painstaking research, and the facts which he studied were presented in a distinct and lucid manner and often very effectively. He was for some time a member of the Council and of the Editing Committee, and at the time of his death occupied the honourable and useful position of Chairman of the Council. In Mr. Ritchie we have lost a man always ready for any useful work, and while active and enthusiastic, most gentle and unobtrusive in his manner, and thoroughly to be relied on for the performance of all that he undertook to do.

Mr. Edward Hartley was a still younger man, and for a shorter time a member of this Society. He was born in Montreal, but received his scientific education at the Sheffield School of Yale College, and was for some time engaged in mineral surveys in the

United States. He subsequently became attached to the Geological Survey of Canada, and was employed more especially in the coal-fields of Nova Scotia, on which he prepared two elaborate and most valuable reports: one on the structure of a part of the Pictou coal-field, the other on the quality of the coals of Pictou. While in the midst of these useful labors he was suddenly struck down by disease, at the early age of 23. Mr. Hartley was a Fellow of the Geological Societies of London and of France, a member of the Institute of Civil Engineers of Scotland, and of the Institute of Mining Engineers of the North of England, and of various local societies. His attainments in Mineralogy, in Geology and in Mining Engineering were extraordinary for his years and gave promise of a brilliant career. Science in Montreal can little afford to lose two such men.

#### THE SCIENTIFIC PAPERS PRESENTED

to the Society in the past year have been numerous and valuable and most of them have been printed in full in our journal, the Canadian Naturalist. The following may be especially mentioned: "Aquaria Studies," Part 2d, by Mr. A. S. Ritchie; "On a specimen of Beluga recently discovered at Cornwall, Ontario," by E. Billings, Esq., F. G. S. "On the Earthquake of October 20th, 1870, "by Principal Dawson, F. R. S.; "On Canadian Phosphates, in their application to Agriculture," by Gordon Broome, F.G.S.; "On the Origin of Granite," by G. A. Kinahan, Esq., of Dublin; "Notes on Vegetable Productions,; by Major G. E. Bulger; "On the species of Deer inhabiting Canada," by Prof. R. Bell, F. G. S.; "On the Sanitary Condition of Montreal," by Dr. P. P. Carpenter; "On the Foraminifera of the Gulf and River St. Lawrence," by G. M. Dawson; "On Canadian Foraminifera," by J. F. Whiteaves, F. G. S.; "On some New Facts in Fossil Botany," by Principal Dawson, F. R. S.; "On the occurrence of Diamonds in New South Wales," by Mr. Norman Taylor, and Prof. A. Thompson; communicated by A. R. C. Selwyn Esq., F. G. S.; "On the Structure and affinities of the Brachiopoda," by Prof. Morse; "On a Mineral Silicate injecting Palæozoic Crinoids," by Dr. T. Sterry Hunt, F. R. S. "On the Origin and Classification of Crystalline Rocks," by Mr. Thomas Macfarlane; "On the Plants of the West Coast of Newfoundland," by John Bell, M. A., M. D.; "On Canadian Diatomaceæ," by Mr. W. Osler; "On the Botany of the Counties of Hastings and Addington," by B. J. Harrington, B. A.

Beside these, we have reprinted in the *Naturalist* several important papers by Dr. Hunt, Mr. Billings, and others, with the view of making them more fully known to students of nature in Canada.

#### ERRONEOUS PUBLIC OPINIONS.

Of the scientific value of these papers, and of the amount of original work which they evince, it is unnecessary that I should speak; but it is sometimes alleged that societies of this kind are of no practical utility; that their labours are merely the industrious idleness of unpractical dreamers and enthusiasts. Nothing could be more unjust than such an assertion. Science, cultivated for its own sake, and without any reference to practical applications, is a noble and elevating pursuit, full of beneficial influence on mental culture, and by the training which it affords, fitting men for the practical business of life better than most other studies. Further, it is by this disinterested pursuit of science, for its own sake, that many of the most practically useful arts and improvements of arts have had their birth. Besides this, most of the investigations of the naturalist have a direct bearing on utilitarian pursuits. In illustration of this statement I need go no further than our own last volume. An eminent example is afforded by the paper of Mr. Gordon Broome on Canadian phosphates. Here we have set before us three pregnant classes of facts: First -Phosphates are essential ingredients of all our cultivated plants, and especially of those which are most valuable as food. In order that they may grow, these plants must obtain phosphates from the soil, and if the quantity be deficient so will the crop. Of the ashes of wheat, 50 per cent consist of phosphoric acid, and without this the wheat cannot be produced; nor if produced would it be so valuable as food. Second-The culture of cereals is constantly abstracting this valuable substance from our soils. The analyses of Dr. Hunt have shown long ago that the principal cause of the exhaustion of the worn-out wheat lands of Canada is the withdrawal of the phosphates, and that fertility cannot be restored without replacing these. In 292,533 tons of wheat and wheaten flour exported from Montreal in 1869, there were, according to Mr. Broome, 2,340 tons of phosphoric acid, and this was equal to the total impoverishment of more than 70,000 acres of fertile land. To replace it would require, according to Mr. Broome, 5,850 tons of the richest natural phosphate of lime or 13,728 tons of super-phosphates as ordinarily sold, at a cost of more than

\$480,000. These facts become startling and alarming when we consider that very little phosphoric acid in any form is being applied to replace this enormous waste. Yet so great is now the demand for these manures that super-phosphates to the value of \$8,750,000 are annually manufactured in England from mineral phosphate of lime, beside the extensive importations of bones and guano. Third—Canada is especially rich in natural mineral phosphates, as yet little utilized, and might supply her own wants, and those of half the world beside, if industry and skill were directed to this object.

Putting these three classes of facts together, as they are presented by Mr. Broome, we have before us, on the one hand, an immense abyss of waste, poverty and depopulation yawning before our agricultural interests; and on the other, inexhaustible sources of wealth and prosperity lying within reach of scientific skill, and the conditions necessary to utilize which were well pointed out in the paper referred to. It is true that these facts and conclusions have been previously stated and enforced, but they remain as an illustration of scientific truths of important practical value still very little acted on.

Naturalists are sometimes accused of being so foolish as to chase butterflies, and the culture of cabbages is not usually regarded as a very scientific operation; yet any one who reads a paper on the Cabbage butterfly read at one of our meetings by the late Mr. Ritche, may easily discover that there may be practical utility in studying butterflies, and that science may be applied to the culture of the most commonplace of vegetables. A valuable crop, worth many thousands of dollars, is hopelessly destroyed by enemies not previously known, and appearing as if by magic. Entomology informs us that the destroyer is a well known European insect. It tells how it reached this country and that it might have been exterminated by a child in an a hour on its first appearance. But allow it to multiply unchecked, it soon fills all our gardens and fields with its devastating multitudes, and the cultivators of cabbages and cauliflowers are in despair. But Entomology proceeds to show that the case is not yet hopeless, and that means may still be found to arrest its ravages.

Unfortunately, we have as yet no public official bureau of Entomology, and therefore we must be indebted for such information to men who, like our late associate Ritchie, snatch from arduous business pursuits the hours that enable them thus to benefit their

country. Ontario is in advance of us in this, and has in the present year produced an important contribution to practical science in the report of the Fruit Grower's Association, which includes, among other matters, three papers on applied Entomology; that on Insects affecting the Apple, by Rev. C. T. S. Bethune; that on Insects affecting the Grape, by Mr. N. Saunders; and that on Insects affecting the Plum, by Mr. E. B. Reed. These are most creditable productions and of much practical value.

I would mention here that though we have among us several diligent and successful students of insects, yet we have no one at present who has taken up the mantle of Mr. Ritchie as a describer of their habits. I trust that some of our younger members will at once enter on this promising and useful field.

#### WORK DONE.

Looking at the amount of work done by our Society in the course of the year, I think it will bear comparison with that of similar societies elsewhere. We have not before us so large an amount of matter as that accumulated by the great central societies of the Mother Country and the United States; but we exceed in this respect most of the local societies of Great Britain, outside of London, and most of those in America with the exception of a few of the more important. With regard to the quality of scientific matter, we can boast many papers of which any society might gladly take the credit, while all of the papers which we publish are at least of local value and importance. This Society is, on this account, now recognized as the chief exponent of Canadian Natural History, and its journal is sought by all interested in the aspects of nature in this part of America. The responsibility which devolves upon us in this aspect of our work, is, I think, worthy of our consideration, with reference to our future operations, and to this subject I would desire to devote the remainder of this address.

One of our functions as a local society I think we have well and efficiently performed. It is that of accumulating and arranging for study the natural productions of this country. Our collections of mammals, birds, insects and mollusks of Canada are now nearly complete up to the present state of knowledge, and we have also valuable collections in other departments of Zoology. Our curator, Mr. Whiteaves, has done very much to give to these collections a scientific value by careful and accurate arrangement.

We have not specially cultivated Canadian Geology, because we cannot hope to rival in this department the admirable collection of the Geological Survey; but we have aimed at and secured a general collection, useful in educating the public taste and for giving aid to learners. Our collections in American Ethnology are not contemptible; and at our last annual conversazione, by laying our friends under contribution, we were able to exhibit an admirable series of illustrations of the rude and simple arts of the tribes which preceded us in the occupation of this country.

Of our library I cannot speak in as high praise as of our Museum. It should undoubtedly be one function of a Society like this to collect for the use of naturalists at least those books of reference which they would require to consult, and especially all books of value bearing on American Natural History. It is true that the University Library and that of the Geological Survey to some extent supply this want; but there is still a large field in this department which we might occupy, and we should at least place the scientific periodicals of the day conveniently within the reach of our members. Nor is there anything more likely to prove attractive to the public than a well-stocked library and reading room, devoted especially to the scientific subjects which we cultivate. This subject is one with reference to which the Society should move vigorously in the coming year, either by soliciting special contributions for this purpose, by increasing the amount of its annual contributions from members, or by allying itself with other societies. It seems to have been an error in the construction of our building not to have provided larger space for accommodating a library and reading room, and if possible some amendment should be effected in this.

In our proper scientific work a boundless field lies before us. Scarcely any department of the natural history of this country has been satisfactorily worked out, and any active naturalist can find almost anywhere the material for original investigations, the results of which we are at all times ready to give to the public. I have already referred to the subject of Entomology as applied to practical purposes; and the natural history of our spiders, millepedes, and worms, is almost an untrodden field, while our microscopists have a vast and little explored domain in Canadian waters, with their multitudes of inhabitants of the humbler grades. There is much also yet to be done in Canadian fishes and reptiles. Mr. Whiteaves has made much progress in cata-

loguing Canadian mollusca, but his work is by no means complete; and such groups as the Nudibranchiates, the Tunicates and the Polyzoa, still lie in a very imperfect condition, though some materials have been accumulated. In connection with this subject, I would refer to the desirableness of exploring the deeper parts of the Gulf of St. Lawrence, in which, no doubt, many important additions to our fauna might be discovered, and which might throw much light on the post-pliocene geology of Canada. It is further much to be desired that an attempt should be made to ascertain the precise limits of the various marine animals in the brackish portions of the River St. Lawrence. In dredging in Murray Bay, in the past years, I have been surprised to find so rich a boreal fauna in that part of the river, and I have no doubt that it must extend much further upward, sustained by the cold salt water which forces its way under the warmer and fresher water of the surface. It would be interesting to know how far the marine animals extend, and also what varietal changes occur in the species as they approach the fresher portions of the river. To prosecute such researches we would require public aid, and the want of this has hitherto limited our work in this direction. Last year a committee was appointed to consider the matter, but nothing was done. With a view to some action in the coming summer, I have, as President of the Society, invited the attention of the Hon. the Minister of Marine to the subject, and have requested a passage for an observer appointed by the Society in one of the Government steamers or schooners. I have much pleasure in stating that he has entered heartily into my views, and that there is a prospect that, with the aid thus afforded, we may be able to reach with the dredge the deepest portions of the Gulf. Though these depths are small in comparison with those which have been reached in the Atlantic, I feel confident that they will afford a rich harvest of marine forms, not hitherto known to us, and that the results will be equally creditable to this Society and to the Government of Canada, which may thus, with little trouble and expense, emulate the Mother Country and the United States in the efforts which they are making to extend the knowledge of Marine Zoology. It is probable also that facts may be obtained of practical value with reference to the fisheries.

In Botany the two points which have chiefly engaged our attention are Geographical Distribution and the Cryptogamic orders. In the former, Mr. Drummond, Dr. Bell, and Mr. Matthew have

done good service, but their labours merely show how much remains to be done. In the latter, Mr. Watt has been our principal worker; but here also, especially in the Algæ and Fungi, there is scope for other observers. Some one might do a most important service by directing his attention to the Parasitic Fungi of this country.

Geology, which presents the largest and most attractive field open to students of nature in Canada, has a most important public provision made for its culture in the Geological Survey. Still the function of this Society and of private workers is not unimportant. Several of the officers of the Survey have made the journal and the meetings of this Society the vehicles of their more purely scientific researches. I need only mention the valuable papers of Dr. T. Sterry Hunt on Chemical Geology, and those of Mr. Billings on Palæontology, as illustrative of this. To Mr. Hartley, Mr. Robb, Mr. Vennor, Professor Bell, and Mr. Broome, we have also been indebted in this way. Mr. McFarlane has enriched our journal with many valuable contributions, especially on the nature of rocks, and many of my own researches, especially in Post-pliocene Geology and Fossil Botany, have been published through the medium of the Society. The field for work is still, however, very wide; more especially is there large scope for industrious collectors of fossils, if they would devote themselves to the thorough exploration of such formations as may be within their reach.

#### PUBLIC PATRONAGE NEEDED.

In conclusion, I must refer to what I regard as at present the most discouraging feature of our position. In the able address delivered last year by Dr. DeSola, reference was made to the slender aid and countenance which this Society receives from the public, and the same subject is illustrated by the statistics of the Society in the reports of the Council for last year, and also for the present year. A Society like this, offering to the public a well filled and well arranged museum, the advantage of attending its scientific meetings and public lectures, and of receiving its journal at a price little more than nominal, should need no advertisement; and this more especially when its working members are labouring so successfully in enlarging the boundaries of knowledge and promoting its practical applications. Those of our citizens who are not themselves naturalists, should on these

grounds be members and contributors to its funds, merely as a public institute, creditable and useful to the city. But this is not all: they should also take an interest in its work. Nearly all the subjects which engage its attention possess some interest to any intelligent mind; and I believe that it is much more from want of knowledge of that which we are doing, or from want of thought, than from any other causes, that so many fail to take advantage of the privileges which we offer. I am sure that there is no intelligent man who will not find in the advantages to which I have referred much more than an equivalent for his annual subscription. Experience has, however, shown us that we cannot reckon on a work so unobtrusive as ours securing the attention it deserves. It will, therefore, be incumbent on the new Council to take steps as soon as possible for enlarging our membership by a direct appeal to the public. I trust that this will be successful, and that next year we shall be able to report that we have, no only done useful work, but that our list of members has been greatly enlarged.

The Chairman of the Council (G. L. MARLER, Esq.) then submitted the following:

# REPORT OF THE COUNCIL, MAY, 1871.

The Council in making its report for the past year, do so with feelings both of pleasure and regret; with pleasure in having to acknowledge the many valuable scientific contributions which have been placed on the Society's records, to which the President has already alluded; and with regret that the Society has lost many of its members.

The Council have also to report that the usual Sommerville Course of Lectures, was given as follows:

- 1. Jan. 19th, 1871. "On the Primordial Period in Geology," by Principal Dawson, LL.D., F.R.S., &c.
- 2. Feb. 2nd, 1871. "On Astronomy and Geology," by Dr. T. Sterry Hunt, F.R.S.
- 3. Feb. 16th, 1871. "Applied Science, illustrated in the Manufacture of Glass," by Dr. J. Baker Edwards, F.C.S.
- 4. Feb. 23rd, 1871. "The Wonders of the Glacial Period," by Prof. R. Bell, F.G.S., &c.

5. March 2nd, 1871. "On Tides and Currents; especially on the Acadian Coast," by C. Robb, C.E.

6. March 16th, 1871. "Sketches of Plant Distribution in Canada," by A. T. Drummond, B.A., LL.B.

7. (Supplementary.)

March 23rd, 1871. "On the Twenty Year's War," by Prof. Goldwin Smith.

Your Council have to report that the post of Taxidermist and Janitor, left open by the resignation of the late Mr. Hunter, whom the Society had some difficulty in replacing, has been well and efficiently filled by Mr. Passmore.

Your Council beg to draw the attention of the Society to a fact, one much to be regretted, that the number of members of the Society is becoming less every year. The decrease is to be attributed to various causes, chiefly, however, to the fact, that the Committee whose special duty it was to solicit and canvas for new members, has long since ceased its exertions, and to the fact that the work of the Society and its valuable contributions to science are not as generally known as they should be. Whatever may be the reason, your Council have much regret in announcing that during the last year the Society has lost by death, resignation or removal, nineteen of its members. Eight new ones have been added, so that in reality we have lost eleven members. An appeal should therefore be made to the present Subscribers to induce their friends to join the Society.

Your Council beg leave to suggest and bring before the Society a means whereby its sphere of usefulness would be enlarged,—that by affiliating other Societies, and by bringing into one building and place the different Libraries now existing in this city—such as that of the Mercantile Library—and by adding a Gallery of Fine Arts, it would tend to make this Society, and others also, more popular and more efficient. That the Society should especially urge upon the Trustees of the Fraser Institute the advantages that would accrue to both parties by such an affiliation. Not only is the position of your building most excellent, but the vacant ground adjoining, belonging to McGill College, also makes the idea very practicable; and although affiliated the Institutions would be distinct.

Your present Council would also recommend to the incoming Council a careful revision of the exchange periodicals for the "Naturalist." The annual Conversazione has again failed to draw as many persons as we could have wished, although every possible exertion was made by the Committee in whose hands the matter had been left. Yet your Council cannot but think that such reunions have a beneficial tendency, that much valuable knowledge is derived from them; and that even though there be a loss in a pecuniary point of view, we must regard them as affording valuable knowledge of things and objects which would be otherwise unknown. Your Council think, therefore, they should be continued.

Your Council have also to draw the special attention of the members of this Society to the valuable collection of shells belonging to Mr. Whiteaves, your industrious Curator. He is now engaged in classifying the shells, and they are so admirably arranged that their inspection will be useful and interesting to the members of the Society and to students. Your thanks are due him for the duplicates of specimens which he has kindly presented to the Society.

The Society is also indebted to him for the valuable services he has rendered, and for the able manner in which he has filled his office.

The Council have to report that 373 visitors were admitted to the Muscum from the 15th September, 1870, to the 1st May, 1871; the former portion of the year no record was kept, owing to the absence of Mr. Hunter.

Your Council have also to report that there is still due \$2000 on the building—\$1000 of which the Treasurer is authorized to pay on the 1st August next, out of any balance he may have on hand; it is also recommended that immediate exertions be made to raise another \$1000 in order to free the premises from mortgage. Your Council have also to remark that the current expenses of the Society have been much above the average of past years, having incurred an outlay of \$337 for repairs to the building.

The Council in retiring desire to convey their thanks for the very valuable services of their officers who have carried through the business for the past year.

G. L. MARLER, Chairman of Council. After which, Mr. Whiteaves read the following:

#### REPORT OF THE SCIENTIFIC CURATOR.

Since the last annual meeting, by the resignation of the late Mr. Hunter, there was no officer residing on the premises, until Mr. Passmore arrived on the 19th of September last.

Owing to the protracted ill health of our late deeply regretted taxidermist, in the summer, it was found that moths were making havor among the birds and mammals. The case being urgent, Mr. Craig was called in, and we did our best to remedy the evil. On Mr. Passmore's arrival, I called his attention to this circumstance, and he lost no time in making a searching examination into all the cases, and did all that could be done in the way of applying the necessary remedies. Mr. Passmore and I have also studied closely our series of Canadian birds, have weeded out several specimens which we have good reason to suppose are not American examples at all, and have rectified some errors in the previous nomenclature. The series is now in good order, and none but authentic specimens are included in that part of our collection. In the department of mammalia but one new species has been added, viz., a noble example of the grizzly bear of the Rocky Mountains.

In ornithology, however, we have made much more progress. Mr. A. Jowitt has given us 39 specimens of English birds, Major G. E. Bulger 7 rare exotic species, but we have only added 12 specimens to our collection of Canadian birds. We have not to go far for a reason for this. When Mr. Passmore arrived, ornithologists here thought that now we had another active and able naturalist resident on the premises, our collection of birds and mammals would rapidly increase. But by an act recently passed in the local legislature for the Province of Quebec, no person, for any purpose whatever, may shoot small birds. A special application has been made to the Minister of Agriculture of the Pro. vince of Quebec for a license to enable Mr. Passmore to procure birds, &c., for this museum, which has been positively refused. As Prof. Orton has lately shewn, to please the tastes of the fair votaries of fashion, the rarest of the South American humming birds are exterminated with impunity, and will soon be as extinct as the Dodo or the Moa. To come nearer home, thousands of small birds are indiscriminately shot every year, in Ontario, in shooting matches; but in Quebec, through ill-advised legislation, the philosophic study of ornithology has received its death-blow.

Many facts respecting, for example, the periodical migration of a number of our birds, their incubation, the way in which the colour of their plumage varies with age or sex, or such more directly practical questions as, upon what do they feed? and do they benefit the agriculturist or the reverse? have yet to be ascertained. Surely it becomes this Society, in the interest of science in general, and in its own self-defence in particular, to petition the Local Legislature to modify such a law as this.

From the Smithsonian Institute at Washington we have received a large and valuable series of North American birds' eggs, consisting of 91 species, many of them of considerable rarity. Among the more interesting of these are the eggs of the Golden Eagle, American pelican, King eider duck, Pacific eider, Velvet duck and Surf Scoter, Canvas-backed and Red-headed ducks, Gambel's and Hutchins' goose, Pacific diver, Western grebe, American oyster catcher, California gull, and other rare eggs from Arctic America and the Pacific coast.

We have also added Canadian examples of the eggs of the Red shouldered buzzard (Buteo lineatus), and of the Long-eared owl (Otus Wilsonianus) to our collection. A description of the nidification of each of these species, and a list of all the rare birds that have been recently obtained in the Province (at least of all those of which I could get any definite information) has been published in the Naturalist. The birds' eggs received during the past year have been labelled and arranged in drawers in the museum.

Mr. Bulger has presented a miscellaneous collection of objects of interest, mostly from the East Indies, to the Museum. A detailed catalogue of some of these has been published in the Society's Journal. Thirty-six species of fossils, several corals, &c., and an example of the Glass Rope sponge (Hyalonema Sieboldii), have been also added to the Museum. Many of these were received in exchange for shells dredged in the Gulf of St. Lawrence.

I have steadily worked at the preparation of my own private collection of shells and fossils for exhibition in the Museum, with the following general results:—A new cabinet of 24 drawers has been made, and 24 drawers under the central mineral case upstairs, have been adapted to hold shells or fossils. Another cabinet belonging to myself, and containing 14 drawers, has also been used temporarily. So far about 3000 species have been partially grouped, of which about 1000 have been attached to proper tablets. Where a name has been ascertained with tolerable cer-

tainty, a pen and ink label on white paper has been permanently attached, but where the identification is doubtful, the name and locality of the species is only written in pencil on the blue tablet. Of those mounted permanently the following is a general analysis:

411 species are marine gasteropods (univalve).

Over 300 species are land or fresh water gasteropods. 324 species are lamellibranchiate bivalves.

Referring only to that part of my collection at present in Canada, and omitting fossils entirely, one thousand species being mounted, I should estimate the remainder unmounted at about 2500 species.

With regard to the scientific arrangement to be ultimately adopted, there are some difficulties in the way. Dr. Woodward's manual, though excellent as far as it goes, represents only the state of our knowledge of the subject some fifteen or twenty years ago. On the other hand the Messrs. H. & A. Adams and Dr. Gray in their elaborate treatises unfortunately disregard the well-known and well-established laws of zoological nomenclature. In the meantime, until the whole collection is mounted, the arrangement is one of mere convenience. In mounting my own shells, all the duplicates are put into the Society's collection, and in this way over fifty species have been added.

It is hoped that the duties of Secretary have been efficiently attended to; as in past years copies of our proceedings have been sent to the leading English Journals, in whose columns they have been reprinted.

The delays that have arisen in regard to the issue of the Canadian Naturalist, have been partly due to the printer, and in a large measure to the difficulty of getting a sufficient amount of original matter in time.

I have to regret also the somewhat large number of typographical errors in the present volume, over and above those which are almost unavoidable except by a proof-reader of great experience. The work of editing the Journal has led this year to a much larger amount of general correspondence than last, and has of course taken up time that would otherwise have been devoted to work in the Museum. Under many disadvantages and difficulties, and with many deficiencies and shortcomings to regret, it is yet hoped that the work done during the past session has not been altogether barren of results but that it may have tended in some small degree to help to popularize the study of the natural sciences in the city.

J. F. Whiteaves, F.G.S., &c.

# REPORT OF THE TREASURER.

# Dr. THE NATURAL HISTORY SOCIETY OF MONTREAL IN ACCOUNT WITH JAMES FERRIER, JR., TREASURER.

u casi	i paru	J. F. Whiteaves, salary	\$400.0
		W. Hunter, "	100.0
"	46	H. Passmore, "	100.0
66	"	J. E. Pell, Commissions on Collections	29.2
"	46	Interest	120.0
46	46	Coal	56.0
41		Gas Bills	56.0
"	"	Water Tax	32.7
"	23	City Tax	46.4
"	44	Insurance	39.0
"	66	Repairs and Petty Expenses	530.80
46	11	Books, Printing and Advertising	125.50
71, M	av 1	9	120.0
		n Treasurer's hands	917.3

Ψ2000.0

# STATEMENT OF LIABILITIES OF THE SOCIETY, May 1, 1871.

Mortgage on Society's Buildings, favour Royal Institu-	
tion \$2000 00	
Dawson Bros. account	
04.24	

\$2455.16

1870, May 1. By Balance in Treasurer's hands	\$886.15
1870-'71.	
By Government Grant	750.00
" Members Yearly Subscriptions	595.00
" Donation towards liquidation of Debt. J. F. Jr.	50.00
" Museum Fees	35.83
" Rent of Lecture Room" Subscription to "Naturalist"	172.06
" Interest from Treasurer 1 year on \$886.15	2.00 62.03
φου	02.03

\$2553.07

15

Errors and Omissions excepted.

[Signed] JAMES FERRIER, JR.

Montreal, 1st May, 1871.

It was moved by E. E. Shelton, seconded by Prof. R. Bell, and unanimously resolved:

"That the reports just read be adopted, printed and distributed to the members."

It was moved by John Leeming, seconded by Dr. C. Smallwood, and duly resolved:

"That the thanks of this meeting and of the Natural History Society be presented to our highly esteemed President, Principal Dawson, not only for his able and interesting address, to which we have just listened, but also for his continued and valuable services in the interest of this Society: further, that these thanks be extended to Mr. J. F. Whiteaves, whose services as Scientific Curator cannot be too highly spoken of, and to the other officers of the Society."

It was moved by Dr. Smallwood, seconded by Dr. T. Sterry Hunt, and resolved:

"That the bye-law relating to the balloting for the President, be suspended, and that Principal Dawson, LL.D., F.R.S., be re-elected to that office."

It was moved by E. E. Shelton, seconded by Dr. Smallwood, and resolved:

"That James Ferrier, Jr., be re-elected Treasurer."

It was moved by John Leeming, seconded by Dr. T. Sterry Hunt, and resolved:

"That Prof. P. J. Darey, M.A., B.C.L., be re-elected Corresponding Secretary."

It was moved by John Leeming, seconded by Dr. W. G. Scott, and resolved:

"That Mr. Whiteaves be re-elected as Scientific Curator and Recording Secretary."

The following gentlemen were elected officers by ballot, Prof. R. Bell, and G. T. Kennedy acting as scrutineers.

Vice-Presidents.—Dr. T. Sterry Hunt, F.R.S.; Rev. A. De Sola, LL.D.; E. Billings, F.G.S.; Sir W. E. Logan, LL.D., F.R.S.; A. R. C. Selwyn, F.G.S.; C. Smallwood, M.D., LL.D., D.C.L.; John Leeming; Dr. P. P. Carpenter; G. Barnston.

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Library and Membership Committee.—A. T. Drummond; Stanley C. Bagg; Dr. John Bell; Dr. W. Bessey; D. R. McCord.

On motion of John Leeming, seconded by G. Barnston it was resolved:

"That the Editing Committee of the past session be re-elected." The meeting was then adjourned.

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Session 1870-71.

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A. E. Bulger, Esq.

#### DONATIONS.

Two young specimens of the Gar Pike, Lepidosteus osseus?

Two Eider Ducks.

One Red Breasted Meganser. One Great Black Backed Gull.

Cast of Cephalaspis Dawsoni, Lankester, and 23 species of fossils from the United States.

17 skins of English game birds, as follows: one black cock and a pair each of the pheasant, common and red-legged partridge, red grouse, ptarmigan, snipe, jack-snipe, and land rail.

22 skins of the smaller English birds. A large series of North American birds' eggs, and a specimen of the Snowy Heron.

7 rare East Indian and African birds, as follows:—

Halycon Coromandelianus. Ruddy Kingfisher. From the Teesta River, Sikkim, Eastern Himalayas.

Chrysococcyx Hodgsoni. Emerald Cuckoo. From the foot of Mount Tendong, Sikkim.

Pericrocotus brevirostris. Short-billed Minivet. From the Valley of the Little Rungeet River, Sikkim.

Sphenocercus apicaudus. Pin-tailed Green Pigeon. Valley of Little Rungeet River, Sikkim.

Chalcophaps Indica. Bronze-winged Dove. Valley of Great Rungeet River, Sikkim. Coturnix dactylisonans. Quail. Windvo-

gelberg, S. Africa.

Alcedo cristata. Crested Kingfisher. Banks
of Blue River, Cape Town, S. Africa.

The nomenclature of the Indian birds is Jerdons, that of the S. African species, Layards.

Burmese box, made of bamboo.

Burmese M.S.S. on the prepared leaf of the Palmyra Palm, *Borassus flabellifor*mis, Linné.

Piece of stem of the American Aloe, Agave Americana, Linné.

Burmese Canoe.

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DONORS' NAMES.

DONATIONS.

A. E. Bulger, Esq.

Quills of Indian Porcupine, (Hystrix leucurus, Sykes) from the Nilgherry Hills. Piece of Sandal Wood (Santalum album) and of the heart wood of the "lign aloes" or eagle wood tree, (Aquilaria agallocha) also another wood of which the name of the species is not known: all from British India.

Seed pod of the Moreton Bay Chestnut Tree, Castanospermum Australe, Cunn., and of the "Frangipanni" flower, Plumieria alba, from India.

Tusk of Wild Boar, from India.

Seeds of Tea Tree, Thea Chinensis, from China.

" Indian Shot, Canna Indica, from India.

" Red Wood Tree, Adenanthera pavonina, from India.

Wild Liquorice, Abrus precatorius, from India.

Bonduc Nuts. Guilandina Bonduc. Grugru Nuts. Seed-vessels of a palm, Acrocomia sclerocarpa, Mast., from the West Indies.

Seeds of Eleocarpus oblongus, Gaertner; from the Nilgherries.

Seeds of the Great Elephant Creeper, Entada pusætha, Decandolle. From the Sikkim Terai, Eastern Himalayas.

Fossil wood, from the petrified forest near Cairo, Egypt, and several other miscellaneous objects.

Egg of the Red-Shouldered Hawk, Buteo lineatus, from Sorel.

Specimen of the Glass Rope Sponge, Hyalonema Sieboldii, from Japan, and 12 species of Wenlock limestone fossils. An exchequer tally.

Pair of Pine Grosbeaks. 1 Downy Woodpecker.

Cast of an Indian pipe, the original of which was found at Port Hope, Ont. Pair of Canvas-backed Ducks.

A Pigeon hawk, Hypotriorchis columba-

Common Grey Parrot.

Master E. A. Kittson.

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Catalogue of Fishes. Vol. 8, 8vo. cloth.

Nederlandsch Meteorologisch Jaarboek voor 1869. Utrecht.

Statutes of Canada, 33 Vict., 1870. In French and English. Alaska and its resources. By W. H. Dall.

Geology of Iowa. 1870. 2 vols. By Dr. C. A. White, State Geologist.

Report of the Fruit Growers' Association of Ontario, for the year 1870.

Bulletin of the Museum of Comparative Zoology at Cambridge, Mass., vol. 2, pt. 2 Distribution des Cephalopodes dans les Contrées Siluriennes. Par Joachim Barrande.

Seventh biennial Report of the board of Curators of the Iowa State Historical Soicety, for the Biennial Period ending December 1st, 1869.

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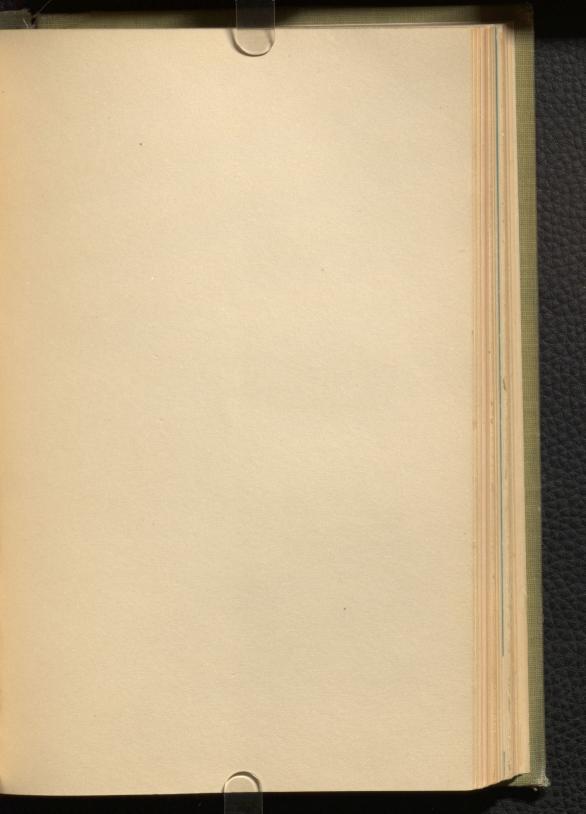
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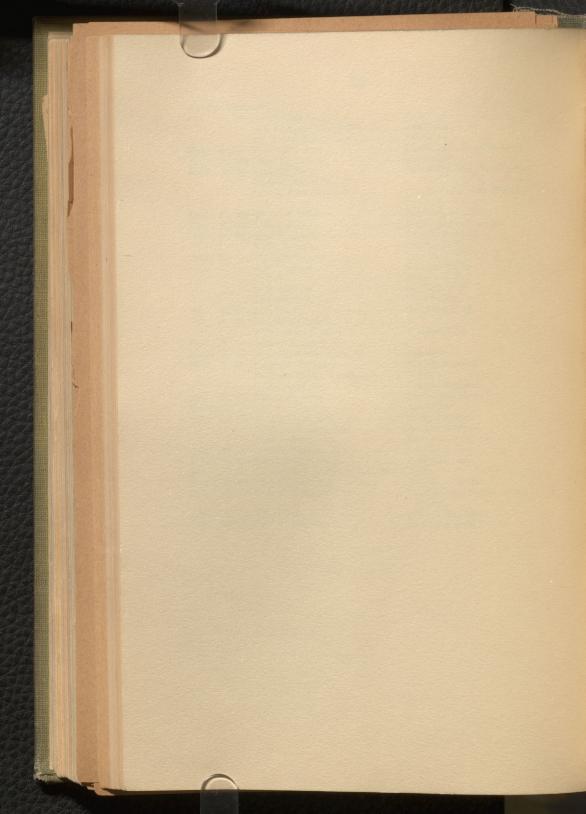
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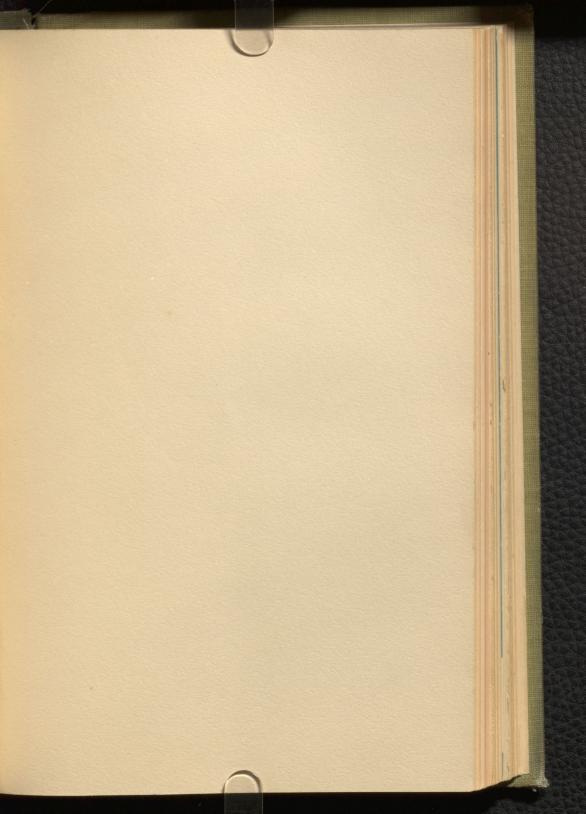
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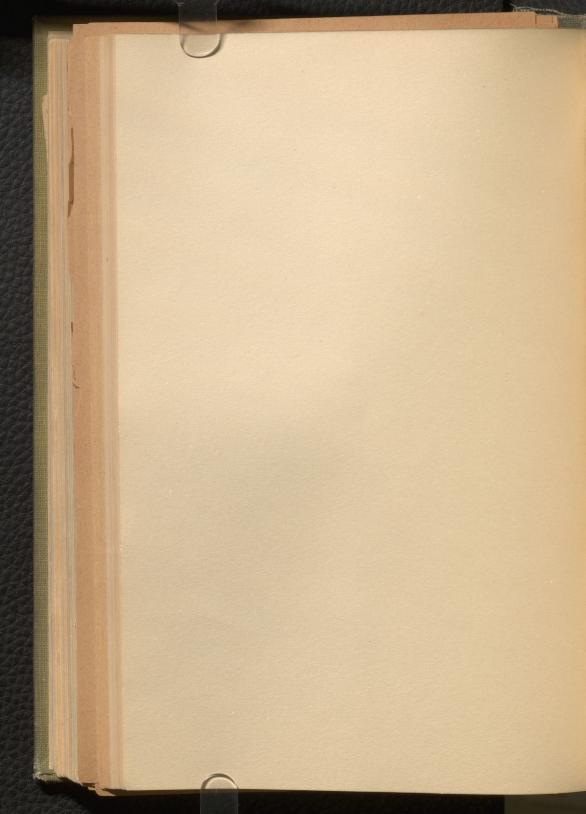
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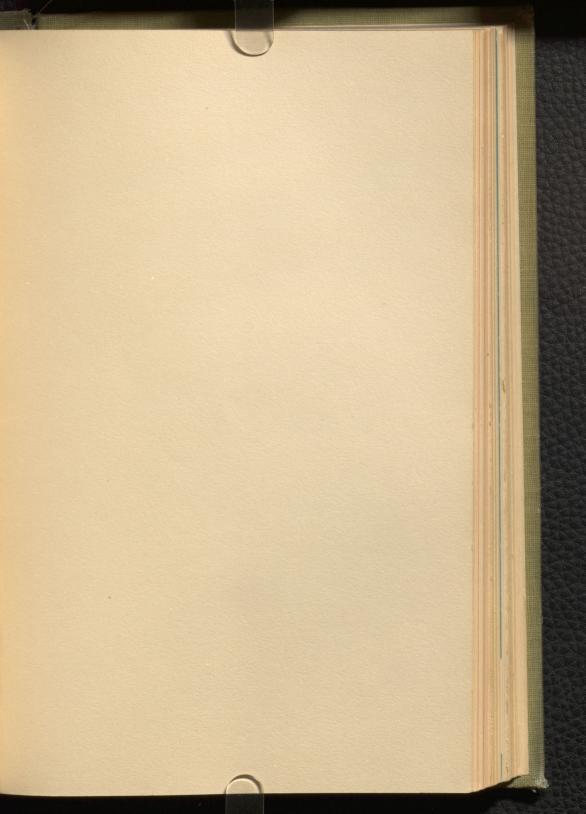
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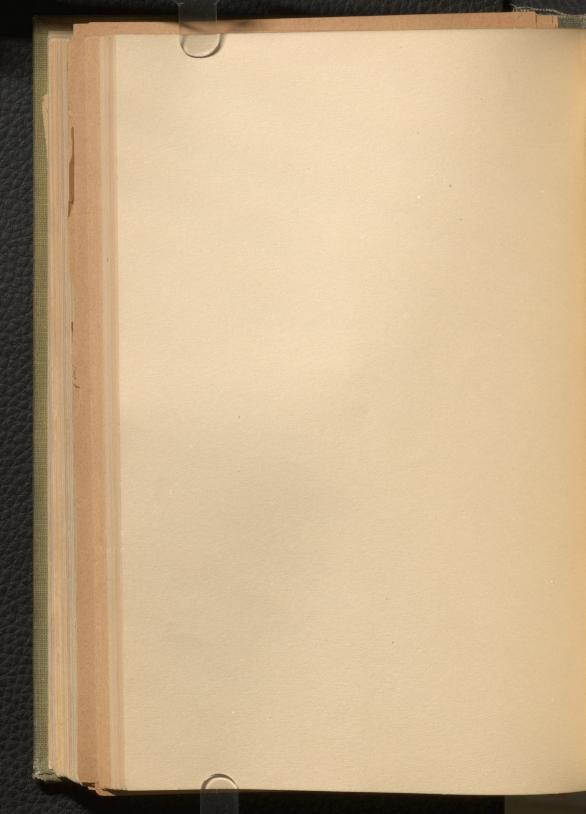


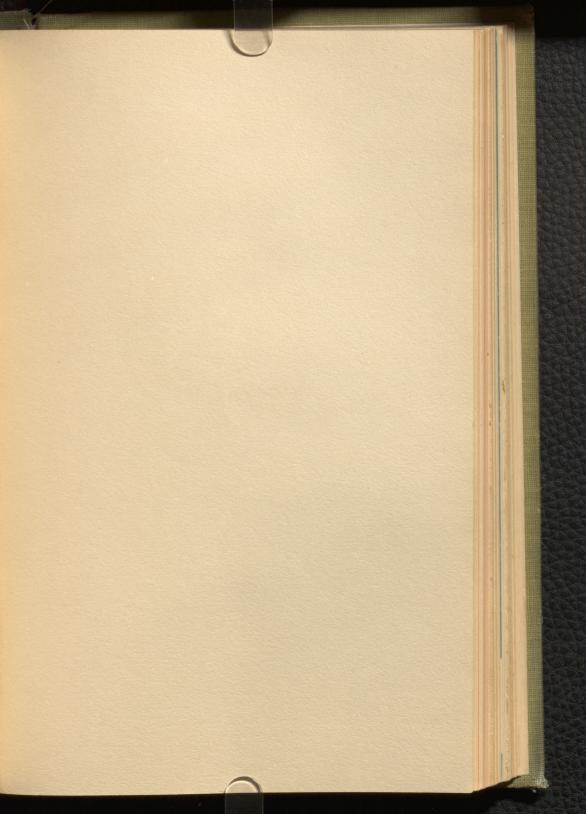


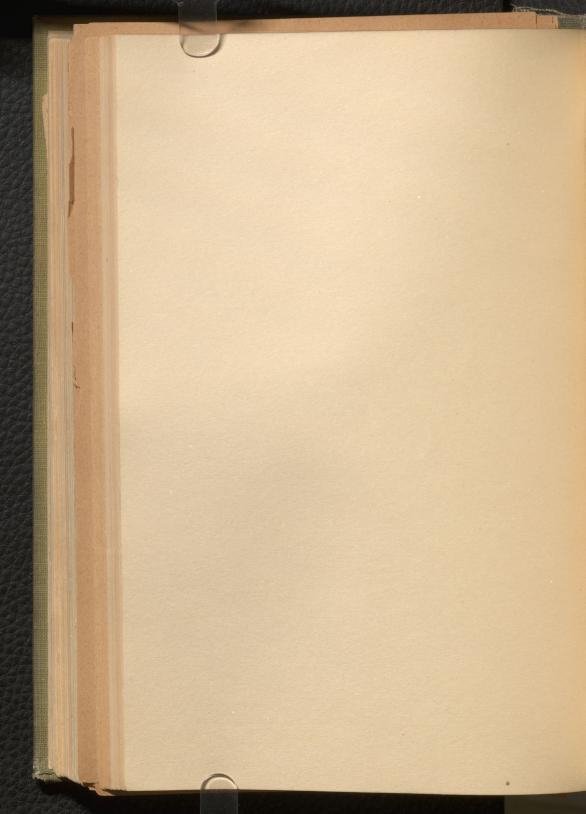


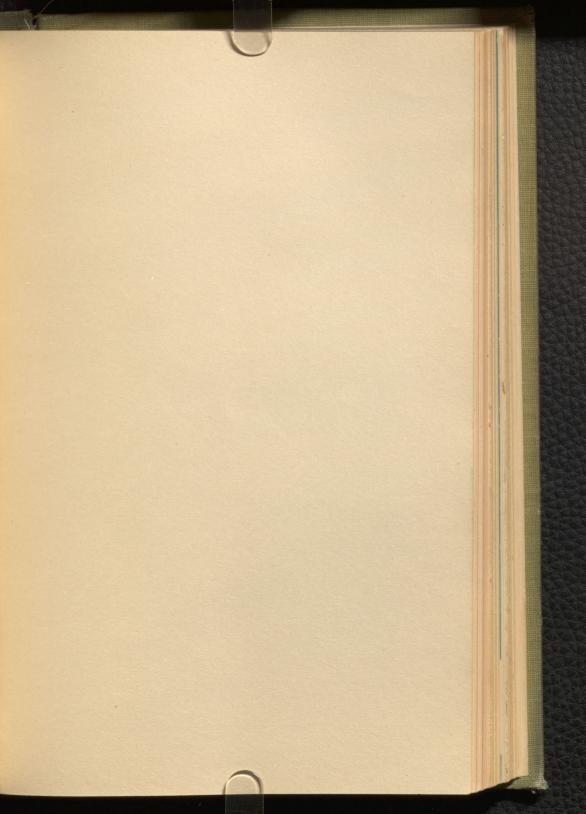


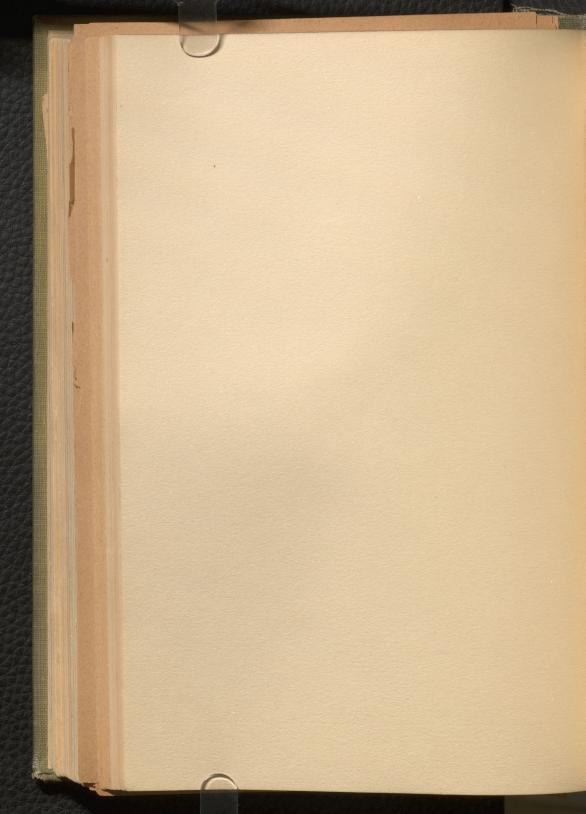


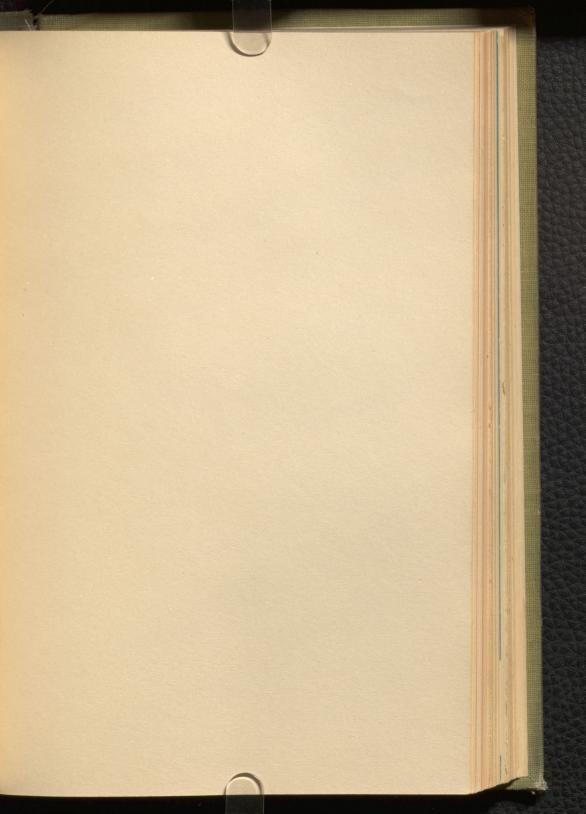


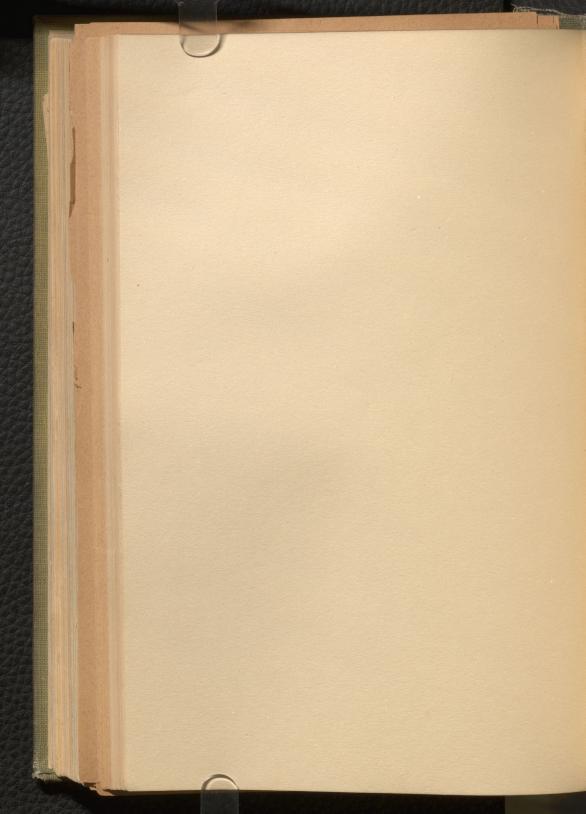


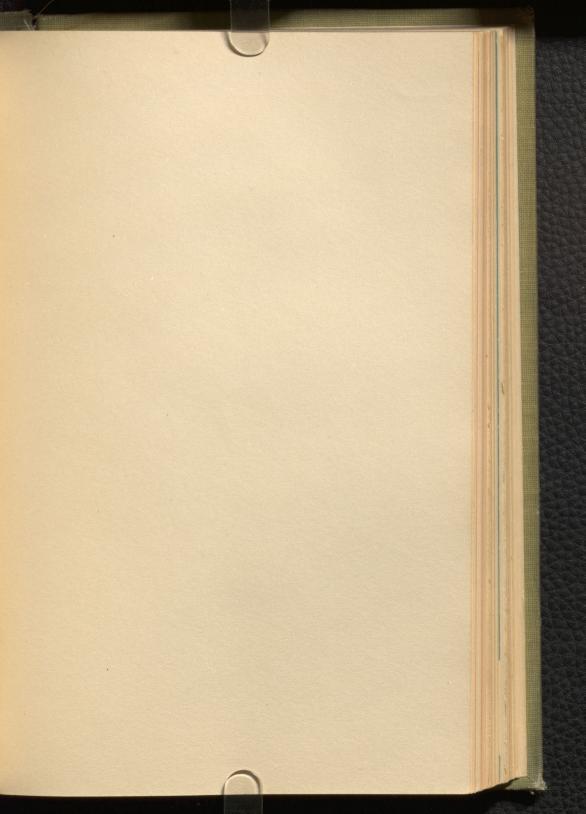


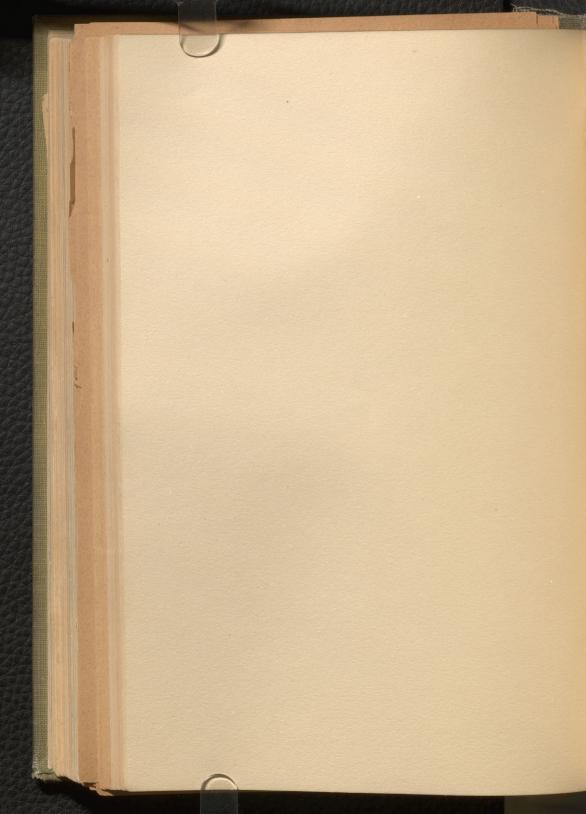


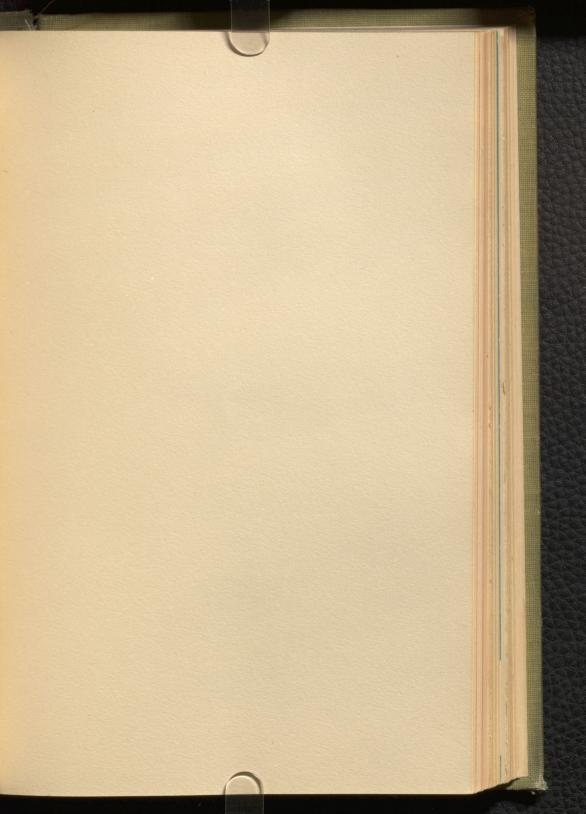


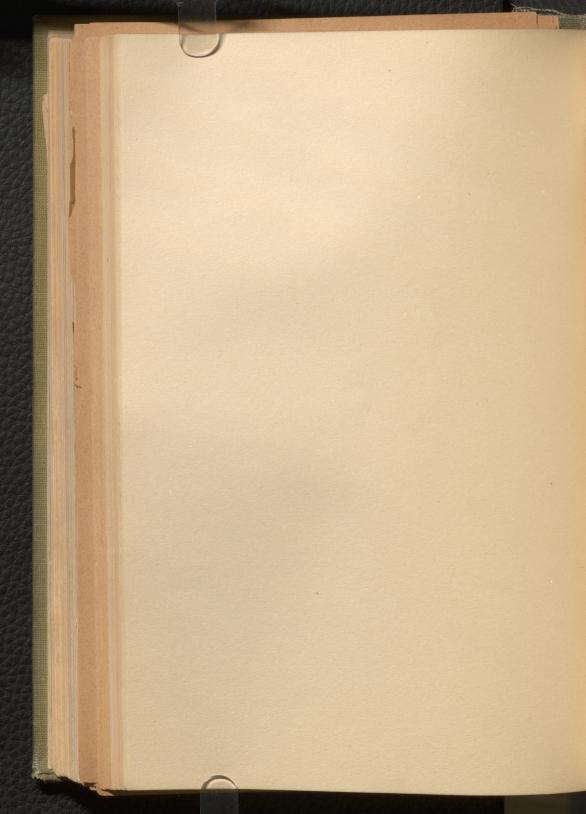


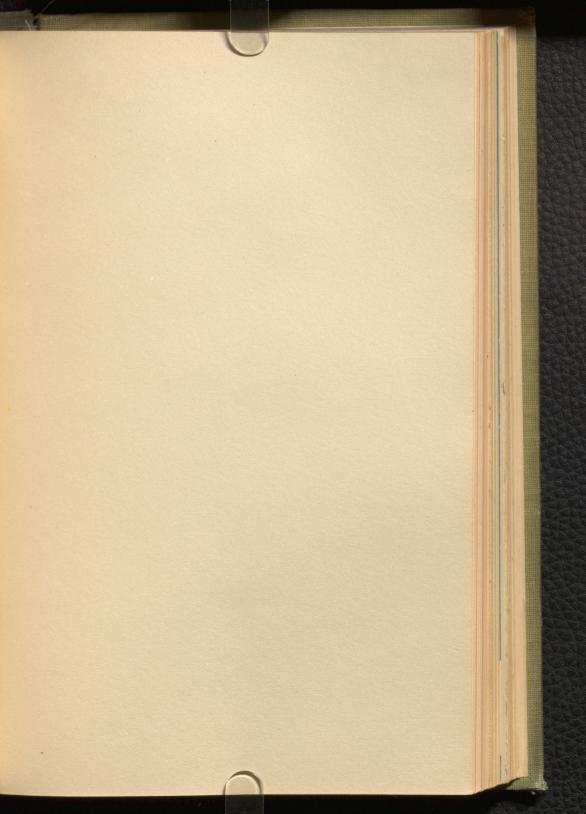


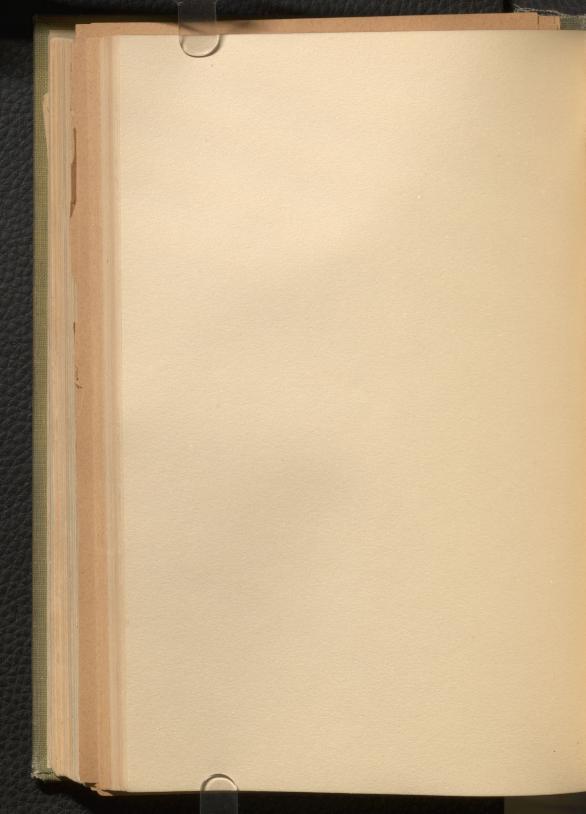


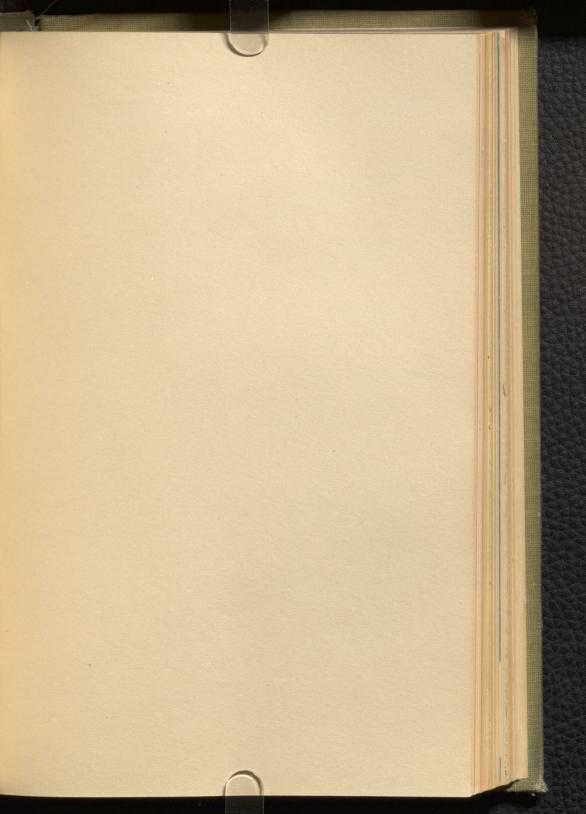


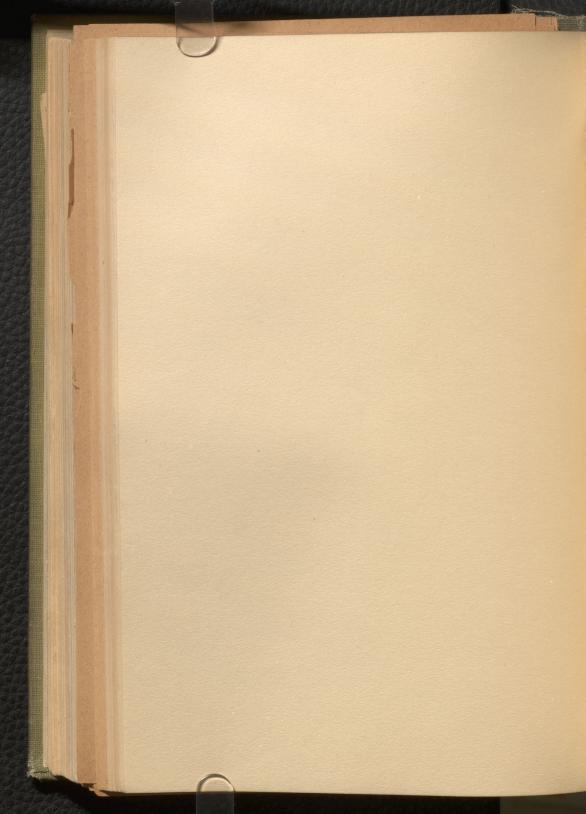


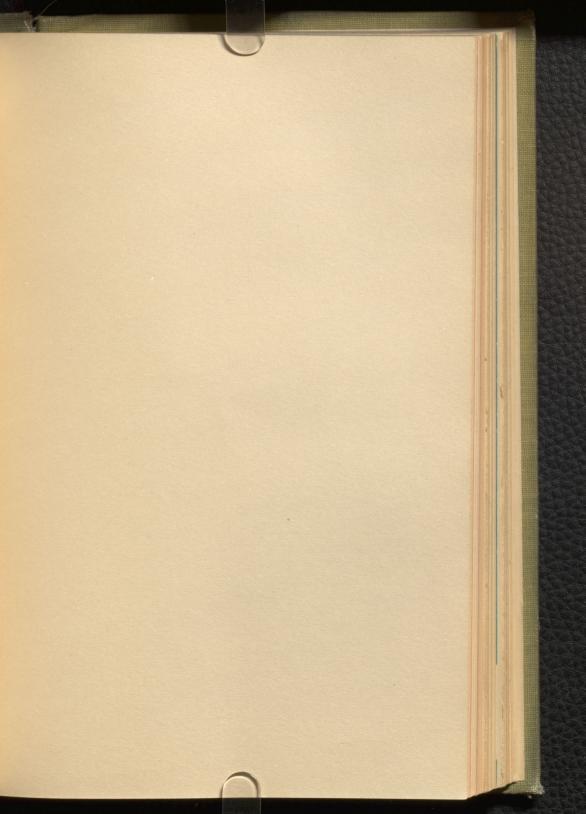


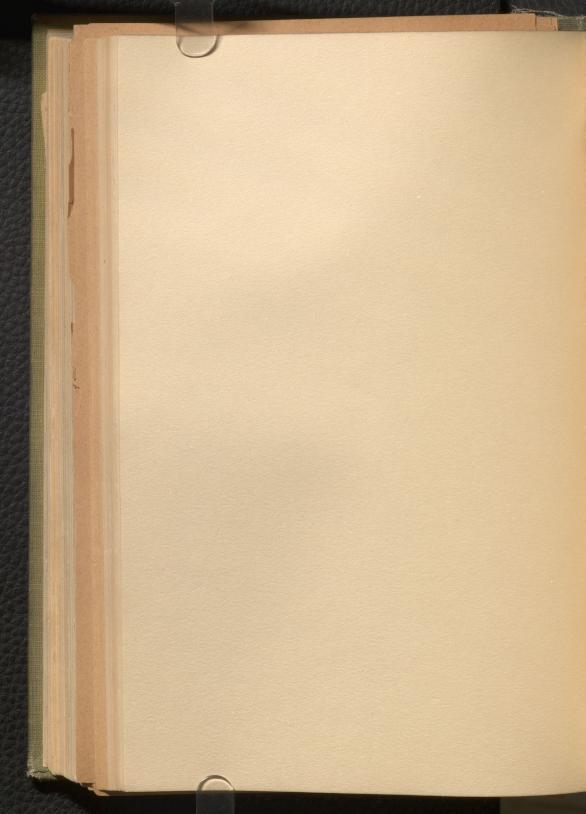


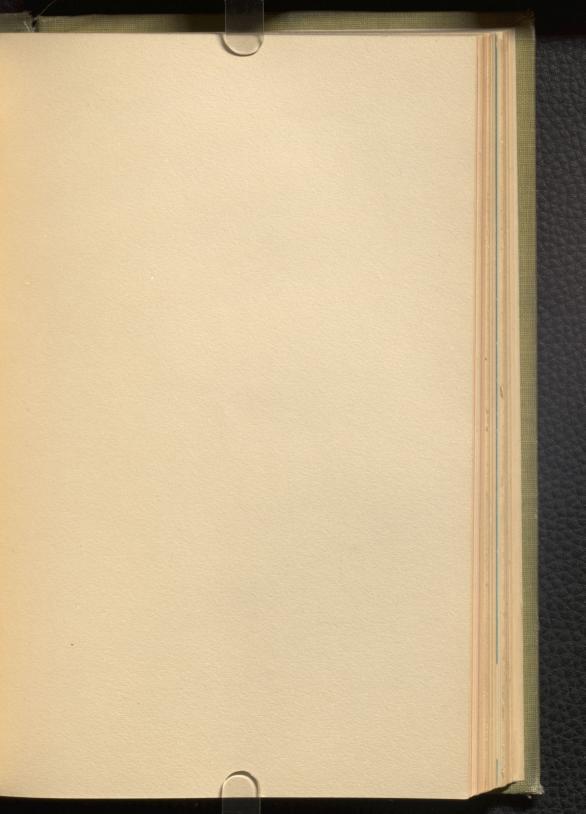


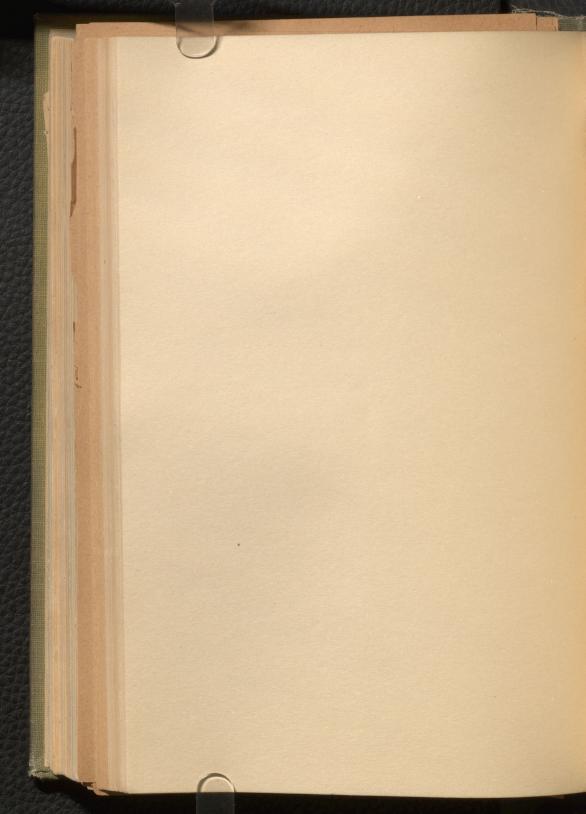


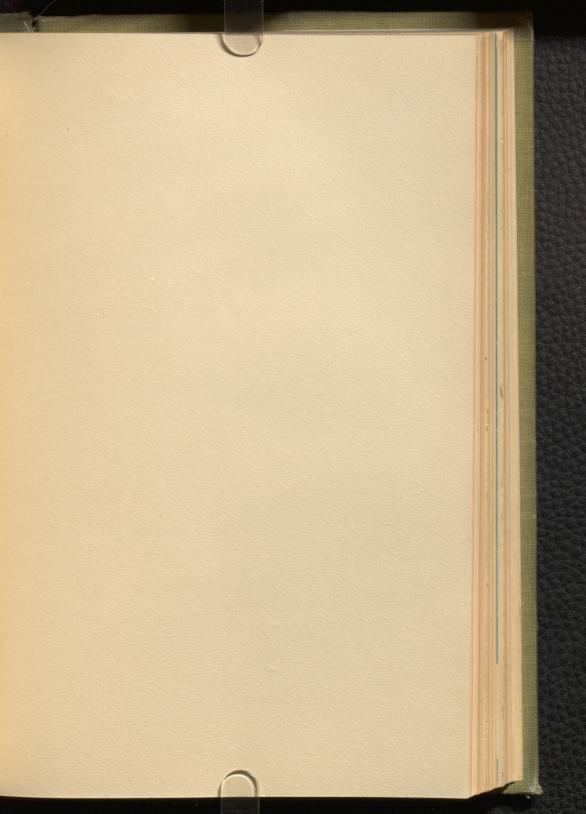


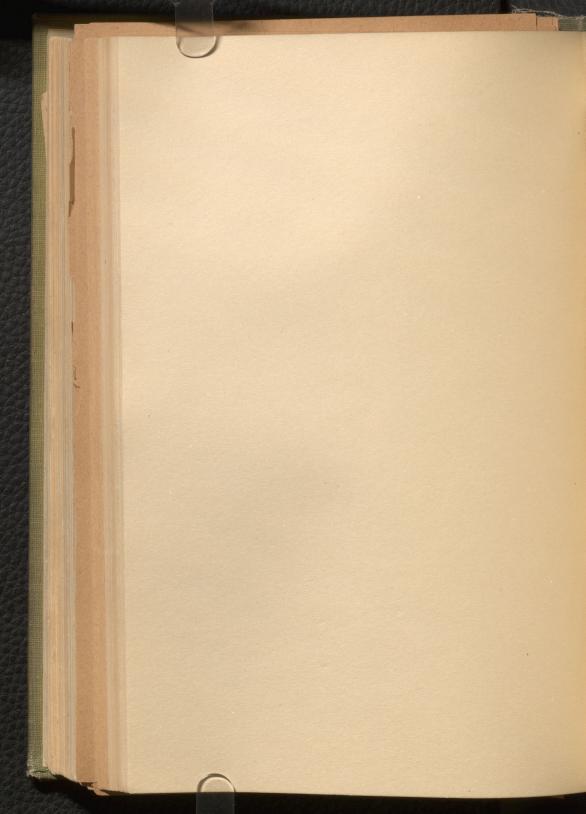


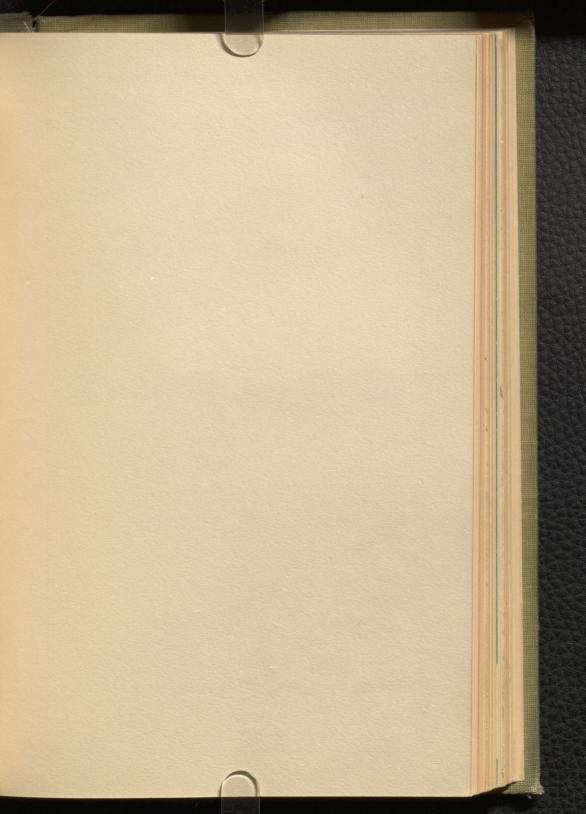


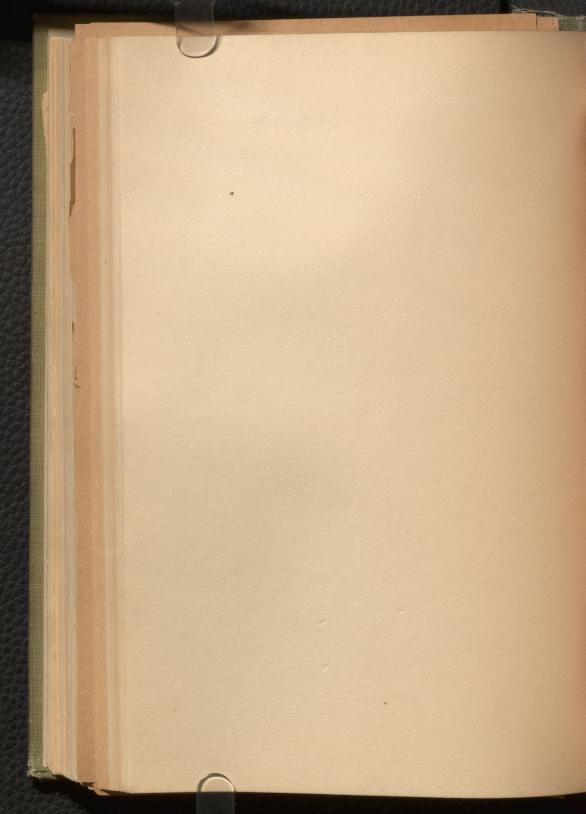












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## PROCEEDINGS

AT THE

## ANNUAL MEETING

OF THE

# Watural Wistory Society

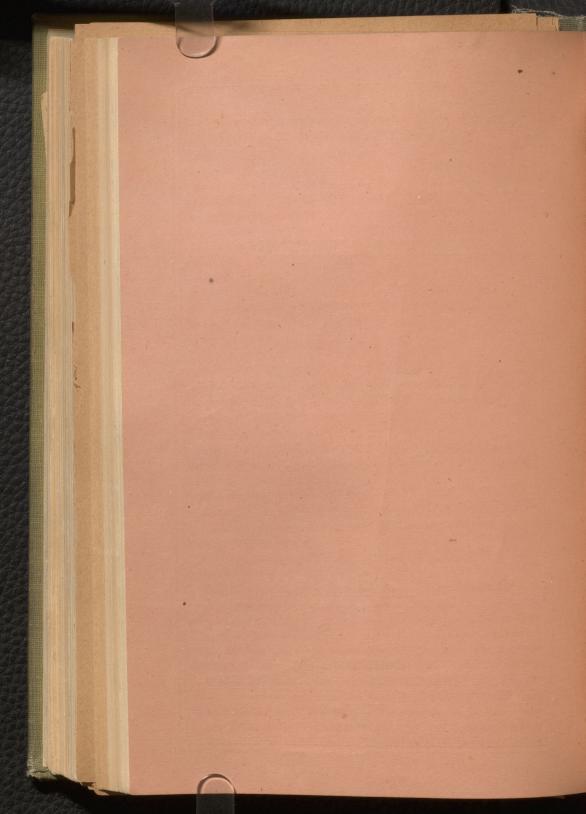
OF MONTREAL,

Held May 19th, 1873.

MONTREAL:

MITCHELL & WILSON, PRINTERS, 192 ST. PETER STREET.

1873.



## NATURAL HISTORY SOCIETY.

PROCEEDINGS FOR THE SESSION 1873-74.

#### ANNUAL MEETING.

The Annual Meeting was held on Monday evening, May 19th, 1873, the Rev. A. De Sola, LL.D., in the chair.

The minutes of the last Annual Meeting having been read, the address of the Acting President, Principal Dawson, LL.D., F.R.S., &c., was read by the Recording Secretary, as follows:

#### ADDRESS OF THE ACTING PRESIDENT.

GENTLEMEN,—Our present meeting closes the fortieth year of the existence of this Society, and it becomes us to consider to what extent the hopes of its founders, expressed in the motto, "Tandem fit surculus arbor," have been realized. A tree that can boast of forty annual rings of growth, in the soil and climate of Canada, should have attained to a goodly stature, should extend a wide and grateful shade, and should have borne some good fruit. Looking back upon the origin of the Society, we must confess that our growth has been slow, and has not kept pace with that of the great business community of Montreal, nor with that of similar institutions in the larger cities of the United

States, where, in many cases liberal and public and private endowments have given a magnitude and stability to the operations of kindred societies, which we have not been able to attain to; and while we have many favors to acknowledge, it is my decided impression that the commercial and professional community of Montreal has not appreciated as it should the efforts of this Society, nor treated it with the liberality which it deserves. In a city such as this scientific workers are necessarily few; and the great majority of the people have little leisure even to give a passing attention to the objects of a society like this. Still those who do give to scientific pursuits either the intervals of leisure snatched from daily work, or the time which they may have earned for themselves or have inherited as a precious gift of fortune, are from their exertions in this way doubly valuable as members of society; and the professing and teaching naturalists whom we can number, are in their place indispensable both to our material and educational welfare. Further it is of great importance that the taste and intellect of all classes of the community should be cultivated by an acquaintance with natural objects; and the existence of a society of this kind is at once one of the sure marks of high taste and culture, to which the city can point with pride, and has a useful function in providing a rational means of employing leisure as a counteraction to low and degrading places of amusement which too often spring up with a vigor and luxuriance of growth disproportionate to that of literary and scientific institutions.

I consider it a matter of no small importance that our Museum represents to some extent the popular study of nature in this community. In the Zoology of Canada it is undoubtedly the most important collection in this country, and in other departments it has much of value and interest. It provides the means of preserving, determining and exhibiting remarkable and interesting specimens which would otherwise be lost. Its doors are ever open to all who wish to know anything of our natural productions, and to strangers who desire to obtain some acquaintance with the aspects of nature in this country. Our Museum has now reached a somewhat critical point in its history. When the Society removed into its present building, we seemed to have ample space for our then comparatively small collections. But the objects in our possession have grown until we are in need of much more room, and our collection is again beginning to be crowded, while

we lack means to extend our accomedation or even to utilize by new and improved cases the space that we have. With some changes of arrangement and additional cases, our present building might contain and exhibit the collections of the Society for several years to come; but it would require an annual sum of at least \$1,000 at the disposal of our curator, to provide for the necessary repairs, additions and extensions. Were the public sufficiently alive to the importance of the object, it should not be difficult to realize this amount either by annual subscriptions or by a permanent endowment. In any case we should be prepared to consider within a few years the necessity of enlarging our Museum.

Our Library has not kept pace with our Museum, and as it cannot in the nature of the case become a popular or general library, but must be mainly one for scientific reference and consultation, we are here again in a position which requires extraneous aid and endowments, or the contributions of a large number of members.

It seems evident, therefore, that if we are to emerge from the present slow and languid condition of our progress, we shall be obliged in the course of not many years to appeal to the liberality of the friends of science on a still larger scale than that which was necessary in the erection of our present building.

Our journal, the Canadian Naturalist, begins with this year the seventh volume of the new scries-fourteen volumes in all having been issued. Its present volume is under the able editorship of Dr. Harrington; and our new arrangement with the publisher enables us to give the journal gratuitously to each of our members, a change which it is hoped will greatly increase their interest in the work of the Society. It is not saying too much to affirm that the Naturalist should be in every Canadian library. It is the only work that affords a complete view of what has been done in the Geology and Natural History of the Dominion during the past fifteen years; and in the case of all who wish to have means of reference with regard to the natural resources of our country, it must occupy a place side by side with the reports of the Geological Survey. That its list of subscribers is so small beyond the limits of the Society, is not creditable to the practical good sense of our people; since independently of other considerations there can be no question that the information which it annually contains would, in a practical point of view, many

times repay its cost. Its present limited issue will in no great number of years, render it a scarce work, and I have no doubtthat the time is not far distant when it will be difficult, if not

impossible, to procure complete sets.

The work of our last session may be summed up in the course of Sommerville lectures, and in the papers read at our monthly meetings. The former course—as usual largely attended— embraced subjects of great interest, and we are much indebted to the lecturers for their gratuitous services in this matter to the Society. The list is as follows:—

#### SOMMERVILLE LECTURES.

1. The Natural History of Ore Deposits, by Dr. T. Sterry Hunt.

2. The Life of an Oyster from a Man's standpoint, by Dr. P. P. Carpenter.

3. The Aborigines of New Brunswick, by C. Robb.

4. Man's Life in Montreal from an Oyster's standpoint, by Dr. P. P. Carpenter.

5. The Furs and Fur-bearing Animals of Canada, by Prof. Bell.

6. On the Chemical characters of the water available for the supply of Montreal, by Dr. J. Baker Edwards.

For next year I would suggest that possibly in addition to the Sommerville Course, we might provide a course or courses of evening lectures, not gratuitous, and by means of which the

finances of the Society might be recruited.

The papers read at our monthly meetings number twelve in Four of these, that on the Ferns of Ceylon, by the President, Mr. Barnston; that on the Island of Cuba, by Mr. Matthew; the account of the Life and Labours of the late lamented Dr-Stimpson, by Dr. Philip Carpenter, and that on the Races of Northern Europe, by Rev. Canon Baldwin, relate to subjects beyond our immediate field. The others were more or less Canadian in their scope. Dr. McEachran gave us the result of his observations on the remarkable and mysterious disease which, with such marvellous rapidity, attacked the horses over nearly all Eastern North America, and the facts relating to the transmission and symptoms of which throw no little light on epidemics which afflict our own species. Mr. Paisley contributed some notes on the Post pliocene of New Brunswick, and Mr. Gibson on the Geology of Huron County, Ontario. Mr. Selwyn kindly laid before us a valuable summary of the Explorations of Mr. Richardson in Vancouver and Queen Charlotte Islands, so rich in new fossils and geological facts; Prof. Bell gave us a similar resumé of the recent discoveries in the metalliferous rocks of the North and West of Lake Superior. To these great Western regions the eyes of all men are now turned: and the wonderful scientific and economic discoveries made in the western territories of the United States, with the first fruits already realized in our own western territories, stimulate our hopes and expectations. I have had occasion lately, in connection with the departure of my own son into these regions as one of the pioneers of scientific exploration, to look over the literature of western geology; and in doing so, I have been struck with the amount of good work achieved under difficult circumstances, in times previous to the annexation of these regions to Canada. I would mention in connection with this the names of Dr. Bigsby, one of the earliest, and Dr. Hector, one of the latest explorers of the west, as well as those of Richardson, Hind and others who come between. With reference to the first mentioned, who is still living and working ably and usefully, I may mention his admirable summary of the post-pliocene deposits in the west, published in the journal of the Geological Society many years ago, and I do so the more readily, as with reference to the theory of drift deposits, he anticipated much of what I have myself been endeavouring to illustrate in our jourmal in the investigation of this difficult subject. Dr. Bigsby's paper of 1851 is still well worthy of perusal in connection with what has been done subsequently by geologists in the United States and in this country.

My own contribution on fossil foot-prints I may pass over without remark; and in conclusion of this part of the subject would direct attention to the fact that Mr. Whiteaves has again represented Canadian science as a dredger in the deeper parts of the Gulf of St. Lawrence, reaching in this last expedition the deepest known part of the Gulf, and adding very considerably to our knowledge of its fauna and many new facts bearing on the distribution and habits of useful fishes. The work was prosecuted under some difficulties, the double task of watching poachers on forbidden fisheries and of dredging in deep water, being evidently too much for any one cruiser. In future if this work is to be prosecuted as it undoubtedly should be, a suitable craft should be put at the exclusive disposal of the dredging party for the summer months. If we are obliged to leave the wide ocean to the

Governments of Great Britain and the United States, Canadas should at least have the credit of thoroughly exploring the Gulf of St. Lawrence, one of the most interesting inland seas in the world; and it is to be hoped that the Honorable the Minister of Marine and Fisheries will follow up in this matter the work he has so well begun.

I have considered it my duty, in this address, prepared, as you know, merely as the substitute of my aged friend, Mr. Barnston, one of the veterans in the study of natural history in this country, to dwell almost entirely on the special interests of the Society, and I would, in conclusion, earnestly bespeak in its behalf your warm and zealous countenance and aid, in order that it may enter on a new and vigorous career, and may in the year to come advance with acclerated rapidity and make itself more and more worthy of being the central and most important Society devoted to Natural Science in this Dominion.

I trust that those who have been the old and tried friends of the Society will still cling to its interests, and that the young naturalists who are rising up around us will add their fresh vigour and enthusiasm, so that the next year may be signalized by greater things than any which has preceded it. For my own part I am disposed to give more time and effort than heretofore, rather than less, to the interests of the Society, whether aiding in its management or in contributing to its scientific success.

The Chairman of Council, Mr. G. L. Marler, then read the following report of the proceedings of that body:

#### REPORT OF THE CHAIRMAN OF COUNCIL.

Your Council at the end of their year of office respectfully report as follows:

That the monthly meetings of the Society have not been very numerously attended—a fact greatly to be regretted and due perhaps to their having been called by postal cards, issued at the beginning of the year and containing a list of the meetings, with their dates. Your Council had hoped that this system would have attained its object, but it has apparently been unsuccessful.

Your Council suggest that for the ensuing year, arrangements be made as early in the season as possible for the papers to be read at the monthly meetings and for the Sommerville course of Lectures: in this way contributors would have ample time to prepare their subjects and there could be some system adopted as to the order of the papers, &c.

Several necessary improvements have been affected, a new furnace having been put in, double windows obtained for the Lecture room, and the drainage attended to—But there are others equally needed to which your Council beg to draw your attention, Foremost among these are the thorough cleaning which the staircase and the museum flat require and new additional cases for the Museum.

The rooms of the Society have been let for eighty days during the past year to the Ladies' Educational Association for which the Society have received \$120 exclusive of attendance. A special tariff has lately been adopted by your Council for the hire of the rooms, it being so arranged that the rate shall vary according to the season and according to whether light or fuel is supplied or not. The Recording Secretary has been authorized to have cards printed explaining this tariff, and to have these put up in various parts of the building.

It is with much regret your Council has to report that during the past year only 14 new members have been elected. Special efforts should be made to increase the list of members during the coming session. The Library and Membership Committee, appointed some years ago, have so far apparently taken no action in the matter.

There have been about one thousand or more visitors to the Museum during the past year, a circumstance which it is thought is very encouraging.

The debt on the building has been reduced by \$1000, as was stated to be the intention of the Treasurer at the last annual meeting. The donations to the Library and Museum have not been as liberal as heretofore.

This Spring, on the occasion of the Governor-General's visit to this city, an address was presented, to which a reply was forwarded by His Excellency, who has kindly consented to be its Patron.

Arrangements have been made with Messrs. Dawson Brothers, and approved by the Society, whereby Dr. Harrington undertakes to edit the 'Canadian Naturalist.' Under the new arrangement a copy will be supplied to each member gratuitously.

Your Council report that Messrs. Dawson Bros.' account of \$653.92 is in a fair way of being reduced by special donations and by the collection of outstanding subscriptions to the journal.

That extra exertions should be used to get more Lady Asso-

ciates, and that efforts should be made to collect their outstanding subscriptions.

The Council in retiring, desire to convey their thanks to the officers who have so efficiently carried on the business of the Society during the past year.

Montreal, 19th May, 1873.

The subjoined report of the Scientific Curator and Recording Secretary, was next read by Mr. Whiteaves.

REPORT OF THE SCIENTIFIC CURATOR AND RECORDING SECRETARY.

During the greater part of the past Session, the work done has been of an almost purely scientific character. After the last annual meeting, active preparations were set on foot towards carrying out a second deep-sea dredging expedition to the Gulf of St. Lawrence. Before leaving the city, as the Society had pledged itself to give the fullest publicity to the results already obtained in a previous expedition, two papers embodying the latest studies of myself and others on the specimens collected were written. One of these was kindly read by Dr. Nicholson of Toronto, at the last meeting of the British Association, and the other was published in the 'Annals of Natural History' for November, 1872. The months of July and August were spent in the prosecution of deep-sea dredging operations in the Gulf. The task was beset with many unforeseen difficulties, and the time wasted, so far as I was concerned, was considerable. Still, the number of new and rare specimens collected was very large, and many new facts bearing directly on the sea fisheries of that region, were amassed. Such books as were not accessible here, but which were essential to the correct identification of these marine invertebrates, were ordered from England, and most of the remainder of the session was devoted to the careful examination of these specimens. A somewhat elaborate report on the results of the second series of investigations, was written for the Minister of Marine and Fisheries, and submitted on behalf of the Society. The document (of which copies are lying on the table) makes a pamphlet of 22 pages roval octavo. Besides some introductory matter, it contains, 1st, a diary kept during my absence, shewing how the time was spent; 2ndly, as careful an account as possible of the many specimens collected; and

lastly, a series of observations on the sea fisheries of this Province, and on other practical subjects. Although doubtless very imperfect, it is yet hoped that on the whole this report will reflect no discredit either upon the Society which I have the honour to represent, or on the Minister under whose auspices these investigations were conducted.

In order to shew that during the past session important additions have been made to our knowledge of the marine zoology of this Province, the following details may not be out of place.

FORAMINIFERA.—These microscopic organisms have been partially studied. The novelties detected are not very numerous so far. About ten new species or varietal forms can now be added to the latest list published.

POLYCYSTINA.—The few species collected in 1872 are precisely the same as those dredged in 1871.

Sponges.—There are about ten species new to our fauna in the series collected last year. These are unusually curious and interesting. An attempt has been made to work up the whole group, and portions of many have been boiled in nitric acid, and the spicules carefully examined. The subject is one of great difficulty, however, and the trouble may be referred partly to the want of a series of accurately named British species for comparison, and partly to the fact that most of the sponges of the lower St. Lawrence are in all probability new to science. The appearance of Dr. Wyville Thompson's new book, 'The Depths of the Sea,' has thrown some light on several of these sponges. It is clear that some of the genera and species described in this volume are identical with specimens dredged in deep water in the St. Lawrence last year.

Hydrozoa.—These simple corallines have been carefully examined and studied. Twenty-three species have been recognised in last year's collection, and it is estimated that about tenmore have yet to be identified.

ACTINOZOA.—The eight or ten additional species in this group have been studied by Prof. Verrill and myself. The three kinds of Alcyonium collected are not yet determined with any great degree of certainty; one is apparently undescribed, as is also a sea anemone of the limited genus Actinopsis.

ECHINODERMATA.—The sea urchins and star fishes of the Gulf have also been critically re-examined, and a list of them published. The number at present known to inhabit the Gulf north of the Bay des Chaleurs, is about twenty-eight, nearly half of which are now for the first time recorded as denizens of our waters. Three critical species require further elucidation.

ANNELIDA.—All the marine worms collected in 1871 and 1872, have been sent to Dr. W. C. McIntosh (of Murthly, near Perth) a well-known authority in this little studied group of animals. About twenty-four species have been already named, and in a short time it is hoped that the whole series will be identified. The collection made in 1872 is larger, and contains more species than that obtained in 1871.

CRUSTACEA.—Thirty species of Crustacea, collected last summer, have been named. Mr. S. J. Smith (of Yale College, Newhaven, Conn.) has kindly identified those which I had no opportunities of determining here. Most of the species are new to the seas of the Province of Quebec.

TUNICATES.—The Tunicates collected, with two exceptions, were sent to Prof. Verrill, who has made a special study of these animals. So far ten species have been identified.

Polyzoa.—This group has been partially studied and worked up by myself. About forty species have been made out with tolerable precision, but there is little doubt that the list will be greatly increased by a closer and more rigorous examination.

Mollusca.—All the sea shells obtained last year have been critically examined and determined. About 150 species of marine testacea are now known to inhabit the seas of this Province.

FISHES.—In conformity with a request from the Minister of Marine and Fisheries to that effect, special attention was paid to the collection of facts bearing directly or indirectly upon the sea fisheries of the Dominion. With what success this part of my mission has been attended, those who have taken the trouble to peruse my report to the Government must decide.

To sum up this portion of my report, about ninety species of marine animals, new to the Canadian fauna, have been collected, studied and determined during the past year. These have either

been mounted on tablets, if dry preparations, or put into separate bottles with alcohol, if the nature of the specimens required that mode of treatment. The strain upon the eyes caused by prolonged use of towing nets at sea, and in protracted microscopic work at the office, has been considerable. The correspondence involved, in order to attain successful results, has also taken upmuch time.

It is much to be regretted, that in consequence of lack of funds, the Society has not been able to provide suitable cases, in which these and other alcoholic preparations can be exhibited to the public. At present the collections made in 1871 and 1872, as well as many other objects of great scientific interest and value, are almost unavailable to the student, and are wholly so to the general run of visitors, for want of proper accommodation.

At intervals, when my eyes required rest, after close application to the microscope, some progress has been made in mounting my own collection of shells for the use of those who wish toconsult it. About 300 species have been mounted on tablets and labelled.

During the past year the donations to the Museum have been unusually small. So far as birds and mammals are concerned, this may have arisen from the state of the law on the subject. During the last session of the Quebec Legislature, efforts were made to induce the Goveanment to permit the granting of licenses to enable naturalists to procure specimens of birds or their eggs for bonâ fide scientific purposes. Through the kindness of the Hon. James Ferrier, one of the most generous benefactors to this Society, the requisite clause was inserted in the Act for the protection of insectivorous birds. It is hoped that the effect of this measure will ultimately be to largely increase the Society's collection of native birds and mammals.

An interesting series of the Muridæ (mice, meadow-mice, rats, &c.) of this Continent has been received from the Smithsonian Institute, carefully named by Dr. Elliot Coues. The collection contains many species new to our Museum, and would have been a most valuable addition to the few North American mammals in our cases, but unfortunately the skins are so badly preserved that it was found to be impossible to mount them for public-exhibition.

As a cheering omen for the session just about to commence, it may be mentioned that advices have just been received of a

donation of sixty specimens of East Indian birds from Major G. E. Bulger, who has previously given many valuable and interesting donations of objects of various kinds from that part of the world. The consignment has been shipped by the Scandinavian, and may be expected at an early date.

The additions to the library are about equal to the average of other years. The most important of them are illustrated monographs on the sponges, hydrozoa, zoophytes, and sessile eyed crustaceans, purchased with a special view to working up the St. Lawrence species. Every year the Society becomes better known and appreciated by kindred associations in Europe and the United States. Did our finances permit, there are few scientific bodies in either of these countries with whom we should not exchange periodicals, reports, &c. For this and for other reasons an amount of correspondence is involved which occupies more and more of any time every year.

Gentlemen,—the session which is now brought to a close terminates the first decade of my association with this Society. I am free to admit that, reviewing the past ten years, the hopes that I once entertained as to the future of this Institution have not been realized. The success or failure of this Society in particular affords, as it seems to me, a fair criterion of the value which the inhabitants of the city set upon higher education generally. Yet how lamentably small has been the support or aid accorded to the Society by our wealthy citizens. For the last three years it has laboured under such a pressure of pecuniary difficulties that during that time literally nothing has been spent on either the Museum or Library. The Hall, the Gallery and Museum have never been properly cleaned since the building was erected, and improvements which are most urgently needed have been found impracticable, and abandoned for want of funds. That some interest is taken in the work which we are engaged in attempting to further, is manifest from the fact that upwards of 1000 persons have visited the Museum during the past twelve months. Were our collections made more worthy of this comamercial and wealthy metropolis, and the building thrown open freely to the public, it is reasonable to suppose that the number of visitors to the Institution would be very largely increased. I should not have ventured to offer these remarks, especially as similar ones have been dwelt upon in the able address of the Acting President, but that I had a special object in so doing. My desire has been to shew how many difficulties and obstacles. I have had to contend with in the proper carrying out of the trust which for ten consecutive years you have reposed in me. Due allowance being made for many shortcomings and deficiencies in the past, it is yet confidently hoped that if the work done during so long a time has been less than it ought to have been, the fault is largely attributable to that want of liberal patronage which might well have been accorded to a Society so deserving of the sympathy and practical assistance of all classes in the community.

J. F. WHITEAVES, F.G.S., &c.

The Treasurer, Mr. James Ferrier, jr., submitted the following financial statement, and gave some verbal explanations of various details connected with it.

# THE NATURAL HISTORY SOCIETY in Account with JAMES FERRIER, Jr., Treasurer.

DR.

1872-73. RECAPITULATION.	1872-73. RECAPITULATION.
	By Cash rec'd. annual Government Grant\$750.00
To Balance due the Treasurer, May 1, 1872 \$33.57	" " Government Grant on Dredging account 500.00
To Cash paid J. F. Whiteaves, salary 400.00	" " Collected by Messrs. Barnston and Watt
" S. W. Passmore, "	for Dredging expenses of 1871 100.00
" " Mr. Pell, commission 31.65	
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" " Gas 29.04	In about I I in the interest of the interest o
" " Water 38.50	" " Rent of Lecture Room 226.75
" " City Taxes 49.25	
" " Insurance 62.00	
" Repairs, and petty expenses 282.32	
" Books, printing and advertising 256.44	
" Loss on Field Day 0.30	
" Uredging expenses	
" " for New Furnace	
1873 May 1 —To halance in Treasurer's hands 0.60	
1873. May 1.—To balance in Treasurer's hands 0.60	
\$2285.72	\$2285.72
Φ4460.14	
LIABILITIES—May 1st, 1873.	
Royal Institution\$1000.00	Errors and omissions excepted.
Dawson Bros	TOTAL
Dawson Bros	(Signed) JAMES FERRIER, Jr.
Petty Accounts	EM PROBLEM EN
\$1564.69	Montreal, May 16th, 1873.

Rev. Dr. De Sola made some remarks on the reports submitted, and urged the necessity of trying to popularize the papers read at the monthly meetings and the Somerville lectures.

Dr. J. Baker Edwards asked if any arrangements had been made for holding a field day shortly, and pointed out the importance of continuing these pleasant social gatherings, as well as the desirability of trying to interest ladies in the work of the Society.

It was moved by L. A. H. Latour, seconded by H. Rose, and resolved:

"That the reports just read be adopted, printed and distributed to the members."

On motion of Dr. De Sola, seconded by Dr. J. Baker Edwards, it was unanimously resolved:

"That Dr. T. Sterry Hunt, F.R.S., be elected an honorary member of the Society."

It was moved by His Lordship the Metropolitan, seconded by James Ferrier, jun., and resolved:

"That the thanks of the Society be voted to Principal Dawson for the preparation of the annual address."

The following resolution, having been moved by G. L. Marler, and seconded by R. McLachlan, was adopted unanimously.

"That the Rule relating to the election of officers be suspended, and that Principal Dawson be elected President."

Similar resolutions having been duly moved, seconded and adopted, the following officers were re-elected by acclamation:

Treasurer-James Ferrier, jun.

Cor. Secretary-Prof. P. J. Darey, M.A., B.C.L.

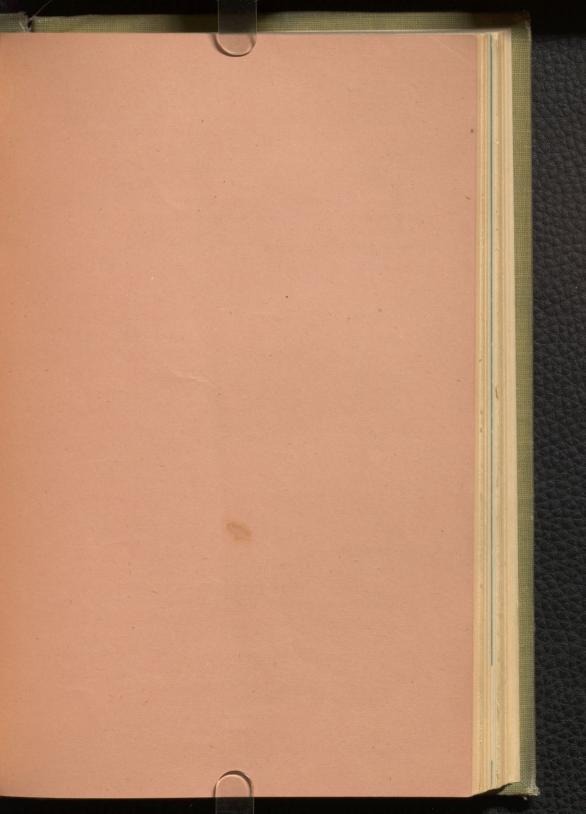
Scientific Curator and Rec. Secretary—J. F. Whiteaves, F.G.S., &c.

Messrs. G. L. Marler and Prof. P. J. Darey having been appointed scrutineers, the balloting for the remaining officers was then proceeded with, and the following results were announced:

Vice-Presidents—Rev. A. De Sola, LL.D.; Sir W. E. Logan, LL.D., F.R.S.; G. Barnston; C. Smallwood, M.D., LL.D., D.C.L.; A. R. C. Selwyn, F.G.S.; E. Billings, F.G.S.; His Lordship the Bishop of Montreal and Metropolitan; C. Robb.

Council—G. L. Marler, D. A. P. Watt, J. H. Joseph, Prof. R. Bell, E. E. Shelton, D. R. McCord, Dr. B. J. Harrington, and the Rev. Canon Baldwin.

On motion of G. L. Marler, seconded by J. H. Joseph, the following gentlemen were elected to serve as a library and membership Committee: Dr. J. Baker Edwards, Dr. John Bell, D. McEachran, G. T. Kennedy, and L. A. H. Latour.





## PROCEEDINGS AT THE ANNUAL MEETING,

Held May 18th, 1874.

The minutes of the last annual meeting having been read by the Recording Sectetary, the following address was delivered by the President, Principal Dawson, LL.D., F.R.S.

#### ANNUAL ADDRESS.

The scientific work of this Society in the year which closes to-night, is not so remarkable for its variety as for the interest and importance of the subjects to which it relates. The number of papers read is nine, but I shall confine myself principally to two subjects embraced in their scope. One is the bearing of the dredging operations of our colleague, Mr. Whiteaves, on the Post-pliocene Geology of Canada, in connection with other oceanic and geological researches. The second is the growth of our information as to the geological structure of those great plains of the West, whose profitable occupancy is now so important a problem for our statesmen.

Mr. Whiteaves in the past summer was chiefly occupied with the exploration of the great southern Bay of the Gulf of St. Lawrence, a basin of shallow water nearly semicircular in form, and in which is set the beautiful Island of Prince Edward. It is protected to some extent by the encompassing land, by its limited depth, and by the islands and shoals stretching across its mouth, from the influence of those cold northern currents which pervade all the middle and northern parts of the Gulf, and give to its fauna an almost Arctic character: it thus forms a peculiar and exceptional zoological province. The marine animals of Northumberland Strait were those with which I was myself most familiar in early youth, and I still possess many drawings of the more minute forms, made under the microscope for my amusement, before I had received any scientific training in natural history. In my cabinet there has been for the last thirty years a nearly complete representation of its mollusks, and I was even then aware from the observations of Gould and others in New England, of the specially southern character of this group of animals, though at that time I had no means of publishing my observations, and the importance of these peculiarities of distribution had scarcely dawned upon the minds of

geologists. In later years, however, Mr. Whiteaves and Prof. Verrill have, in connection with the dredging operations carried on in the interest of our fisheries, more fully worked up the relations of these faunæ, and we are now in a position to speak with some certainty of the facts, and to appreciate their significance.

If we draw a straight line from the northern end of Cape Breton through the Magdalen Islands to the mouth of the Bay des Chaleurs, we have to the southward an extensive semicircular Bay, 200 miles in diameter, which we may call the great Acadian Bay, and on the north the larger and deeper triangular area of the Gulf of St. Lawrence. This Acadian Bay is a sort of gigantic warm-water aquarium, sheltered, except in a few isolated banks which have been pointed out by Mr. Whiteaves, from the cold waters of the Gulf, and which the bather feels quite warm in comparison with the frigid and often not very limped liquid with which we are fain to be content in the Lower St. Lawrence. It also affords to the more delicate marine animals a more congenial habitat than they can find in the Bay of Fundy or even on the coast of Maine, unless in a few sheltered spots, some of which have been explored by Prof. Verrill. It is true that in winter the whole Acadian Bay is encumbered with floating ice, partly produced on its own shores and partly drifted from the north; but in summer the action of the sun upon its surface, the warm air flowing over it from the neighbouring land, and the ocean water brought in by the Strait of Canso, rapidly raise its temperature, and it retains this elevated temperature till late in autumn. Hence the character of its fauna, which is indicated by the fact that many species of mollusks whose headquarters are south of Cape Cod, flourish and abound in its waters. Among these are the common oyster, which is especially abundant on the coasts of Prince Edward Island and northern New Brunswick, the Quahog or Wampum shell, the Petricola pholadiformis, which along with Zirfea crispata, burrows everywhere in the soft sandstones and shales; the beautiful Modiola plicatula forming dense mussel-banks in the sheltered coves and estuaries; Cytherea (Callista) convexa; Cochlodesma leana and Cummingia tellinoides; Crepidula fornicata, the slipper-limpet, and its variety unquiformis, swarming especially in the oyster beds; Nassa obsoleta and Buccinum cinereum, with many others of similar southern distribution. Nor is the fauna so very meagre as might be supposed. My own collections from Northumberland Strait include about 50 species of mollusks, and some not possessed by me have been found by Mr. Whiteaves. Some of these, it is true, are northern forms, but the majority are of New England species.

The causes of this exceptional condition of things in the Acadian Bay carry us far back in geological time. The area now constituting the Gulf of St. Lawrence seems to have been exempt from the great movements of plication and elevation which produced the hilly and metamorphic ridges of the east coast of America. These all die out and disappear as they approach its southern shore. The tranquil and gradual passage from the Lower to the Upper Silurian ascertained by Billings in the rocks of Anticosti, and unique in North America, furnishes an excellent illustration of this. In the Carboniferous period the Gulf of St. Lawrence was a sea area as now, but with wider limits, and at that time its southern part was much filled up with sandy and muddy detritus, and its margins were invaded by beds and dykes of trappean rocks. In the Triassic age the red sandstones of that period were extensively deposited in the Acadian Bay, and in part have been raised out of the water in Prince Edward Island. while the whole Bay was shallowed and in part cut off from the remainder of the Gulf by the elevation of ridges of Lower Carboniferous rocks across its mouth. In the Post-pliocene period, that which immediately precedes our own modern age, as I have elsewhere shown,\* there was great subsidence of this region, accompanied by a cold climate, and boulders of Laurentian rocks were drifted from Labrador and deposited on Prince Edward Island and Nova Scotia, while the southern currents flowing up what is now the Bay of Fundy, drifted stones from the hills of New Brunswick to Prince Edward Island. At this time the Acadian Bay enjoyed no exemption from the general cold, for at Campbelltown, in Prince Edward Island, and at Bathurst in New Brunswick, we find in the clays and gravels the northern shells generally characteristic of the Post-pliocene; though perhaps the lists given by Mr. Matthew for St. John and by Mr. Paisley for the vicinity of Bathurst, may be held to shew some slight mitigation of the Arctic conditions as compared with the typical deposits in the St. Lawrence valley. Since

<sup>\*</sup> Notes on Post-pliocene of Canada, Canadian Naturalist, 1872

that time the land has gradually been raised out of the waters, and with this elevation the southern or Acadian fauna has crept northward and established itself around Prince Edward Island, as the Acadian Bay attained its present form and conditions. But how is it that this fauna is now isolated, and that interven ing colder waters separate it from that of southern New England. Verrill regards this colony of the Acadian Bay as indicating a warmer climate intervening between the cold Post-pliocene period and the present, and he seems to think that this may either have been coincident with a lower level of the land sufficient to establish a shallow water channel, connecting the Bay of Fundy with the Gulf, or with a higher level raising many of the banks on the coast of Nova Scotia out of water. Geological facts, which I have illustrated in my Acadian Geology, indicate the latter as the probable cause. We know that the eastern coast of America has in modern times been gradually subsiding. Further, the remarkable submarine forests in the Bay of Fundy show that within a time not sufficient to produce the decay of pine wood, this depression has taken place to the extent of at least 40 feet, and probably to 60 feet or more.\* We have thus direct geological evidence of a former higher condition of the land, which may when at its maximum have greatly exceeded that above indicated, since we cannot trace the submarine forests as far below the sea level as they actually extend. The effect of such an elevation of the land would be not only a general shallowing of the water in the Bay of Fundy and the Acadian Bay, and an elevation of its temperature both by this and by the greater amount of neighbouring land, but as Prof. Verrill well states, it would also raise the banks off the Nova Scotia coast, and extending south from Newfoundland, so as to throw the Arctic current further from the shore and warm the water along the coasts of Nova Scotia and Northern New England. In these circumstances the marine animals of Southern New England might readily extend themselves all around the coasts of Nova Scotia and Cape Breton, and occupy the Acadian Bay. The modern subsidence of the land would produce a relapse toward the glacial age, the Arctic currents would be allowed to cleave more closely to the coast, and the inhabitants of the Acadian Bay would gradually become isolated, while the northern animals of Labrador would work their way southward.

<sup>\*</sup> Acadian Geology, p. 29.

Various modern indications point to the same conclusions. Verrill has described little colonies of southern species still surviving on the coast of Maine. There are also dead shells of these species in mud banks, in places where they are now extinct. He also states that the remains in shell-heaps left by the Indians indicate that even within the period of their occupancy some of these species existed in places where they are not now found. Willis has catalogued some of these species from the deep bays and inlets on the Atlantic coast of Nova Scotia, and has shown that some of them still exist on the Sable Island banks.\*

Whiteaves finds in the Bradelle and Orphan bank littoral species remote from the present shores, and indicating a time when these banks were islands, which have been submerged by subsidence, aided no doubt by the action of the waves.

It would thus appear that the colonisation of the Acadian Bay with southern forms belongs to the modern period, but that it has already passed its culmination, and the recent subsidence of the coast has no doubt limited the range of these animals, and is probably still favouring the gradual inroads of the Arctic fauna from the north, which, should this subsidence go on, will creep slowly back to reoccupy the ground which it once held in the Post-pliocene time.

Snch peculiarities of distribution serve to show the effects of even comparatively small changes of level upon climate, and upon the distribution of life, and to confirm the same lesson of caution in our interpretation of local diversities of fossils, which geologists have been lately learning from the distribution of cold and warm currents in the Atlantic. Another lesson which they teach is the wonderful fixity of species. Continents rise and sink, climates change, islands are devoured by the sea or restored again from its depths; marine animals are locally exterminated and are enabled in the course of long ages to regain their lost abodes; yet they remain ever the same, and even in their varietal forms perfectly resemble those remote ancestors which are separated from them by a vast lapse of ages and by many physical revolutions. This truth which I have already deduced from the Post-pliocene fauna of the St. Lawrence Valley, is equally taught by the molluscs of the Acadian Bay, and by their Arctic relatives returning after long absence to claim their old homes.

<sup>\*</sup> Acadian Geology, p. 37.

Still another lesson may be learned here. It appears that our present climate is separated from that of the glacial age by one somewhat warmer, which was coincident with an elevated condition of the land. Applied to Europe, as it might easily be, this fact shows the futility of attempting to establish a later glacial period between the Post-pliocone and the present, in the manner attempted, as I must think on the slenderest possible grounds, by Prof. Geikie in his late work "The Great Ice Age."

The grandeur of those physical changes which have occurred since the present marine animals came into being, is well illustrated by some other facts to which our attention has been directed. Recent excavations in the Montreal mountain have enabled Mr. Kennedy to observe deposits of Post-pliocene marine shells at a still higher level than that of the old beach above Cote des Neiges, which was so long ago described by Sir Wm. Logan and Sir Charles Lyell. The new positions are stated to be 534 feet above the sea. Let us place this fact along with that recorded by Prof. Bell in the Report of the Geological Survey for 1870-71, of the occurrence of these same shells on the high lands north of Lake Superior, at a height which, taking the average of his measurements, is 547 feet above the sea level. Let us further note the fact, that in the hills behind Murray Bay and at Les Eboulements I have recorded the occurrence of these remains at the height of at least 600 feet. We have then before us the evidence of the submergence of a portion of the North American continent at least 1000 miles in length and 400 miles in breadth to a depth of more than a hundred fathoms, and its re-elevation, without any appreciable change in molluscan life.

Another important and impressive fact in this connection has recently been brought out by Dr. Hunt in a paper on the Geology of the South-eastern Appalachians.\* He there shows that in these mountains, which lie to the south of the region of the great Post-pliocene submergence, the gneissose rocks have been decomposed in place to enormous depths, without any of the material being removed—a most striking contrast to the generally bare and scraped condition of similar rocks in the north. I was struck very much with this fact several years ago, when, under the guidance of my friend Dr. Tyson, I had an opportu-

<sup>\*</sup> Proceedings American Association, 1873.

nity of examining the crystalline rocks near Baltimore, and I have also in my notes on the Post-pliocene of Canada, pointed out that in some places, as at Les Eboulements and on the southern side of our own mountain, where the rocks have been sheltered from the northern currents, extensive evidence of old sub-aerial disintegration may be seen.

It is most instructive to compare in connection with this point the condition of the Silurian rocks on the north-east and south sides of the Montreal mountain. On the former they show no signs of sub-aerial waste, but are polished and striated in the most perfect manner. The striae are N.E. and S.W., or in the direction of the river valley, and that the force producing them acted from the N.E. is shewn by the manner in which projecting trap dykes are ground on the N. E. side and left rough on the opposite one. The striae vary in direction, having evidently been produced by many successive impacts of heavy bodies moving from the north-east but not always in precisely the same lines. It seems absolutely impossible that anything except floating ice running from the N. E. or against the present drainage of the country could have produced these striations.\* On the limestone slopes which front the mountain, all is different. In the vicinity of the reservoirs, for example, the coarse earthy limestone, where it has been protected by hard trap dykes, is in many places decomposed to a great depth, and shows no signs of glacial action.

What does this teach us? The same truth which we learn from the wholesale transference of boulders, sand and clay to the south-west over our country, namely, that the great agent in denuding it of all its decomposed and broken rock has been the Arctic current passing over it when submerged. The boulders which have been swept away from our Laurentian hills are merely the harder and less decomposed parts of rocks which had been disintegrated long before the glacial period, but became the prey of water and ice when the land was submerged. Geologists will not learn to understand fully the Post-pliocene period,

<sup>\*</sup> I saw last autumn on St. Helen's Island a very instructive instance of striation on Utica shale produced by the ice-shove of the previous spring. This was in the direction of the river valley, but the evidence of the force acting from the south-west was plain, while a miniature moraine of rock fragments in advance of the markings shewed the agent by which they had been effected.

until they are prepared to admit that the power of the heavy Arctic currents passing over the submerged land and carrying with them their burden of ice, is vastly greater as an agent of denudation than either the rivers or glaciers. Nor must we confine this to the Post-pliocene period. Prof. Hall has shewn that the whole of the vast thickness of the Palæozoic rocks of the Appalachians may be attributed to the carrying power of the same currents which are now piling up banks of Arctic sand and stones along the American coast. Nay more, the history of the land of the Northern Hemisphere throughout geological time has been that of a series of elevations and depressions or gigantic pulsations of the earth's crust, so regular that we cannot hesitate in referring them to some constantly operating law. elevation exposed the land to sub-aerial disintegration. subsidence scraped and peeled it by the action of the Arctic currents, and thus the carriage of material and the growth of the continents have ever been to the south-west. I cannot leave this subject without according to Dr. Carpenter much credit for contending as he has done for the reality, power, and true causes of these great sub-oceanic rivers, which have played and are playing so important parts as geological agents, that without them it is impossible to account either for the Palæozoic deposits or the Post-pliocene deposits of our North American continent.

But it is time to turn to the second topic which I have marked out for myself in this discourse. In the past summer three lines of geological reconnaissance have been pushed out from the Laurentian and Huronian country of Lake Superior over the plains of Manitoba. One of these, under Mr. Selwyn, followed the line of the North Saskatchewan. The second was that of Prof. Bell on the south branch of the same river and its tributaries. The third was that of Mr. G. M. Dawson on the 49th parallel. All of these have been brought under the notice of this Society in the course of the winter. This great western plain presents first a wide expanse of Cretaceous rocks, apparently not highly fossiliferous and not well exposed, but containing some limestone layers rich in Foraminifera and Coccoliths precisely similar to those of the English chalk. Some of these have been described by Mr. Dawson in our Journal. This is succeeded by vast estuarine and lacustrine deposits of clay and sand, holding brackish-water and fresh-water shells, and beds of lignite with abundant plant remains. The general geological

history of these great prairie lands is thus as plain and simple as their own superficial features. First, we have a great Cretaceous Mediterranean, extending from the Gulf of Mexico perhaps to the Arctic sea. Then we have this dried up into estuaries, lakes and marshes, and becoming clothed with a rich vegetation similar in general character to that of the west coast at present, and indicating a mild and genial climate. Then we have the great Post-pliocene subsidence, with its trains of gravel and ice-borne boulders; and lastly the re-elevation into the prairie lands of to-day, with perhaps an intervening age of modern forests. The final results are a vast expanse of fertile soil, and great stores of mineral fuel, which may one day make these now lone lands the seats of extensive manufacturing industries. Detailed reports of the explorations of the past year are in progress, and will greatly increase our precise and definite knowledge of regions which have hitherto been known to us principally through the vague impressions of unscientific travellers.

Simple though the structure of these Western regions is, it has already given rise to controversies, more especially with reference to the age of the plants and animals whose remains have been found in these formations south of the United States boundary. In looking over these controversies, I am inclined in the first place to believe that we have in the West a gradual passage from the Cretaceous to the Tertiary beds, and that these last may scarcely admit of a definite division into Eocene and Miocene. We may thus have in these regions the means of bridging over what has been one of the widest gaps in the earth's history and of repairing one of the greatest imperfections in the eological record.

Physically the change from the Cretaceous to the Tertiary was one of continental elevation—drying up the oceanic waters in which the marine animals of the Cretaceous lived, and affording constantly increasing scope for land animals and plants. Thus it must have happened that the marine Cretaceous animals disappeared first from the high lands and lingered longest in the valleys, while the life of the Tertiary came on first in the hills and was more tardily introduced on the plains. Hence it has arisen that many beds which Meek and Cope regard as Cretaceous on the evidence of animal fossils, Newberry and Lesquereux regard as Tertiary on the evidence of fossil plants. This depends

on the general law that in times of continental elevation newer productions of the land are mixed with more antique inhabitants of the sea; while on the contrary in times of subsidence older land creatures are liable to be mixed with newer products of the Thus in Vancouver's Island plants which Heer at first regarded as Miocene have been washed down into waters in which Cretaceous shell-fishes still swarmed. Thus Cope maintains that the lignite-bearing or Fort Union group contains remains of cretaceous reptiles, while to the fossil botanist its plants appear to be unquestionably Tertiary. Hence also we are told that the skeleton of a Cretaceous Dinosaur has been found stuffed with leaves which Lesquereux regards as Eocene. At first these apparent anachronisms seem puzzling, and they interfere much with arbitrary classifications. Still they are perfectly natural, and to be expected where a true geological transition occurs. They afford, moreover, an opportunity of settling the question whether the introduction of living things is a slow and gradual evolution of new types by descent with modification, or whether, according to the law so ably illustrated by Barrande in the case of the Cephalopods and Trilobites, new forms are introduced abundantly and in perfection at once. The physical change was apparently of the most gradual character. Was it so with the organic change, That it was not is apparent from the fact that both Dr. Asa Gray and Mr. Cope, who try to press this transition into the service of evolution, are obliged in the last resort to admit that the new flora and fauna must have migrated into the region from some other place. Gray seems to think that the plants came from the north, Cope supposes the mammals came from the south; but whether they were landed from one of Sir William Thomson's meteors, or produced in some as yet unknown region of the earth, they cannot inform us. Neither seems to consider that if giant Sequoias and Dicotyledonous trees and large herbaceous mammalia arose in the Cretaceous or early Tertiary, and have continued substantially unimproved ever since, they must have existed somewhere for periods far greater than that which intervenes between the Cretaceous and the present time, in order to give them time to be evolved from inferior types; and that we thus only push back the difficulty of their origin, with the additional disadvantage of having to admit a most portentous and fatal imperfection in our geological record.

The actual facts are these. The flora of modern type comes into being in the Cretaceous of the West without any known ancestors, and it extends with so little change to our time that some of the Cretaceous species are probably only varietally distinct from those now living. On the other hand the previous Jurassic flora had died out apparently without successors. In like manner the Cretaceous Dinosaurs and Cephalopods disappear without progeny, though one knows no reason why they might not still live on the Pacific Coast. The Eocene mammals make their appearance in a like mysterious way. This is precisely what we should expect if groups of species are introduced at once by some creative process. It can be explained on the theory of evolution, only by taking for granted all that ought to be proved, and imagining series of causes and effects of which no trace remains in the record.

The problems for solution are, however, much more complicated than the derivationists seem to suppose. Let us illustrate this by the plants. The Cretaceous flora of North America is in its general type similar to that of the Western and Southern part of the continent at present. It is also so like that of the Miocene of Europe that they have been supposed to be identical. In Europe, however, the Cretaceous and Eocene floras, though with some American forms, have a different aspect, more akin to that of floras of the Southern Hemisphere. There have therefore been more fluctuations in Europe than in America, where an identical group of genera seems to have continued from the Cretaceons until now. Nay, there is reason to believe that some of the oldest of these species are not more than varietally distinct from their modern successors. Some that can be traced very far back are absolutely identical with modern forms. For example, I have seen specimens of a fern collected by Dr. Newberry from the Fort-Union group of the Western States, one of those groups disputed as of Cretaceous or Tertiary date, which is absolutely identical with a fern found by Mr. Dawson in the Lignite Tertiary of Manitoba, and also with specimens described by the Duke of Argyle from the Miocene plant beds of Mull. Further it is undoubtedly our common Canadian sensitive fern-Onoclea sensibilis. There is every reason to believe that this is merely one example out of many, of plants that were once spread over Europe and America and have come down to us unmodified throughout all the vicissitudes of the Tertiary ages. But while

this is the case, some species have disappeared without known successors, and others have come in without known predecessors. Nay whole floras have come in without known origin. Since the Miocene age the great Arctic flora has spread itself all around the globe, the distinctive flora of North Eastern America and that of Europe have made their appearance, and the great Miocene flora once almost universal in the Northern Hemisphere has as a whole been restricted to a narrow area in Western and warm temperate North America. Even if with Gray, in his address of two years ago before the American Association, we are to take for granted that the giant Pines (Sequoias) of California are modified descendants of those which flourished all over America and Europe in the Miocene, Eocene and Cretaceous, we have in these merely an exceptional case to set against the broad general facts. Even this exception fails of evolutionary significance, when we consider that the two species of Sequoia, which have been taken as special examples, are at best merely survivors of many or several species known in the Cretaceous and Tertiary. The process of selection here has been merely the dropping out of some out of several species of unknown origin, and the survival in a very limited area of two, which are even now probably verging on extinction: in other words, the two extant species of Sequoia may have continued unchanged except varietally from Mesozoic times, and other species existed then and since which have disappeared; but as to how any of them began to exist we know nothing, except that, for some mysterious reason, there were more numerous and far more widely distributed species in the early days of the group than now. This is precisely Barrande's conclusion as to the Palæozoic Trilobites and Cephalopods, and my own conclusion as to the Devonian and Carboniferous plants. It is rapid culmination and then not evolution but elimination by the struggle for existence.

The argument deduced from these successive floras reminds one of certain attempts which have been made in England to invalidate Barrande's law in his own special field. With a notice of one of these, which emanates from a successful collector of Primordial fossils, I shall close. He says, after referring to the different species of Paradoxides and allied genera in the Cambrian:—

"Other species show various gradations in the eyes and in the pygidium until we attain to P. Davidis, which has small eyes, a small

pygidium, and the greatest number of thoracic segments. Indeed there are forms to represent almost every stage, and there can I think be no doubt that in the fauna of the Tremadoc group, which is separated from the earlier Cambrian by several thousand feet of deposits indicating a period of very shallow water in which large brachiopods and phyllopod crustaceans were the prevailing forms of life, we witness a return to very much the same conditions as existed in the earlier Cambrian periods, and with these conditions a fauna retaining a marked likeness to the earlier one, and in which the earlier types are almost reproduced, though of course greatly changed during their previous migrations. The Niobe(?) recently found in the Tremadoc rocks is truly a degraded Paradoxides, retaining the glabella and head spines, but with the rings of the thorax, excepting eight, consolidated together to form an enormous tail. Instead therefore of having here, as stated by M. Barrande, "a very important discord between Darwinism and facts," we find in these early faunas facts strongly favouring such a theory, and in support of evolution.

This is an exquisite piece of evolutionist reasoning, worthy of some of the greater masters of this peculiar logic. It is assumed that specific differences are "gradations" and the word "almost" covers the gaps between these. It is taken for granted that Paradoxides, which disappears with the Menevian age, has only gone upon its travels to parts unknown, and after the deposition of several thousand feet of beds, returns disguised as the Niobe of the Tremadoc, -and not only changed but "degraded", -a sorry result certainly of the struggle for existence in the interval, and holding out small prospect that the creature can be promoted in any subsequent age into a fish or even into a Decapod. If Barrande's reasoning can be met only in this way, he need not fear for the result. Seriously, one scarcely knows whether to be amused or grieved at the phases which the doctrine of derivation assumes in the writings of some modern naturalists. It is at least devoutly to be hoped, in order that science may not fall under the contempt of all thinking men, that the advocates of this hypothesis may become more careful in their treatment of facts, and more modest in their demands on our faith.

In the meantime the record of the rocks is decidedly against them in the particular point to which I have above adverted, namely, the abrupt appearance of new forms under several specific types and without apparent predecessors. They should direct their attention in this connection to the appearance of Foraminifera in the Laurentian, of Sponges, Brachiopods, Trilobites,

Phyllopods, Crinoids, and Cephalopods in the older Palæozoic; of Land Snails, Millipedes, Insects, Fishes, Labyrinthodonts, Acrogens and Gymnosperms in the middle and later Palæozoic: of Belemnites, Dinosaurs, Ornithosaurs and other Reptiles, and of Marsupial Mammals and Dicotyledonons trees in the Mesozoic; of Placental Mammals and Man in the Tertiary and modern. When they shall have shewn the gradations by which these, out of the many cases which may be cited, have been introduced, and this without assuming an imperfection in the record incredible in itself and destructive of its value as a history of the earth, they may be in a position to rebuke us for our unbelief.

But it may be asked: - Have we no positive doctrine as to the introduction of species? In answer I would say that it is conceivable that the origin of species may be one of those ultimate facts beyond which science by its own legitimate methods cannot pass, and that all we can hope for is to know something of the modes of action of the creative force and of the modifications of which species when introduced are susceptible. In any case it is by searching for these latter truths that we may hope successfully to approach the great mystery of the the origin of life. It is with reference to these truths also that the discussion of modern theories of derivation has been chiefly valuable, and in so far as established they will remain as substantial results after these theories have been exploded. Among such truths I may mention the following: We have learned that in geological time species tend to arise in groups of like forms, perhaps in many parts of the world at once; so that genera and families culminate rapidly, then become stationary or slowly descend, and become restricted in number of species and in range. We have learned that in like manner each specific type has capacities for the production of varietal and race forms which are usually exercised to the utmost in the early stages of its existence, and then remain fixed or disappear and re-appear as circumstances may arise, and finally the races fall off one by one as it approaches extinction. Many of these races and varieties constitute conventional species as distinguished from natural species, and in so far as they are concerned, descent with modification occurs, though under very complex laws, and admitting of retrogression just as much as of advance. We have also learned that in the progress of the earth's history embryonic, generalised and composite types take precedence in

time of more specialized types, and thus that higher forms of low types, precede higher types and are often replaced by them. We are further, as the relation of varieties and species is investigated and their extension in time traced, becoming more and more convinced of the marvellous permanence of specific types, and of their powers of almost indefinite propagation in time. Lastly, vast stores of facts are being accumulated as to the migration of species from one area to another and as to the connection of the great secular elevations and subsidences of continents with their introduction and extinction. All these are substantial gains to science, and the time is at hand when they will lead to more stable theories of the earth than those now current. If I am not greatly mistaken, these considerations or some of them will be found to cover the case recently so much insisted on of the Tertiary predecessors of the modern Horse; a case which includes a great number of complicated and curious successions and relations, which we may hope to consider at a future time, when the American facts relating to them have been more fully elaborated.

I have however digressed from my special subject, and in re turning to it, and in closing this address, would express my thankfulness that here in America we have a field for work on so broad a scale that there is little temptation to abandon the ever fresh and exciting exploration of new regions and the discovery of new facts, and the working out of legitimate conclusions, for that process of evolving worlds out of our own consciousness which seems to be the resource of those who have access only to the often ransacked treasuries of nature in smaller and older countries. Placed on a continent which in its geological development is the grandest and noblest of all, and which may be made a type for all the rest, let us push forward the conquests of legitimate science, and bear in mind that our present aim should be above all things the diminution of that imperfection of the geological record of which so much complaint is made.

The Report of the Chairman of Council was read by Mr. G. L. Marler, as follows:

REPORT OF THE CHAIRMAN OF COUNCIL.

At the close of another Session, your Council beg to submit the following Report:— During the past year eighteen new ordinary members have been elected, a number though small, slightly in advance of last year's accessions. The new collector not having furnished the necessary data, it is impossible to state with accuracy what losses have been sustained by death, removal, or other causes. A circular, inviting the co-operation of ladies in the work of the Society, has been issued and distributed at meetings of the Ladies' Educational Association, and on other suitable occasions. Seven ladies have become associate members, and the Council suggest to their successors to try and interest more ladies in the objects which the Society was formed to promote.

The number of visitors to the museum, during the past Session, is about one thousand.

After continual remonstrances with the corporation of Montreal, and petitions to that body, the cab-stand in front of the premises, which was so great a nuisance to the Society and so detrimental to its interests, has been in part removed.

Through the kindness and liberality of friends, and especially in consequence of the active exertions of Mr. Selwyn (to whom the Society's thanks are specially due in this matter), your Council are happy to be enabled to report that Messrs. Dawson Bros.' account, amounting at the last annual meeting to \$653.92, has been entirely liquidated. The following is a list of the donors, to whom the cordial thanks of the Council are hereby tendered:

Sir W. E. Logan, LL.D., F.R.S. \$50	John H. Molson 10
James Ferrier, Jun50	John Molson
J. H. Joseph	D. J. Greenshields10
W. F. Kay50	John Kerry10
Peter Redpath50	Messrs. Morland, Watson & Co.10
C. J. Brydges 50	G. L. Marler
His Excellency the Governor-	N. Mercer10
General20	John Lovell10
Principal Dawson20	Kenneth Campbell10
Sir Hugh Allan20	Messrs, Savage, Lyman & Co 10
Donald A. Smith25	Joseph B. Moore10
H. Archibald 20	R. B. Angus10
E. Murphy20	D. Lorn MacDougall 10
R. J. Reekie 20	H. Benjamin10
G. B. Burland 20	Rev. Dr. De Sola10
Messrs. Walker and Miles20	B. Gibb10
Sir Francis Hincks10	W. Notman
Hon. Judge Torrance10	D. R. McCord 10

D. W. & Co10	Charles H. Waters 5
Messrs. Prowse, Bros 5	H. Lyman 5
Jas. Sutherland 5	Henry Morgan & Co 5
Thomas Irving 5	A Friend 5
F. W. Henshaw 5	A Friend 5
Rev. Gavin Lang 5	Dr. Reddy 3
James Bissett 5	W. Grant 2
W. D. McLaren 5	F. C. & Co 2
E. J. Major 5	H. J. Shaw 2
H. Shackell 5	M. Cassidy 2
S. Waddell 5	F. H Harrison 2
Scott Barlow 5	A. Freeman 1
John Date 5	W. Marler 1
D. Sinclair 5	districted history on the
	\$800

A case to hold alcoholic preparations has been made, the cost of which (\$45) has been defrayed by the liberality of the following gentlemen:

	H. Brissette	
G.	Barnston	. 5
J.	Ferrier, jun	. 5—\$45

On the occasion of the Dominion Cabinet meeting at Montreal in June last, the Hon. the Minister of Marine and the other Ministers of the Privy Council, were invited to visit the museum, which, however, they were unable to do.

A memorial has been sent to the present Minister of Marine and Fisheries, asking for increased facilities for dredging operations in the Gulf, but the answer received has been unfavorable, and your Council regret that for the time at least these investigations will have to be discontinued.

A petition to the Legislature of the Province of Quebec for a special donation of \$1,000 to liquidate the debt due on the Society's buildings has proved unsuccessful, although the usual Government grant of \$750 has been duly received.

The basement has been thoroughly cleaned, and attempts have been made to remedy the defective ventilation of the ground flat. Some dissatisfaction having been evinced by members of the Council at the amounts of bills for repairs, &c., Messrs. J. H. Joseph and E. E. Shelton were appointed a committee to supervise and examine into necessary expenses of this kind, and the thanks of the Society are due to them for the trouble they have taken in the matter.

In consequence of Mr. Ferrier's time being so much preoccupied, Mr. E. E. Shelton has kindly acted as Assistant-Treasurer.

The Ladies' Educational Association have, as on two previous Sessions, used the rooms for their lectures, but do not intend to continue doing so: they complain of insufficient heating and defective ventilation.

The Somerville Course of Lectures has been duly delivered to good audiences; the titles of the lectures, with the names of their authors, will be found in the proceedings of the Society.

No conversazione or field day have been held during the past Session, but your Council is of opinion that it is desirable to hold one or two field meetings before the first of July.

The following report was then read by Mr. J. F. Whiteaves:

REPORT OF THE SCIENTIFIC CURATOR AND RECORDING SECRETARY.

The work done during the past session is very similar in character to that of the two previous years. Shortly after the last annual meeting, as soon as the necessary preparations were made, nine weeks were spent in active dredging operations in the Gulf of St. Lawrence. As the Schooner was employed exclusively for this particular service during that time, the number of specimens collected was far greater than on any previous occasion.

These, together with undetermined specimens remaining over from collections made in former years, have been as carefully studied as the time at my disposal would permit.

The Foraminifera have not been examined much in detail, as it has been found that on the whole they do not yield a return in the shape of new discoveries, at all commensurate with the time spent upon them. Only one form new to the St. Lawrence has been noticed so far.

Much more attention has been devoted to the Sponges. Of the 40 or 50 Canadian species represented in Montreal cabinets, the generic and specific names of about 15 have been ascertained with tolerable certainty. Although this number may seem small, it may be mentioned that many of those that are undetermined are probably new to Science, and in Principal Dawson's Handbook of Geology, published in 1869, only three are enumerated, of which one is fossil, and of another the specific name is not given.

The Hydrozoa have been submitted to further microscopical examination. Eleven species have been added to our fauna, of which two are new to America. Some of the deep sea species are different from any of those described by English writers.

No special novelties occurred among the Aleyonaria and Zoantharia collected last summer, but the whole series has been earefully studied and all the species made out and labelled. The Echinodermata have given better results, eight species new to the St. Lawrence, of which three are new to America, have been collected and determined. Three of these are brittle stars and three sea cucumbers.

A further portion of the Marine Polyzoa has been carefully studied. The latest catalogue of these beautiful corallines, published as a report to the department of Marine and Fisheries last year, gave 39 species. Fifteen additional forms have been recognized, all of which are new to the Gulf of St. Lawrence. Most of them are very rare and striking kinds, and several of them are new to the American side of the Atlantic. Not one half of the material collected, however, has been examined, even in a somewhat cursory way.

The whole of the Tunicates of the St. Lawrence in the Society's collection, with the exception of a purple Botryllus, whose specific relations are still obscure, have been determined and labelled. There are some 17 species, and the Society is indebted to Prof. Verrill, who has made the study of these molluscoids a specialty, for the identification of several critical species, originally described by him.

The Shells proper, collected last summer, have all been examined and determined. In 1869 the catalogue of shells from the Northern part of the Gulf, which was complete up to date, gave 115 species. Including the discoveries of Mr. Willis on the Nova Scotian coast and additional species dredged by Principal Dawson, as well as novelties obtained in the government expeditions of 1871, 1872, and 1873, 214 species are now known from that region.

Of these 91 are bivalves

" " 107 " gasteropods.

" " 3 " pteropods.

" cephalopods.

Through the kindness of Dr. W. C. McIntosh, of Perth, an eminent authority on this group, the marine worms of the St. Lawrence are in a fair way of being worked up. The whole of the specimens dredged during the last three summers, filling about 200 bottles, have been forwarded to him.

In the April No. of the Annals of Natural History, Dr. Mc-Intosh has published the result of his studies on those Canadian specimens which belong to the first six families in the classification proposed by Malmgren. The general results are that 19 species have been determined, of which six are new to science. These latter have been described and figured in the Journal previously mentioned.

With the assistance of Mr. S. I. Smith, of Yale College, who has identified most of the Amphipods and the more critical among the Decapods, most of the crustaceans recently collected have been determined. 56 species have been added to our local lists, several of which are Norwegian forms, not hitherto met with on the American coast. One of these is a curious new generic type collected in the deep sea mud, and described in a recent number of the American Journal of Science and Arts. The few fishes collected at great depths, some of them of great interest, and including about 10 species, have been studied and labelled.

Extentive exchanges have been made with Professors Verrill and S. I. Smith, and in this way about 120 species collected in dredgings under the auspices of the U. S. Fish Commission, have been obtained. All of these are carefully named. The whole series has been put into a fresh set of bottles, and re-labelled.

The new case for alcoholic preparations mentioned by the Chairman of Council now contains 250 species of N. American marine invertebrates, each in a separate bottle labelled with the proper locality and name of the object it contains. In addition to this, there are about 150 bottles (or jars) full of various marine animals dredged in the Gulf, which have yet to be studied. Before leaving this topic, it may be as well to mention that an article giving a condensed account of the zoological results of last summers investigations has been published in Silliman's Journal for March last, and that a more detailed account of the observations made, has been submitted as a report to the Minister of Marine and Fisheries for the Dominion Government. This is now in type and will shortly be issued. The subject has

been also brought before the Society at one of its monthly meetings.

Some progress has been made in the re-arrangement of the Society's very interesting and valuable collection of fishes amphibia and reptiles, but the work in this direction has been stopped, on account of the want of proper bottles, and of alcohol. Many rare exotic snakes, lizards, fishes &c., presented to the Society some years ago by Dr. Gunther, have never been accessible to students, because we had no proper means of exhibiting them. It is eminently desirable to have a much better series of the smaller fishes, newts, frogs &c. of Canada, for reference, than we can now boast. If a small expense were incurred to obtain alcohol, and suitable bottles, the specimens could soon be obtained. As it is, our small collection has been greatly augmented by a donation of a series of the snakes of Western Canada, presented by Mr. Passmore.

In the department of Canadian birds, the additions have been about equal to the average of former years. Some rare United States species have been presented by Mr. LeChevallier. Among these are the painted quail of Texas, and the Brown and Frigate Pelicans of Florida.

Major Bulger has most liberally presented us with a collection of 60 specimens, of the Birds of the Neilgherry Hills and from the Deccur. These have been duly labelled, and the attention of the Society has been called to them in a paper read at one of our monthly meetings.

By exchange with Mr. LeChevallier the Society has acquired the eggs of about 80 species of N. American birds, some of them of considerable rarity. They are all fine specimens, mostly blown in the most approved fashion, and have all been marked with names and localities.

The most important additions to the mammalia are an unusually fine specimen of the Canadian or American wolf, obtained through the kind instrumentality of Mr. Vennor and other gentlemen, mostly connected with the Geolgical Survey; a good specimen of the Badger, presented by Prof. Bell, and a Skunk, given by Mr. S. J. Lyman.

A small series of U. S. Rodents has recently been received from the Smithsonian Institute at Washington, but they are mostly in a bad state of preservation, and none of them have been mounted as yet. The Society's permission having been duly obtained, at Mr. Selwyn's request some time has been spent in the examination of the Cretaceous fossils collected by Mr. Richardson at Vancouver and the adjacent islands, in 1873. The series, though small, is exceedingly interesting. Occupying a position apparently at or near the base of the Upper Cretaceous, perhaps synchronic with the Upper Greensand or Gault, these fossils, with one or two exceptions, belong to genera not yet recognized from corresponding formations in Europe. A supplementary report on these is in progress.

The correspondence involved in endeavoring to work out the material collected in the Gulf, has been considerable and the microscopic work heavy. The proceedings of the Society have been duly published in the Local Press, and it is hoped that the other Secretarial duties have been efficiently performed.

The Treasurer being unable to attend the meeting, the following statement of the financial position of the Society for the past session was submitted on his behalf, by the Chairman of Council:—

### REPORT OF THE TREASURER.

Dr. THE NATURAL HISTORY SOCIETY OF MONTREAL IN ACCOUNT WITH JAMES FERRIER, JUN., TUEASURER.

Cr.

o Casl	h paid	interest	. \$ 70.0
"	"	Mr. Whiteaves	400.00
"	"	Mr. Passmore	200.00
"	"	Messrs. Pell and Foote	34 20
"	"	For Coal and Wood	250.00
"	"	Gas	55 30
"	"	Water	38.50
"		City Taxes	. 56.00
"	"	Insurance	. 44.00
"	- 11	Repairs and Petty Expenses	. 201.40
"	"	Books, Printing and Advertising	. 913.9

1873, May 1.	
By Balance in Treasurer's hands	\$ 0.60
" Government Grant	750 00
" General Contributions	738 00
"Subscriptions to "Naturalist"	99.00
"Members' Yearly Subscriptions	632 00
" Museum Entrance Fees	76.15
" Rent of Rooms	221 00
" Freight Collected on Books	2.50

\$2519.25

\$2519.25

Errors and Omissions excepted.

[Signed] JAMES FERRIER, JR.

Montreal, May 18th, 1874.

It was moved by Dr. J. Baker Edwards, seconded by W. Muir and resolved:

"That the foregoing reports be adopted, printed, and distributed to the members."

On motion of Rev. Dr. De Sola the thanks of the meeting were unanimously voted to Principal Dawson for the preparation of the annual address.

Rev. Dr. De Sola moved, seconded by E. E. Shelton, that the bye-law relating to the balloting for officers be suspended and that A. R. C. Selwyn, F.R.S. be elected President. The motion was carried by acclamation.

Dr. J. B. Edwards moved, seconded by Rev. A. De Sola, that the Cor. Secretary and the Scientific Curator and Rec. Secretary be re-elected without the form of balloting. The motion was duly adopted.

Dr. B. J. Harrington and Prof. P. J. Darey having been nominated scrutineers, the following officers were elected by ballot in the usual way.

Vice-Presidents—Sir W. E. Logan, L.L.D., F.R.S.; Rev A. De Sola L.L.D.; G. Barnston; E. Billings F.G.S.; Principal Dawson L.L.D., F.R.S.; His Lordship the Metropolitan; C. Robb.

Treasurer-E. E. Shelton.

Council—Dr. B. J. Harrington, D. A. P. Watt, G. L. Marler, Prof. R. Bell, J. H. Joseph, Dr. J. B. Edwards, Rev. Canon Baldwin, D. R. McCord and Jas. Ferrier Jr.

It was moved by J. H. Joseph, seconded by Dr. J. B. Edwards and resolved:

"That the Library and Membership Committee do consist of the following gentlemen: N. Mercer, W. Muir, Dr. John Bell, G. R. Grant and J. B. Goode."

Mr. J. H. Joseph moved, seconded by C. Robb:

"That the special thanks of the Society be voted to Mr. J. Ferrier, jun. for his long continued and valuable services as Treasurer." The motion was adopted unanimously.

On motion of Mr. E. E. Shelton, seconded by W. Muir, it was resolved:

"That in future the number of Vice-Presidents be limited to seven."

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OF THE

# Natural Kistory Society of Montreal.

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" CHAMPION BROWN.

MISS CORDNER.

Mrs. (Principal) Dawson.

" (Dr.) DE SOLA.

" (Dr.) J. Baker Edwards.

" Jas. Ferrier, jr.

" JNO. FOULDS.

" (Dr.) GIRDWOOD.

Miss HAIGHT.

Mrs. E. H. LAY.

" E. LEARMONT.

Mrs. Lewis.

" JAS. E. MAJOR.

Miss McIntosh.

Mrs. MERCER.

" Molson.

и Јио. Рорнам.

" PETER REDPATH.

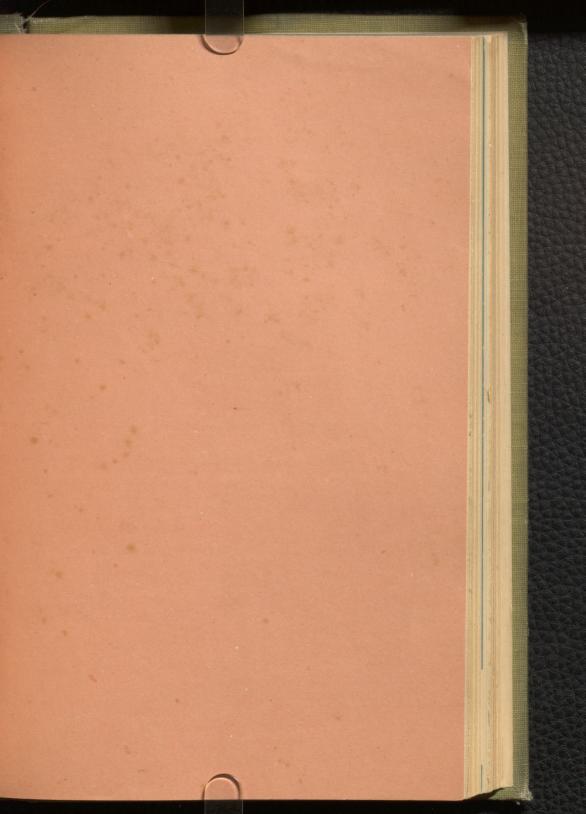
Miss RIMMER.

" JULIA SANBORN.

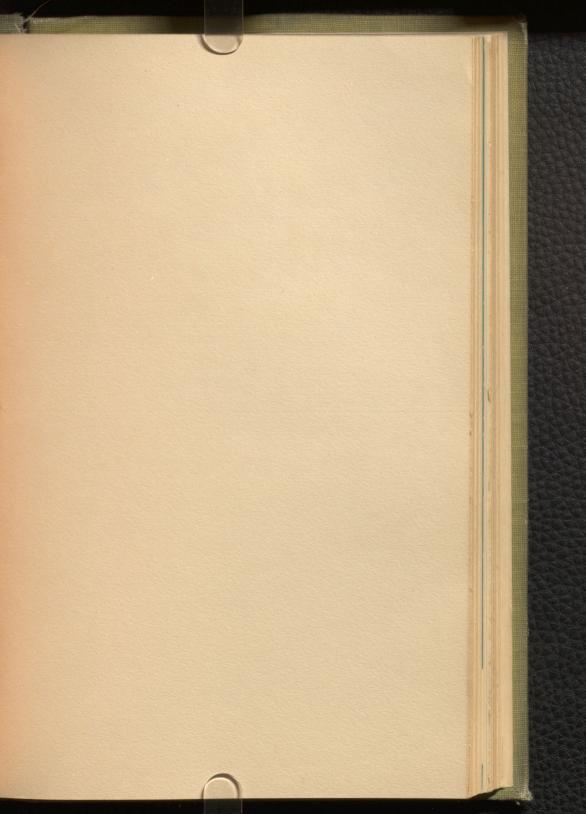
" SMITH.

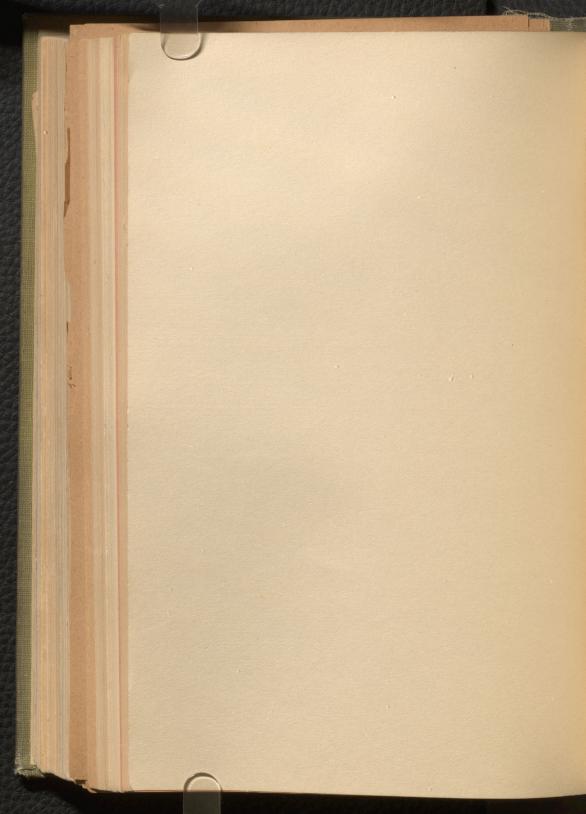
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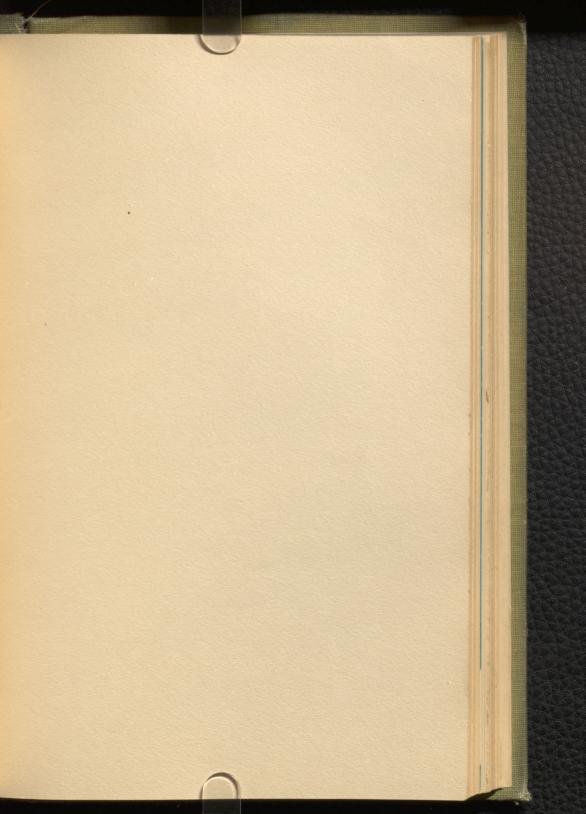
Mrs. T. M. Taylor.
" (Dr.) WILKES.

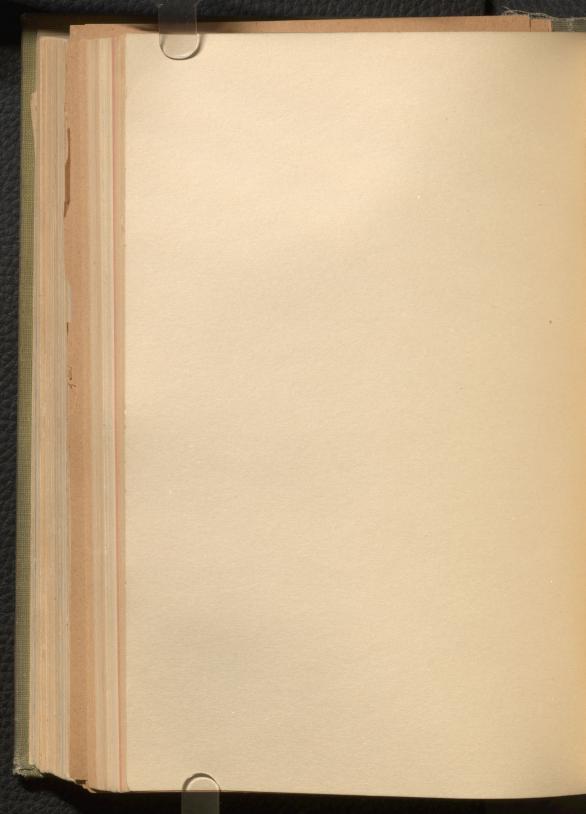


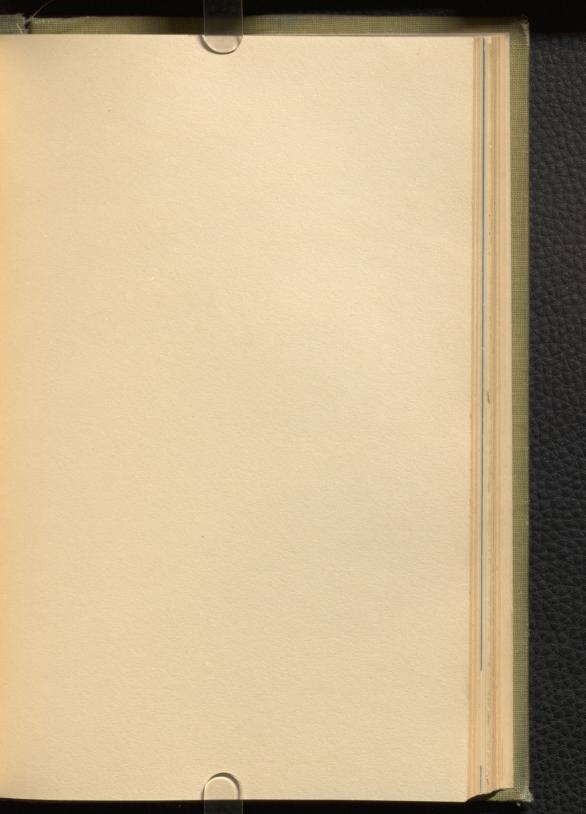


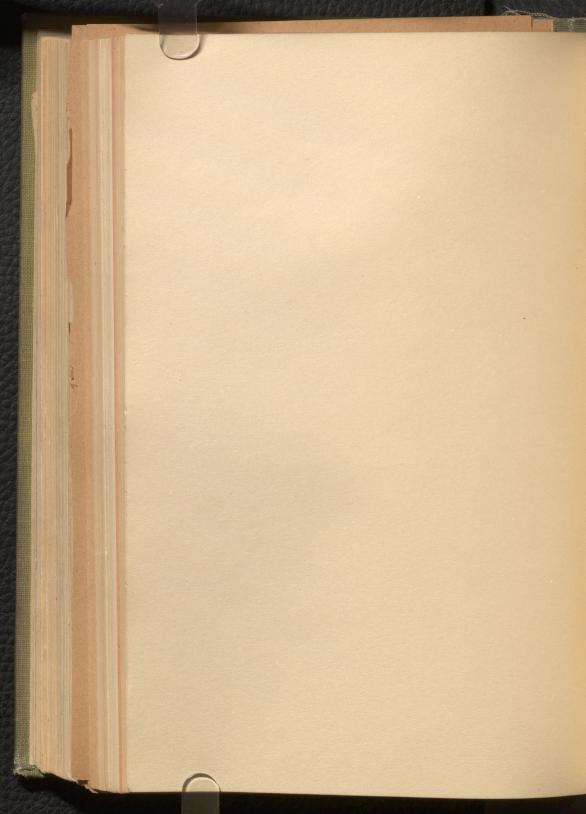


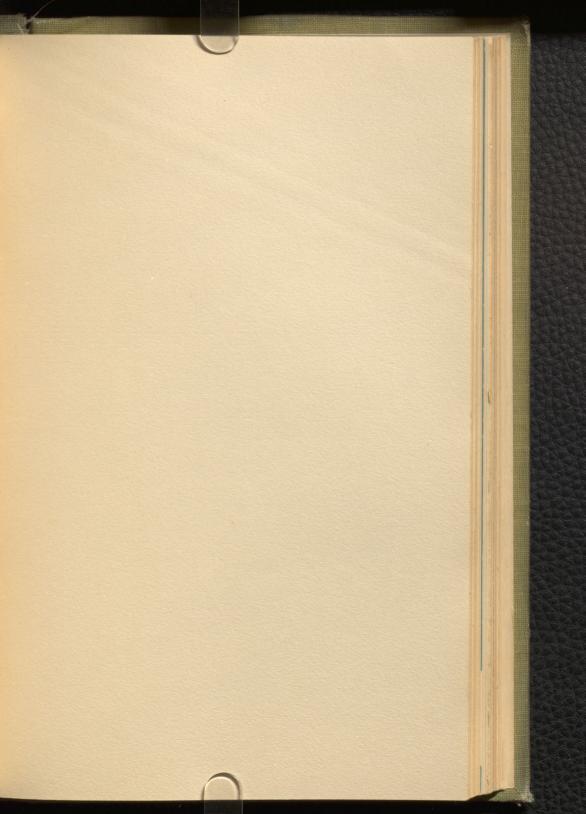


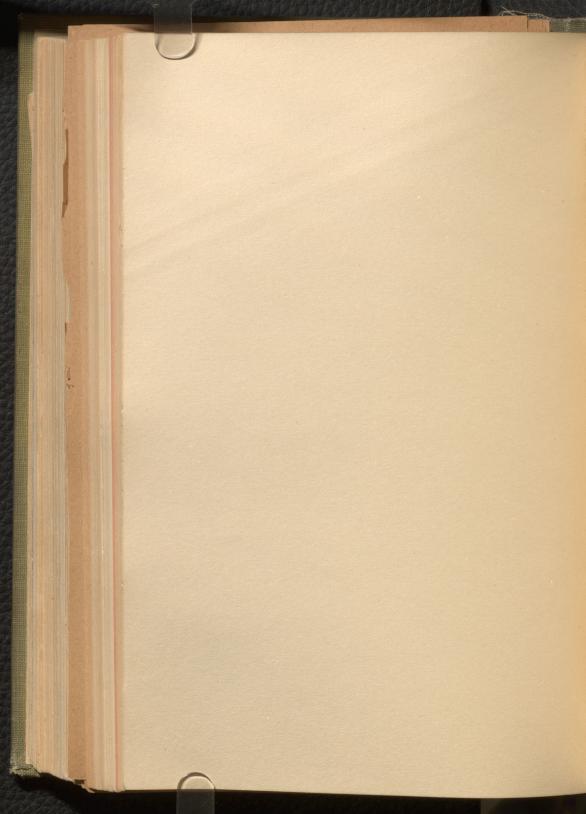


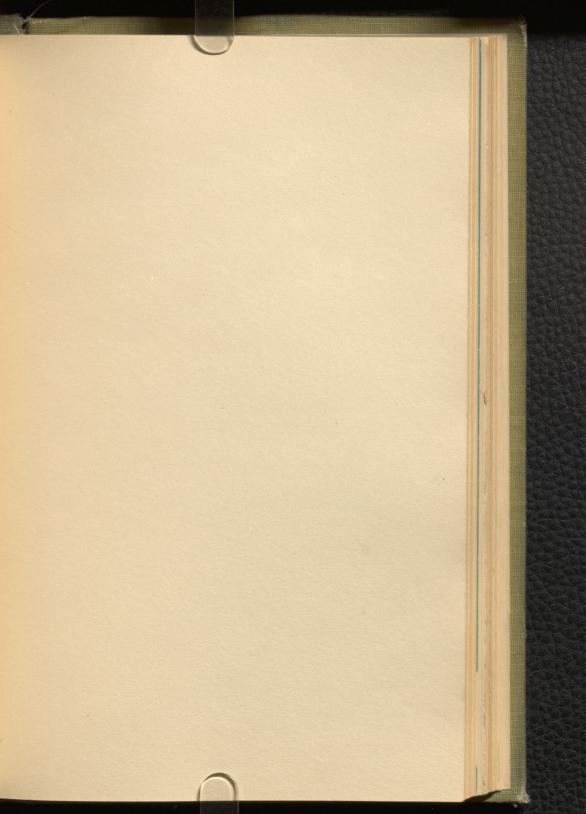


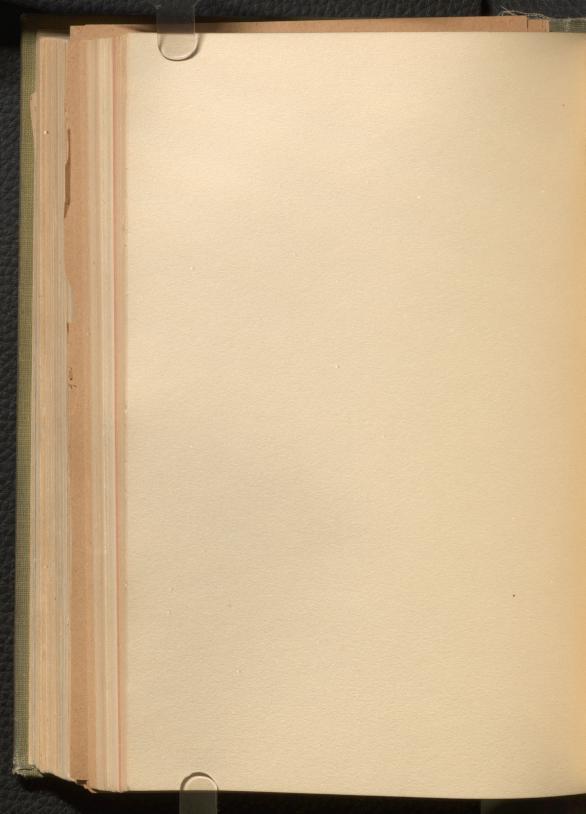


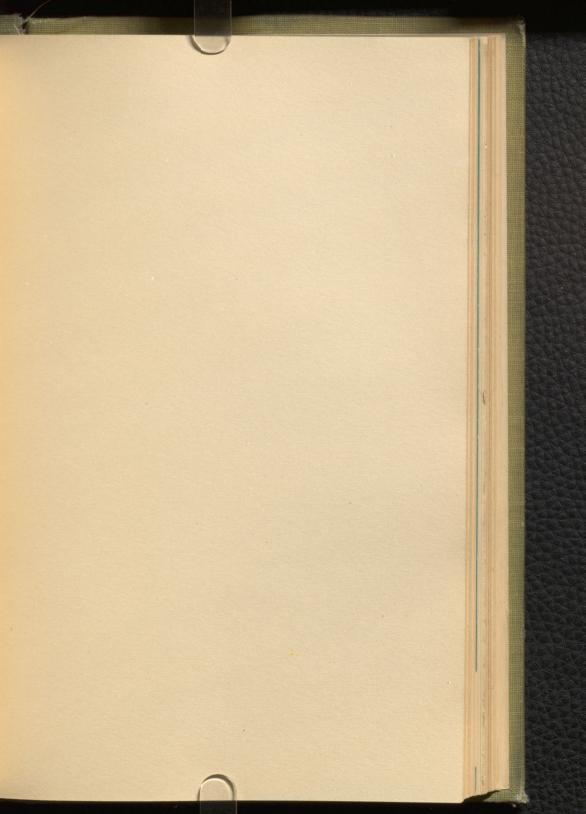


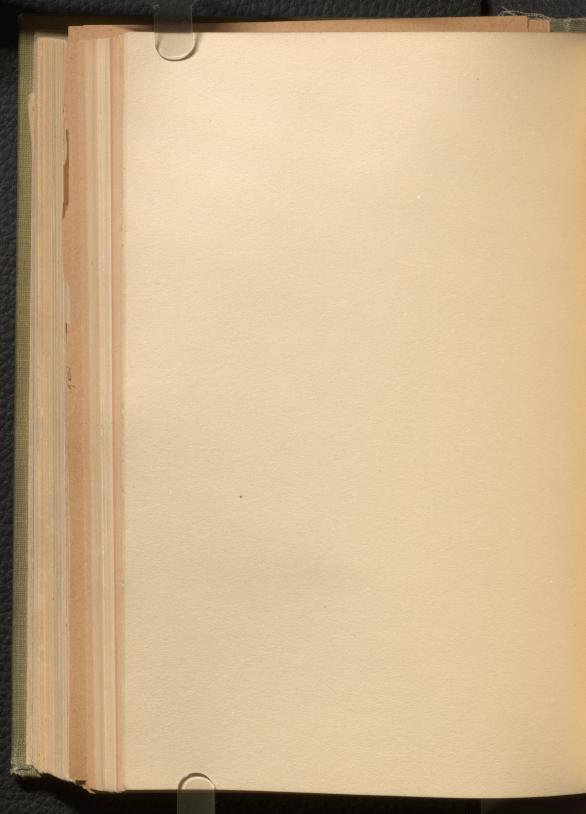


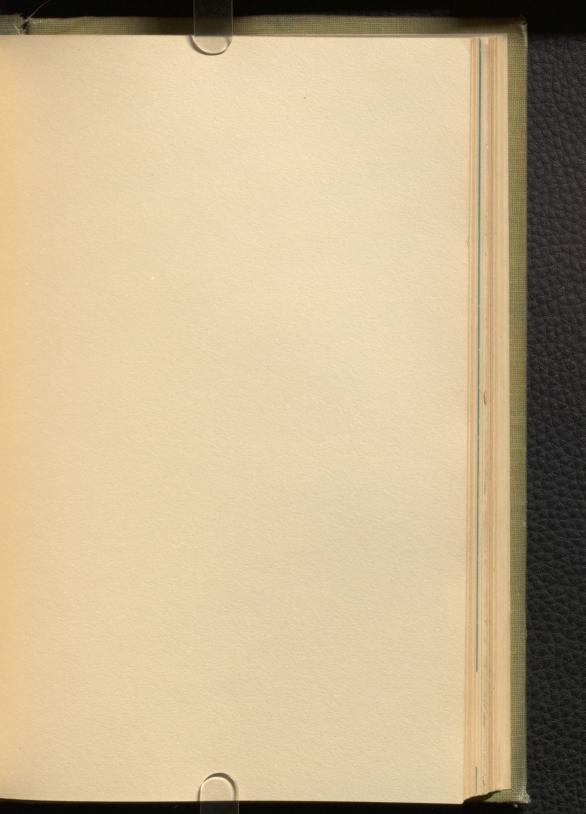


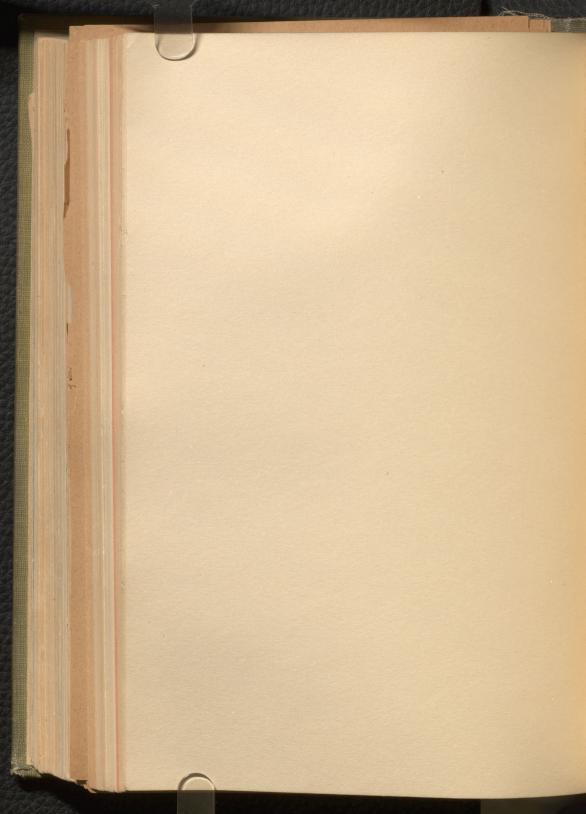


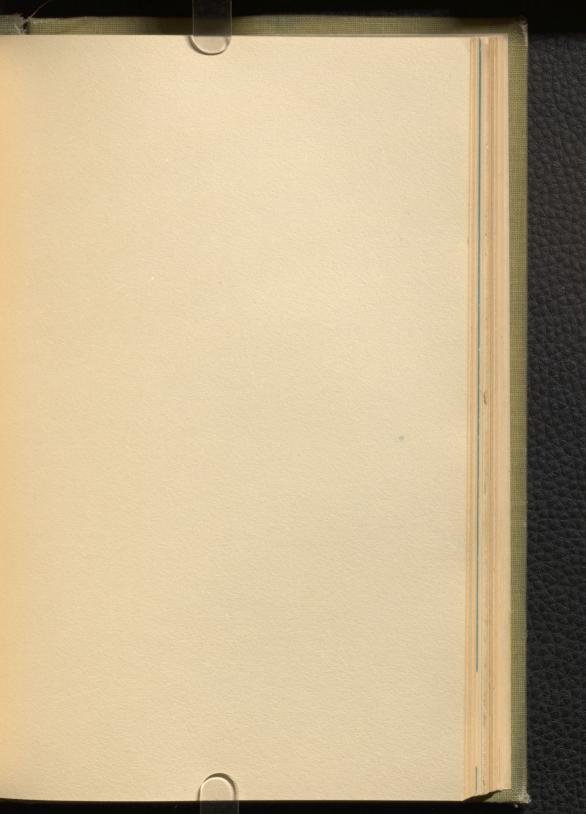


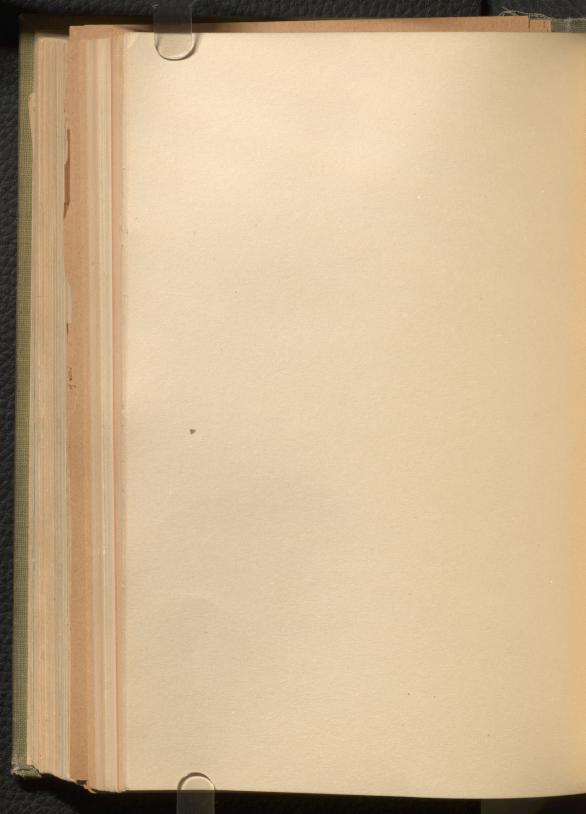


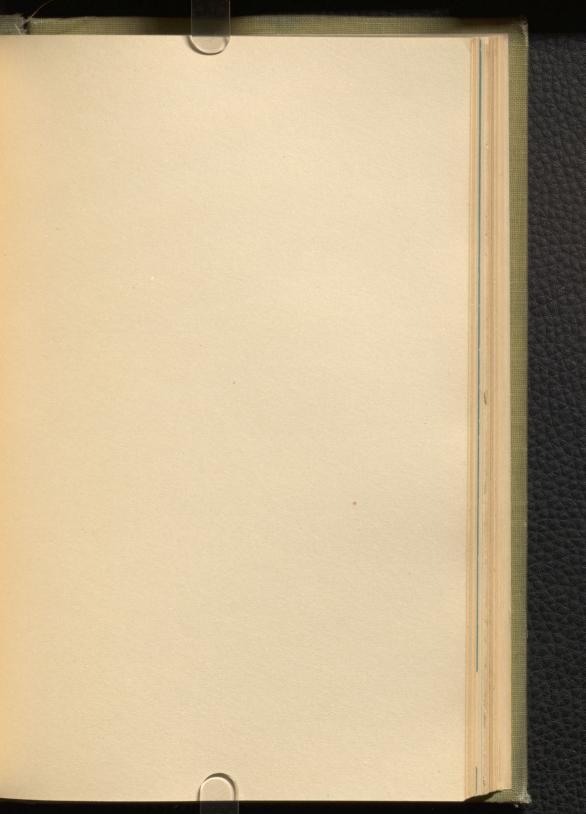


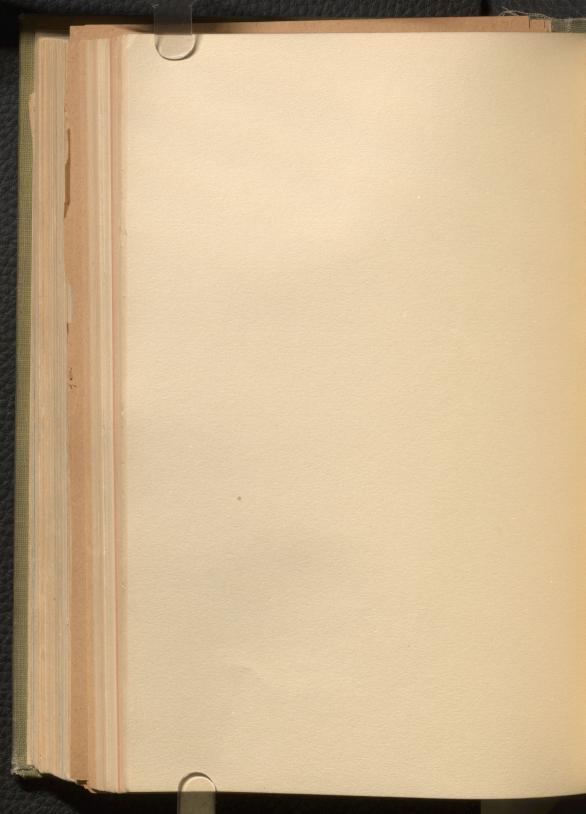


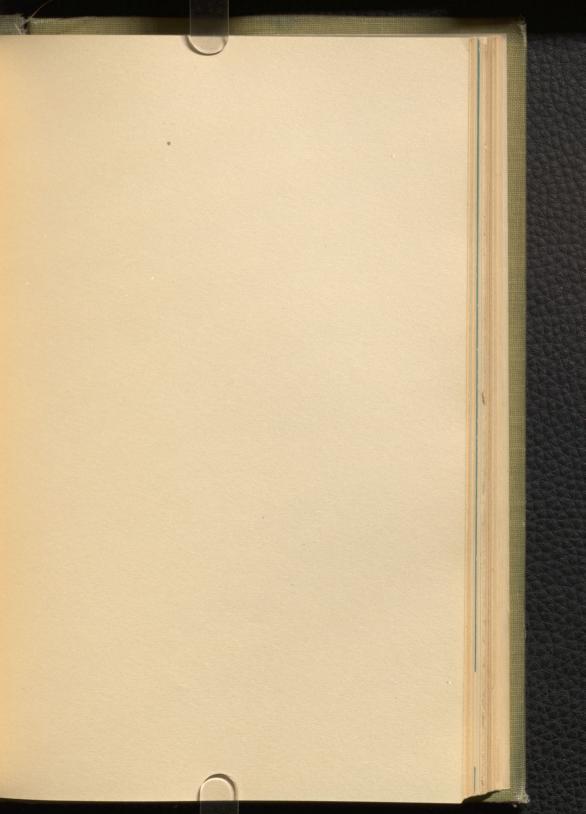


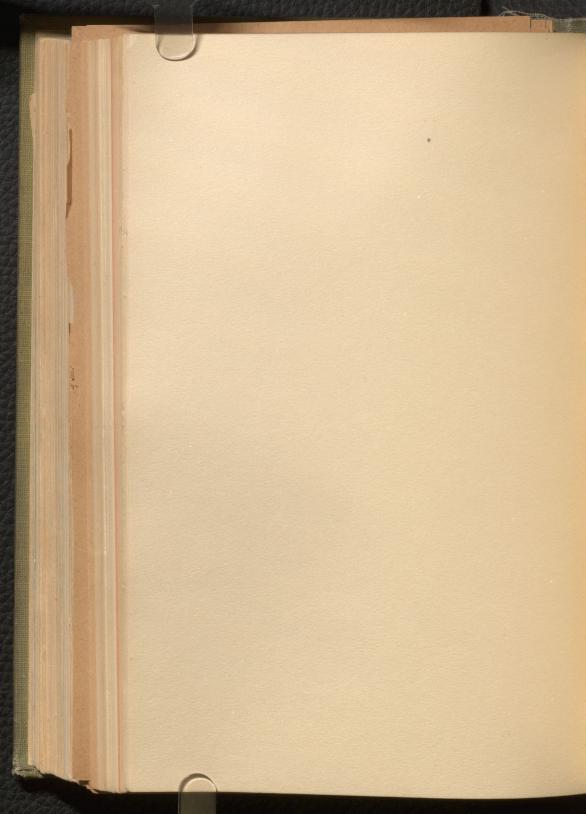


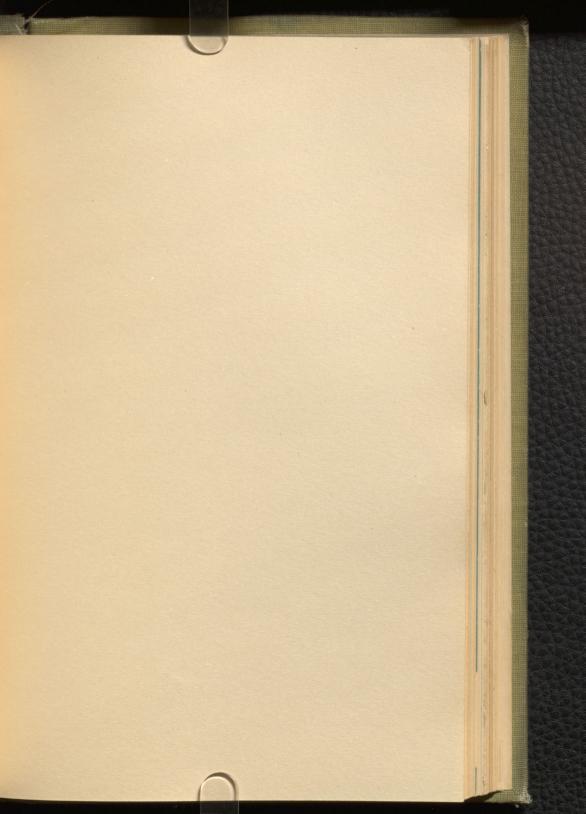


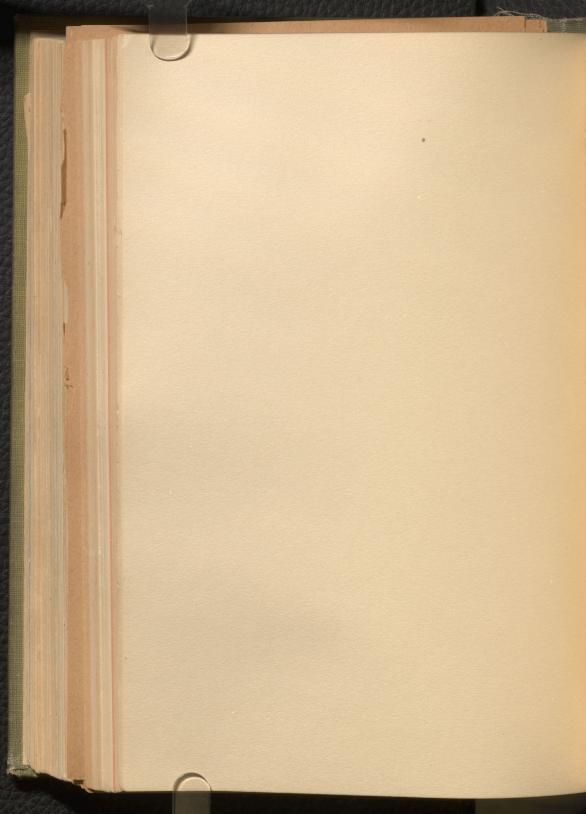


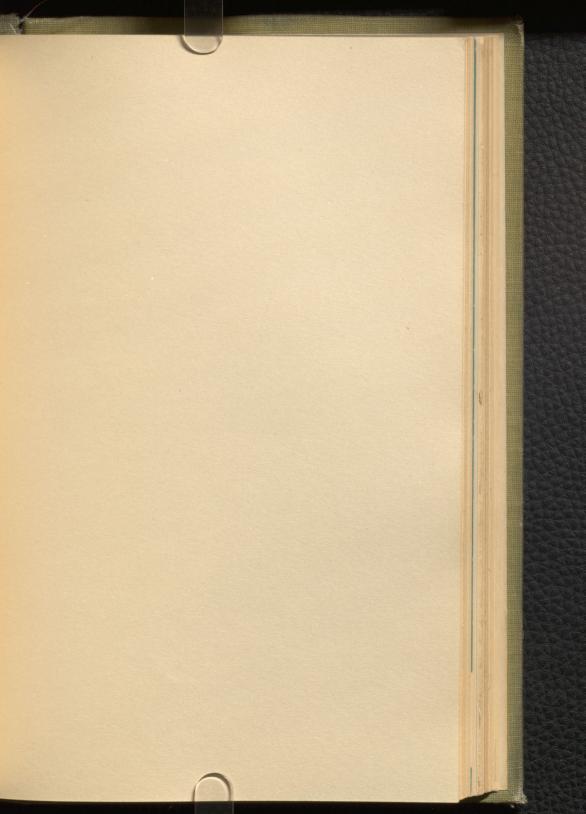


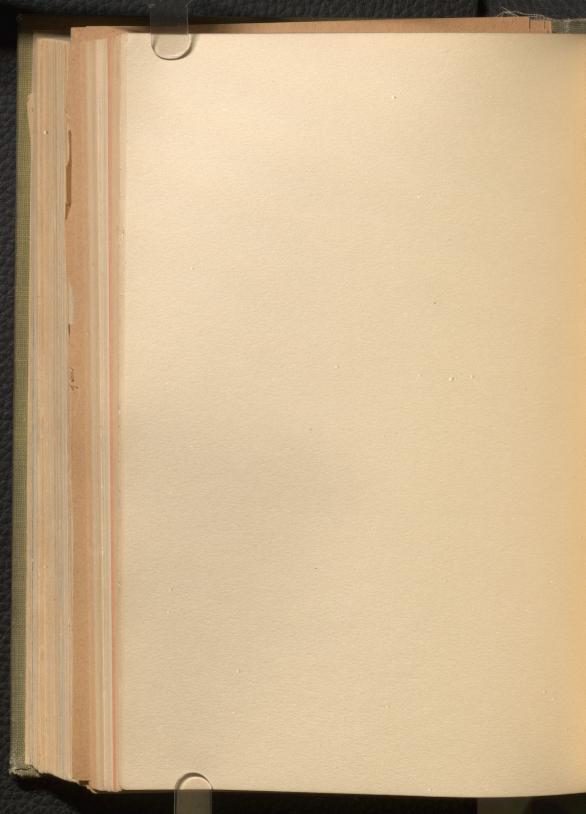


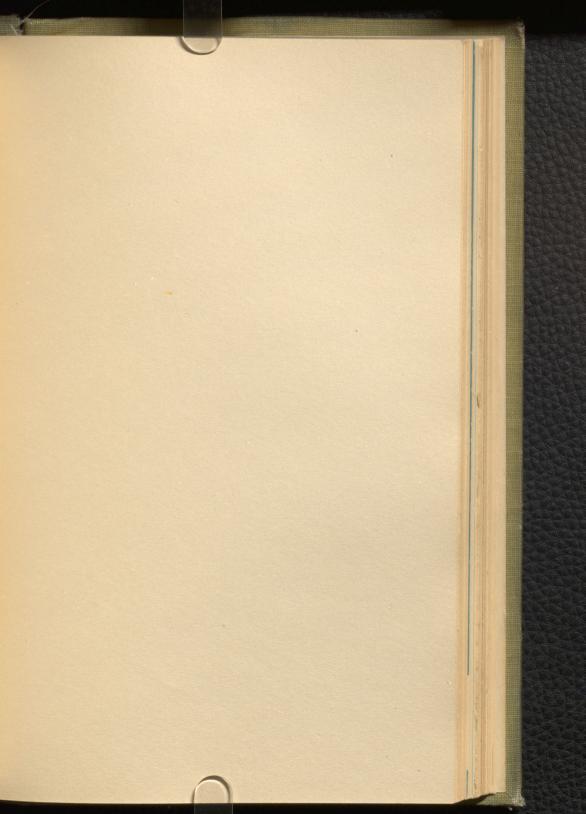


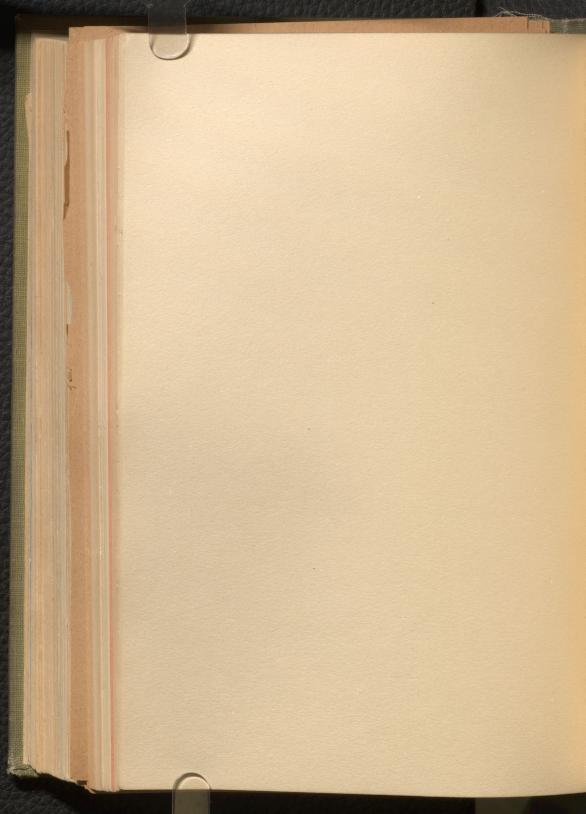


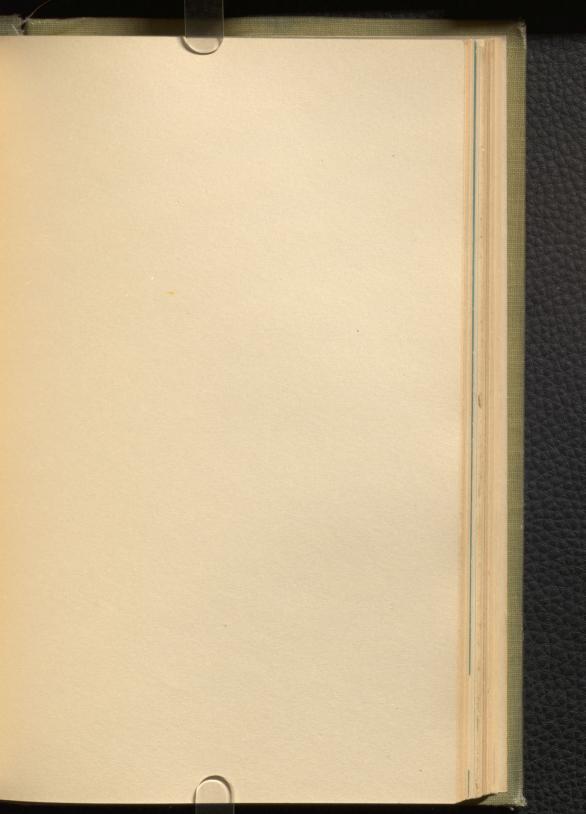


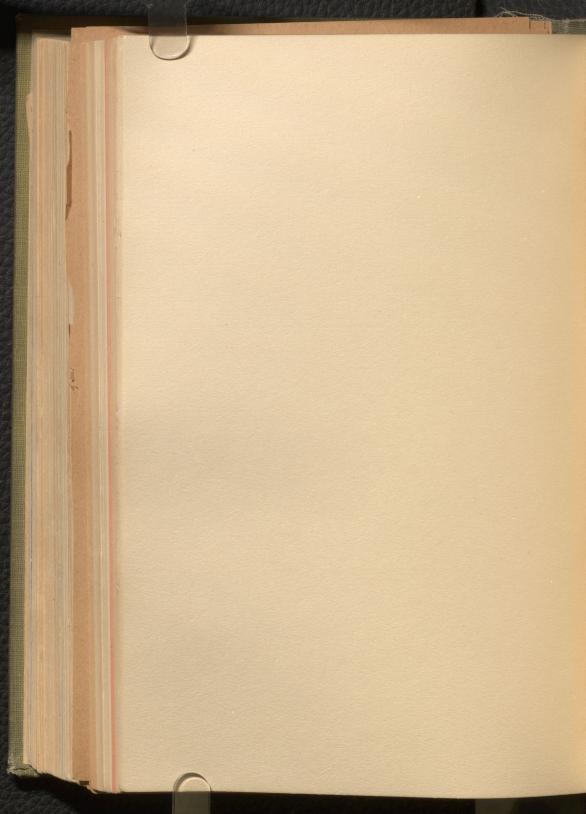


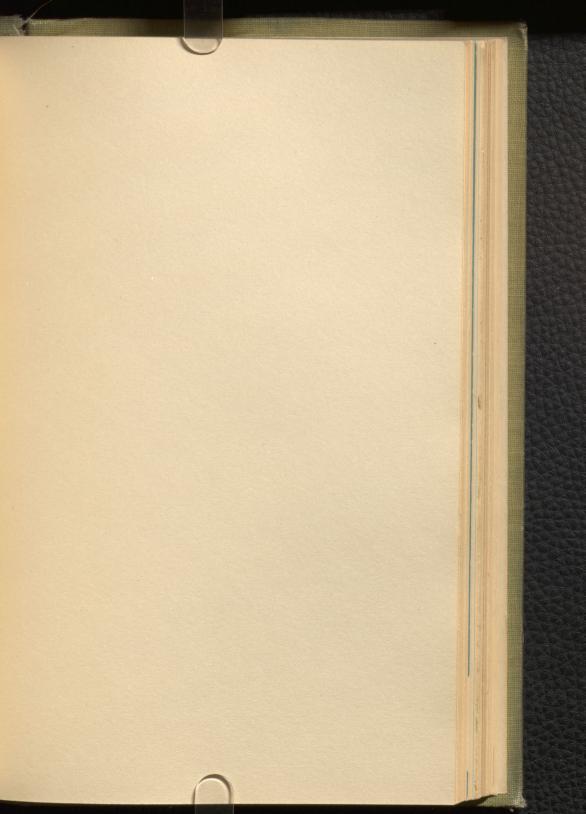


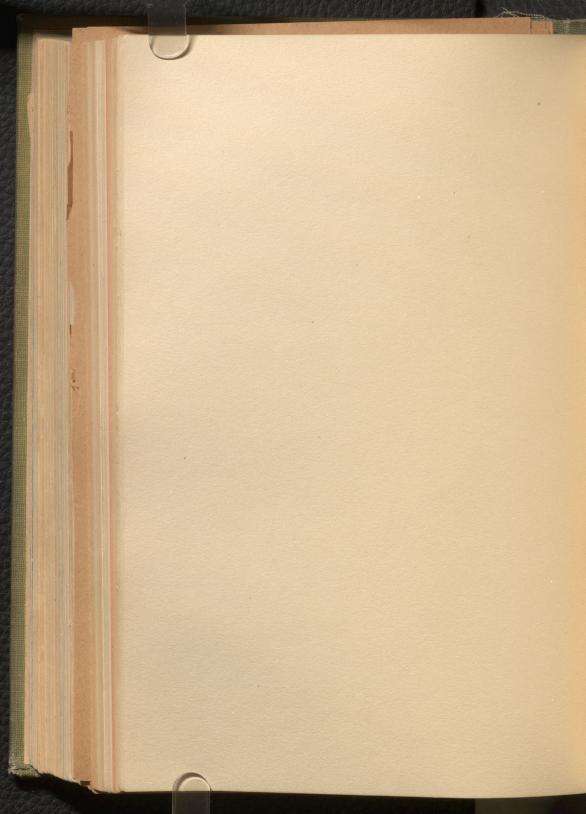


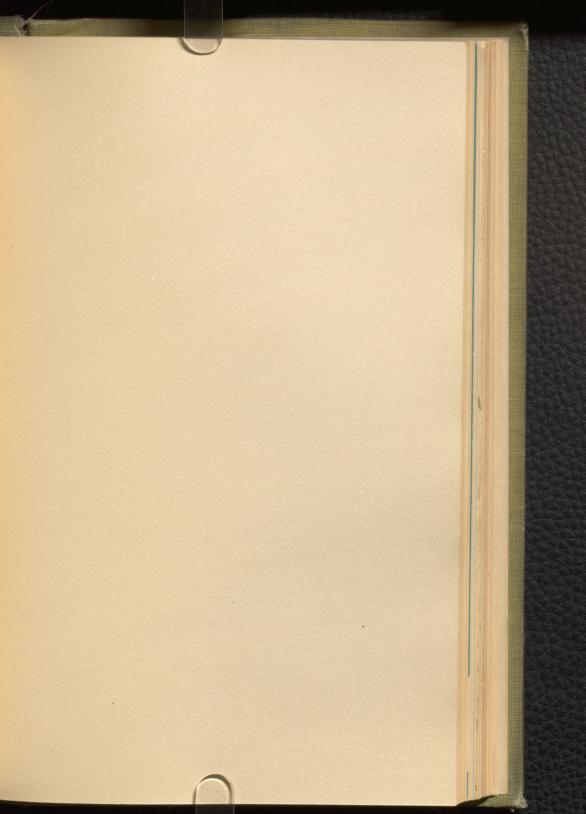


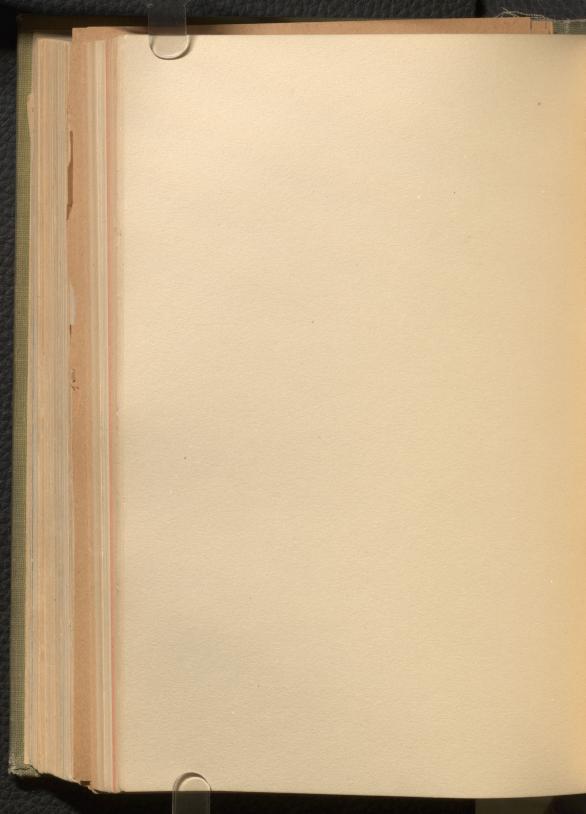


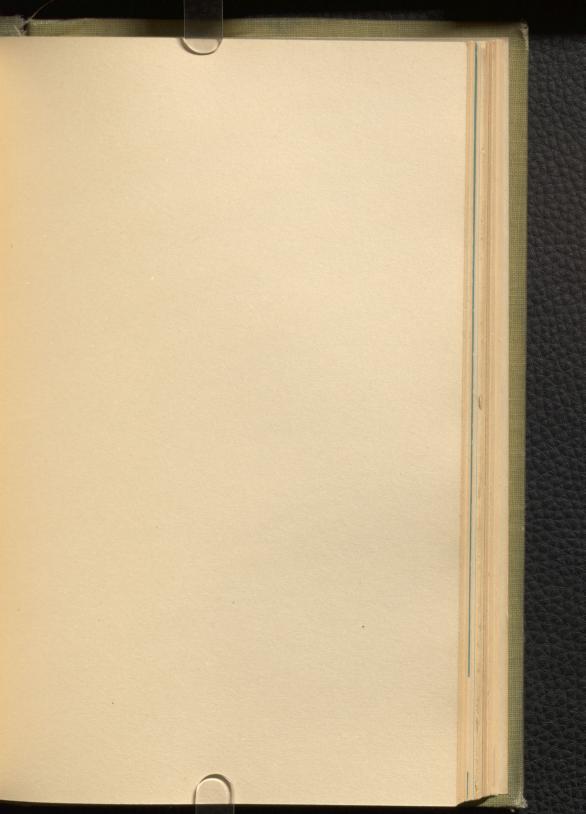


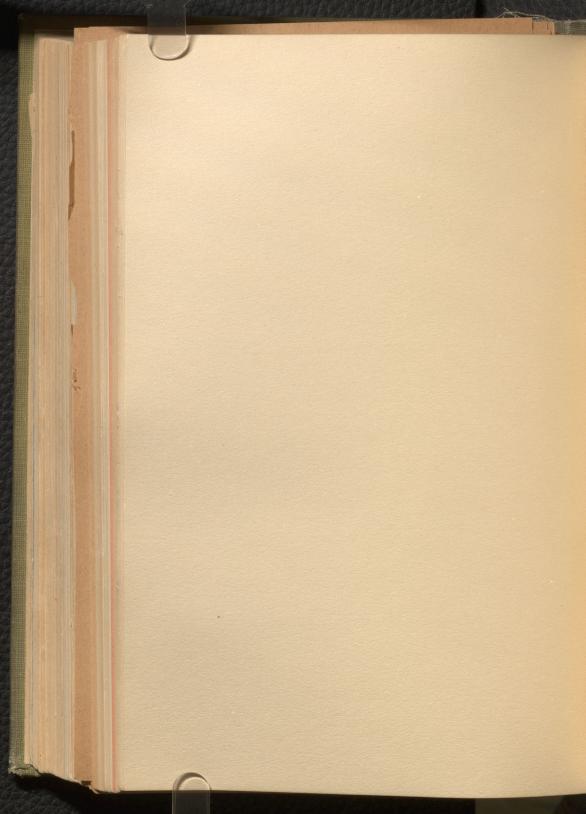


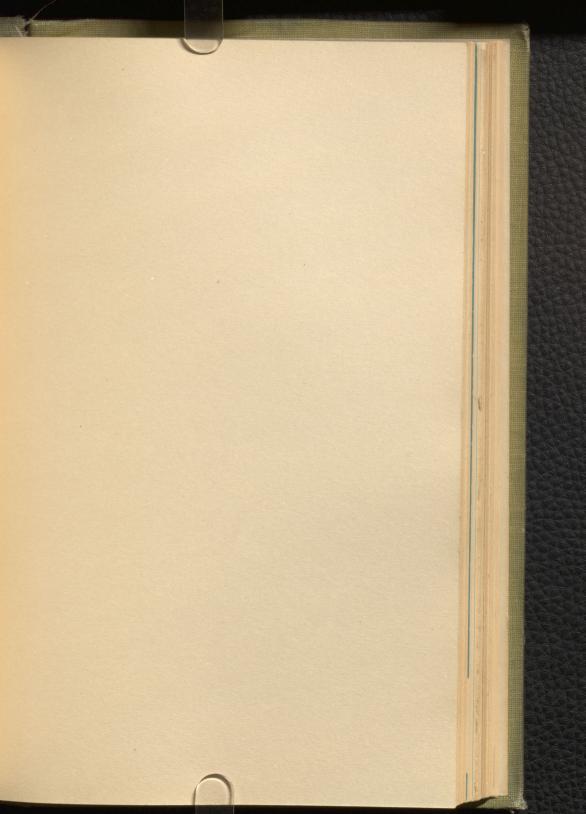


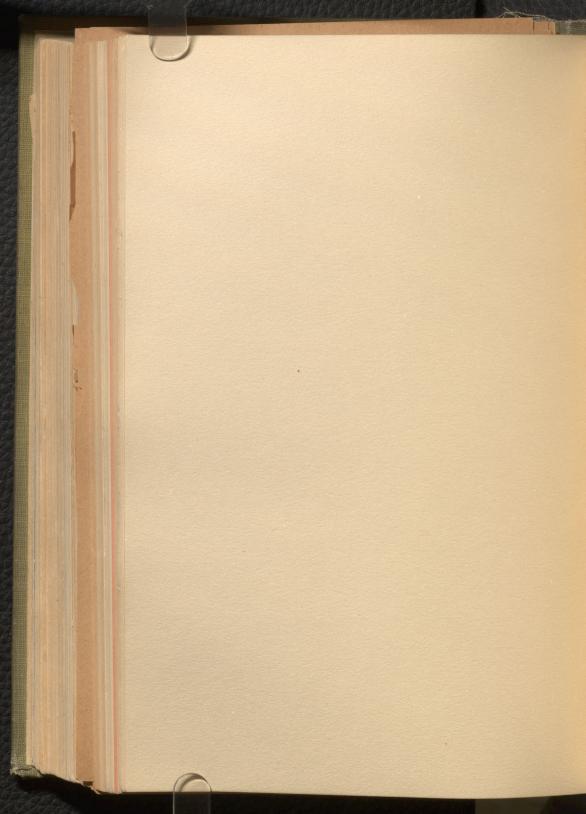


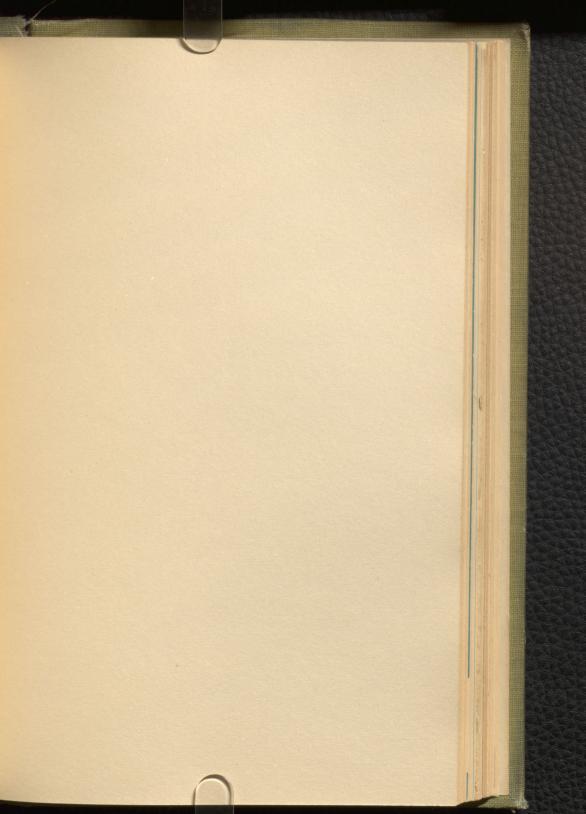


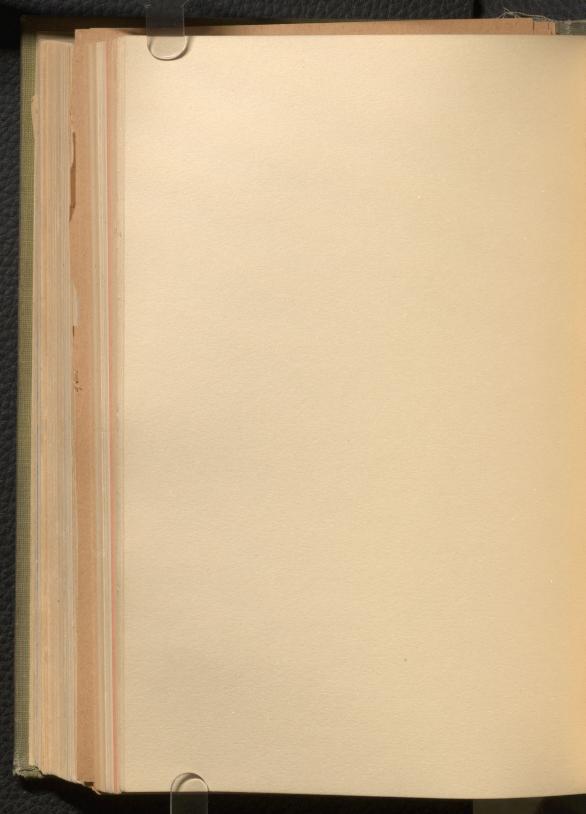


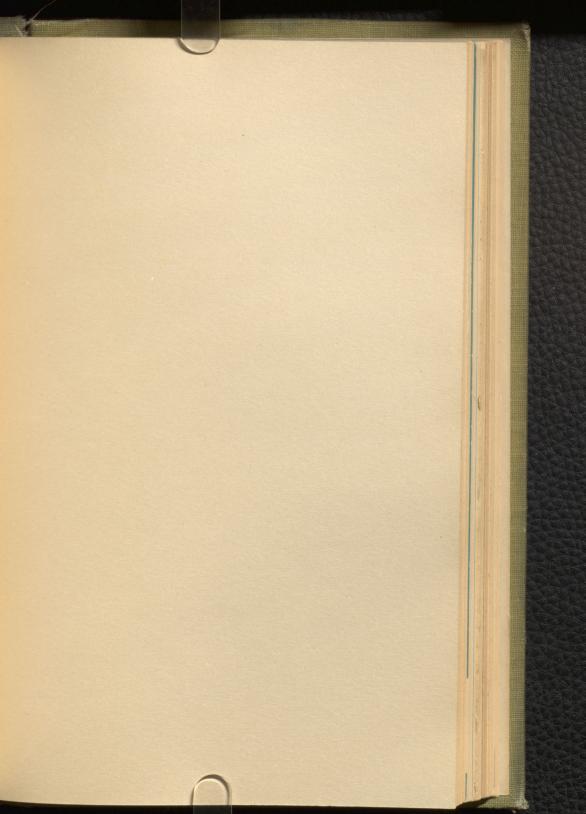


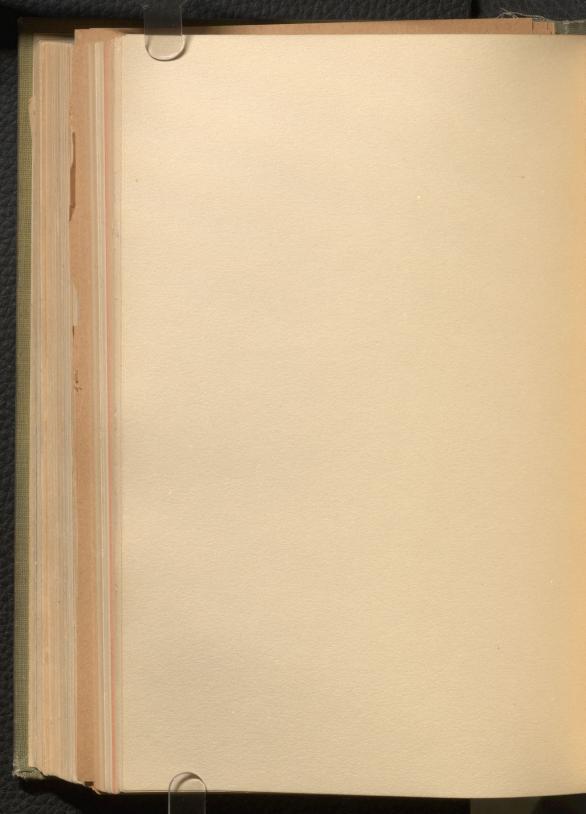


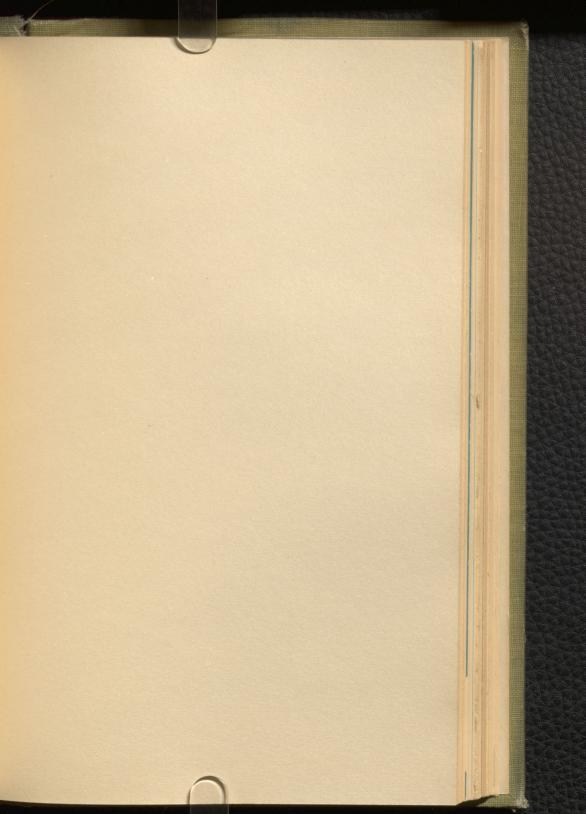


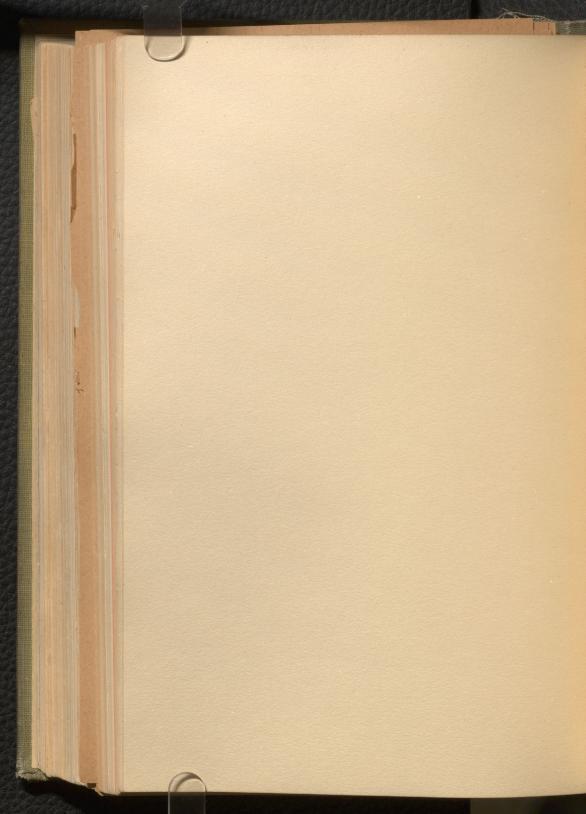


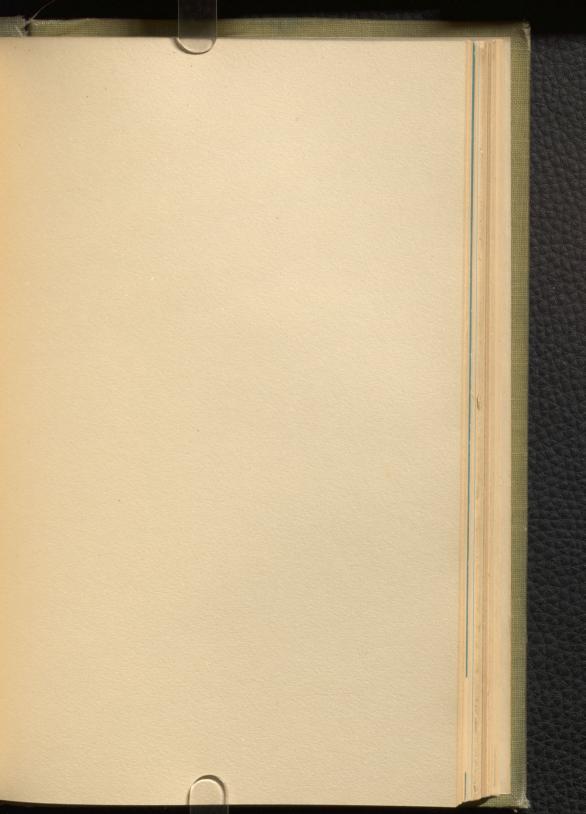




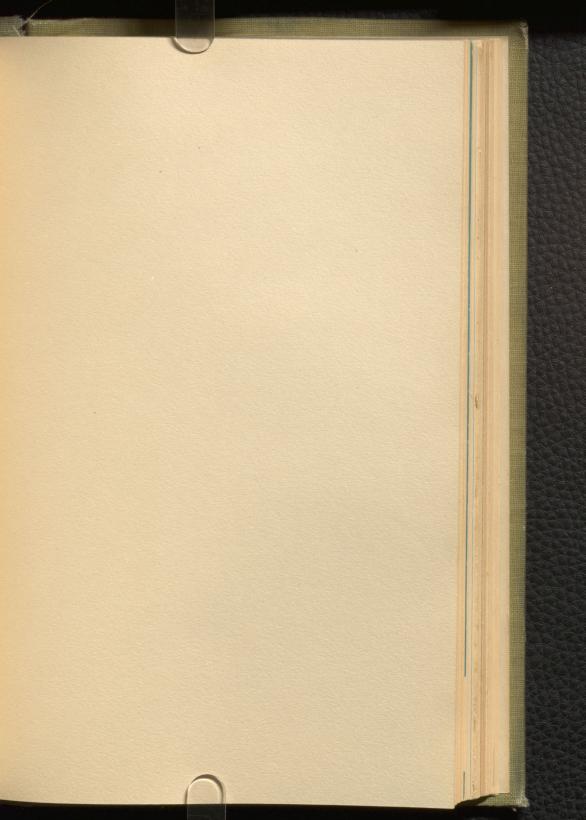


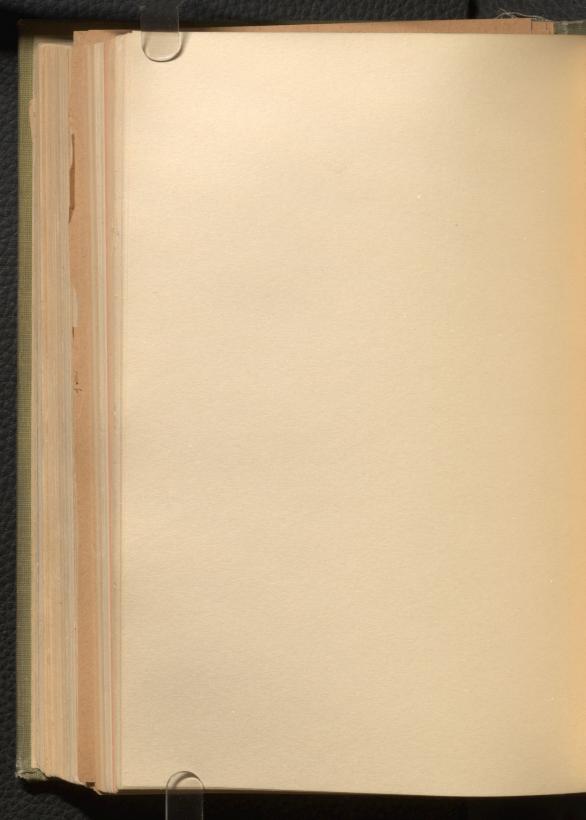


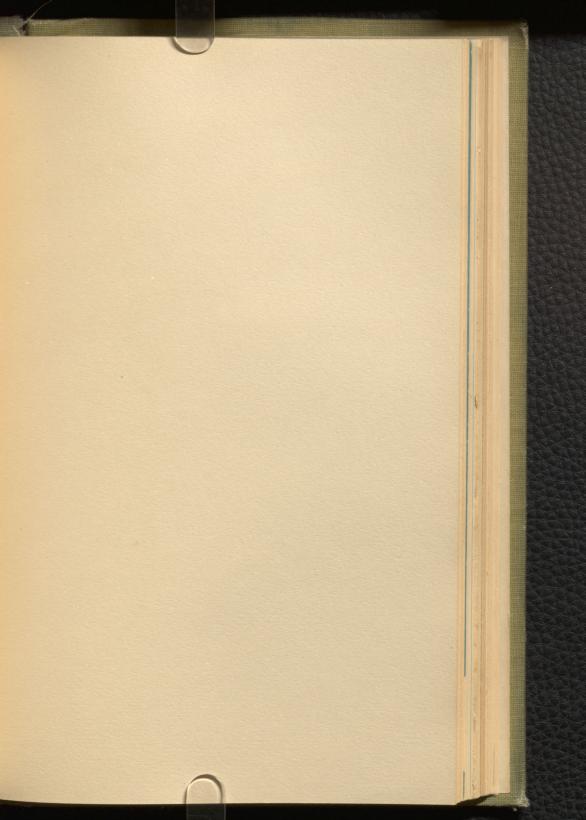




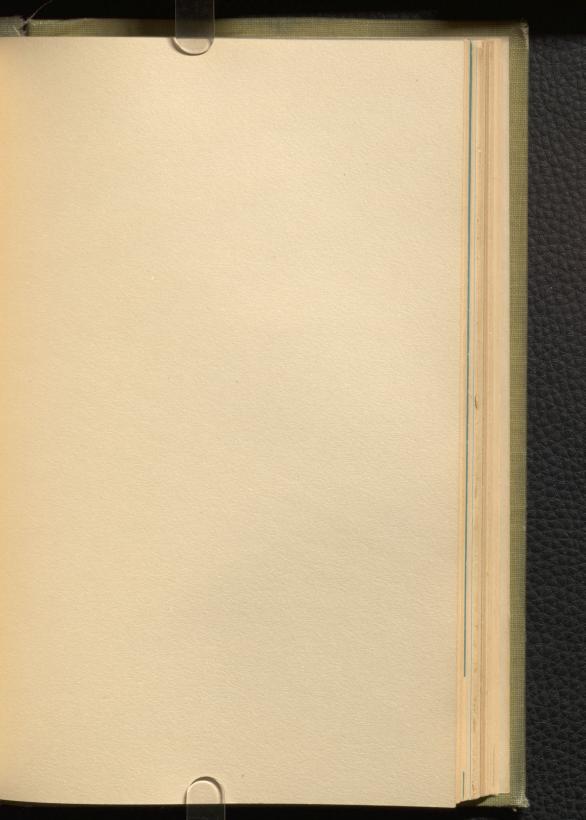


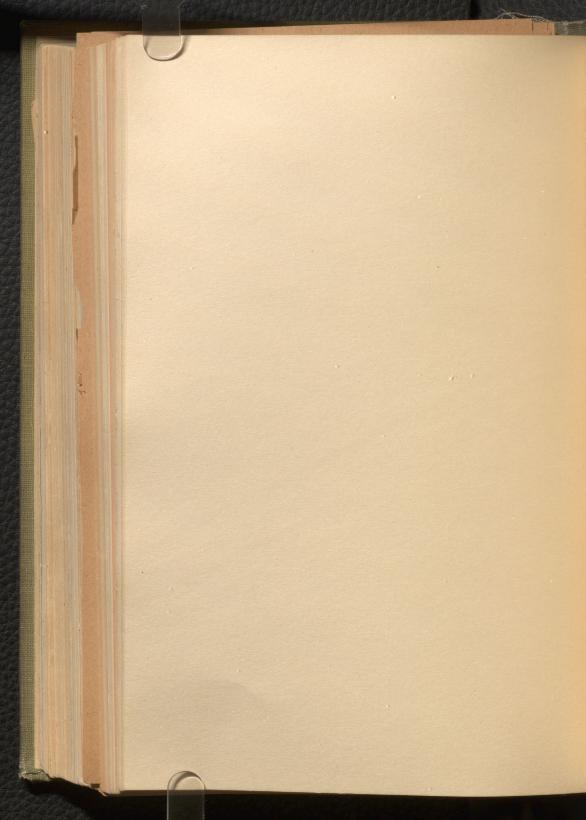


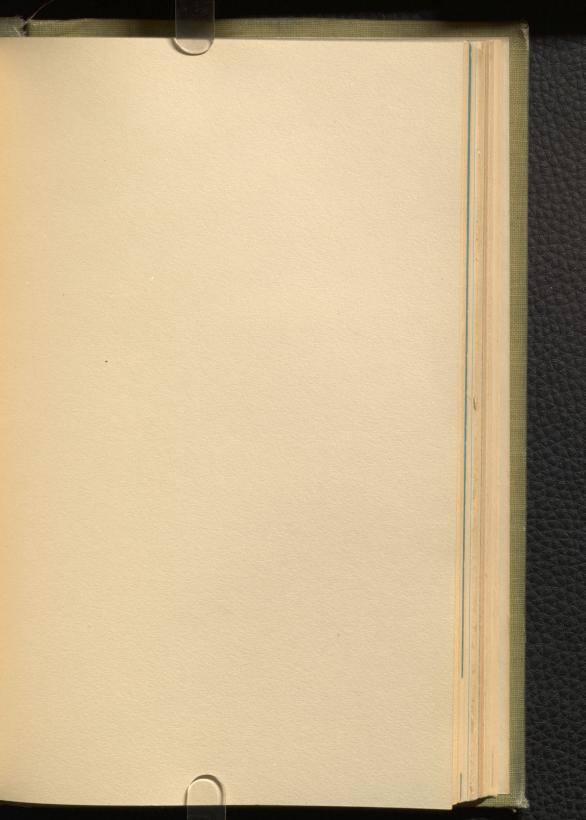


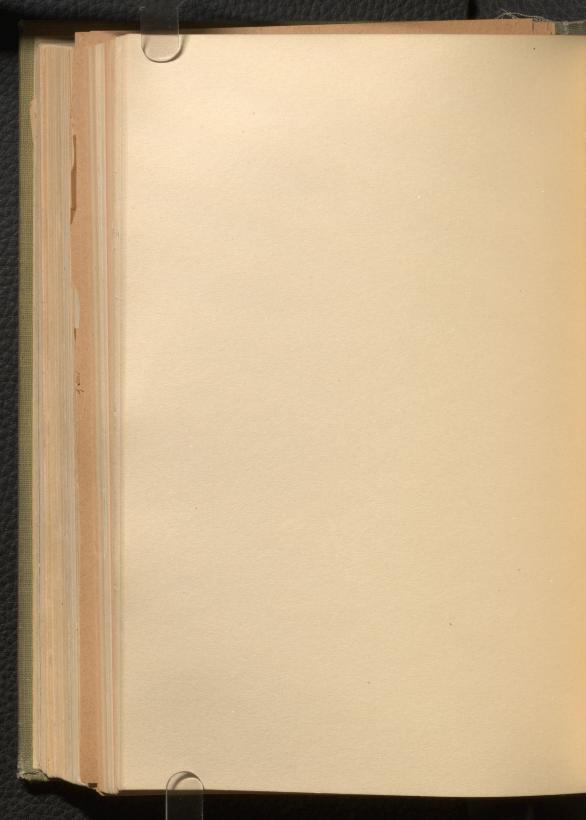


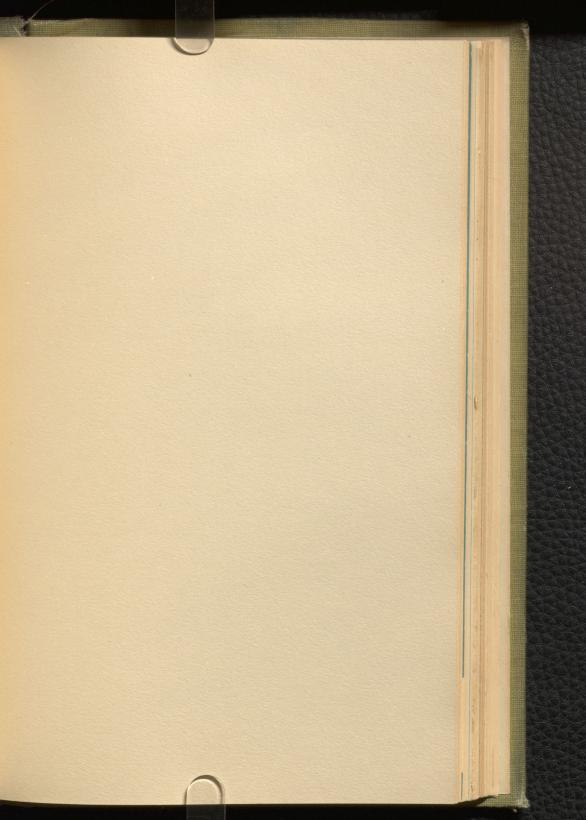


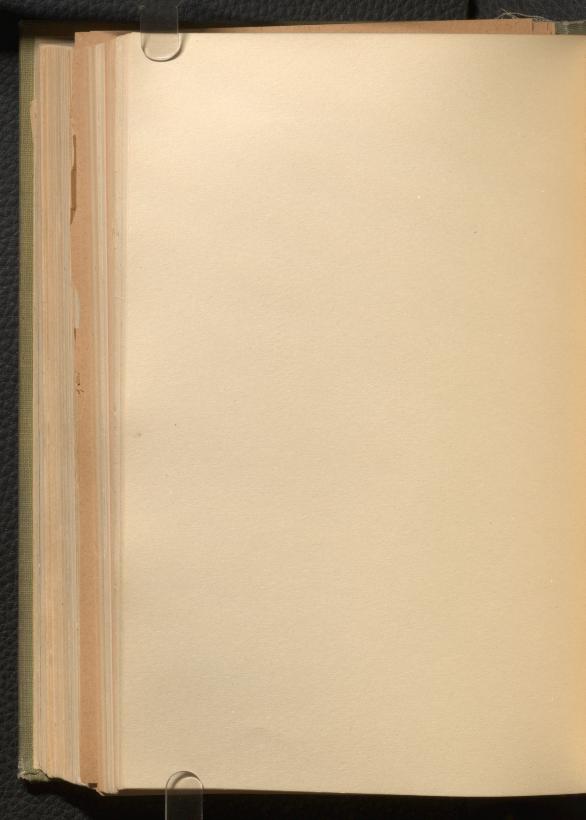


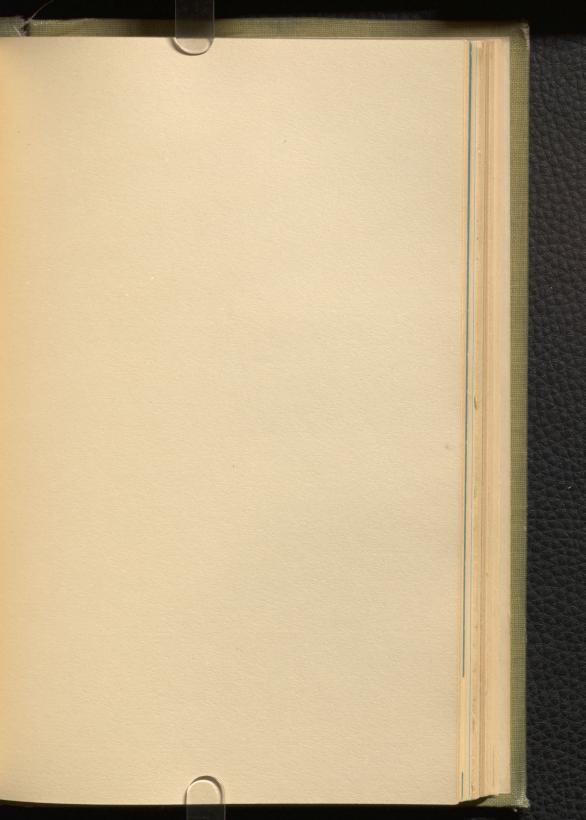


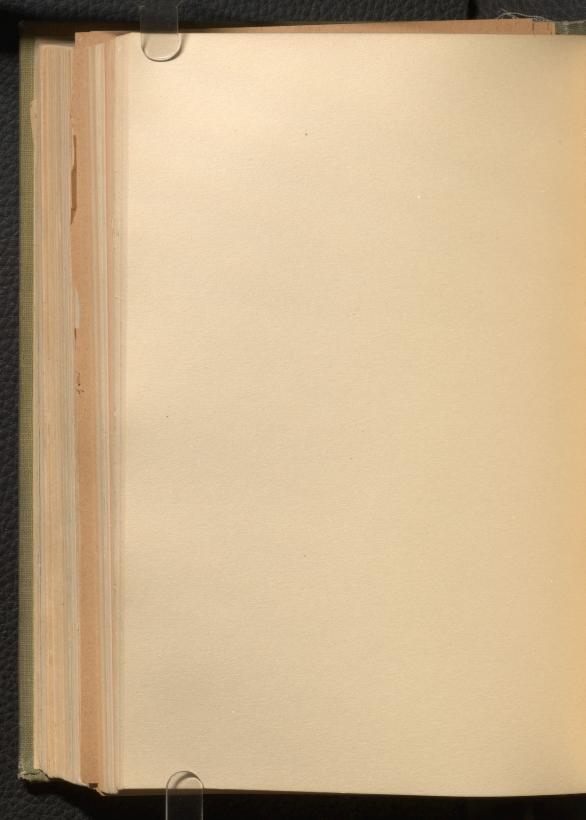


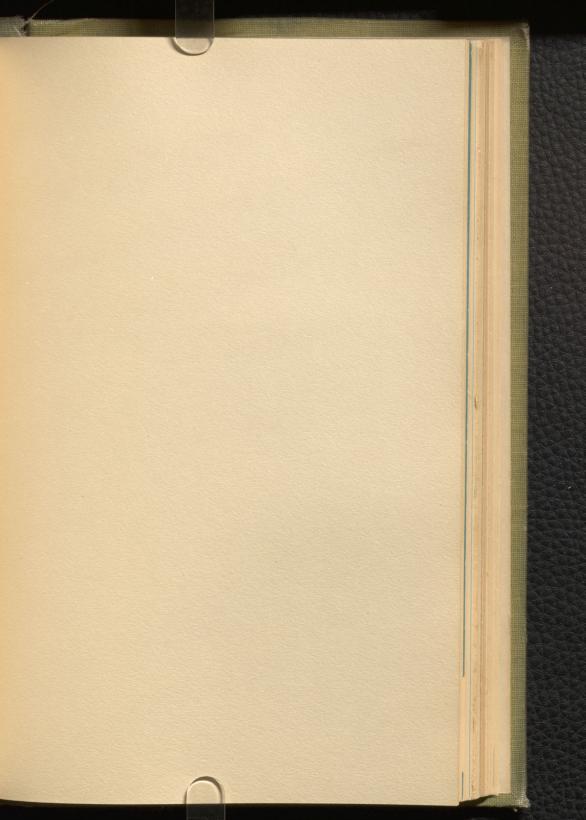


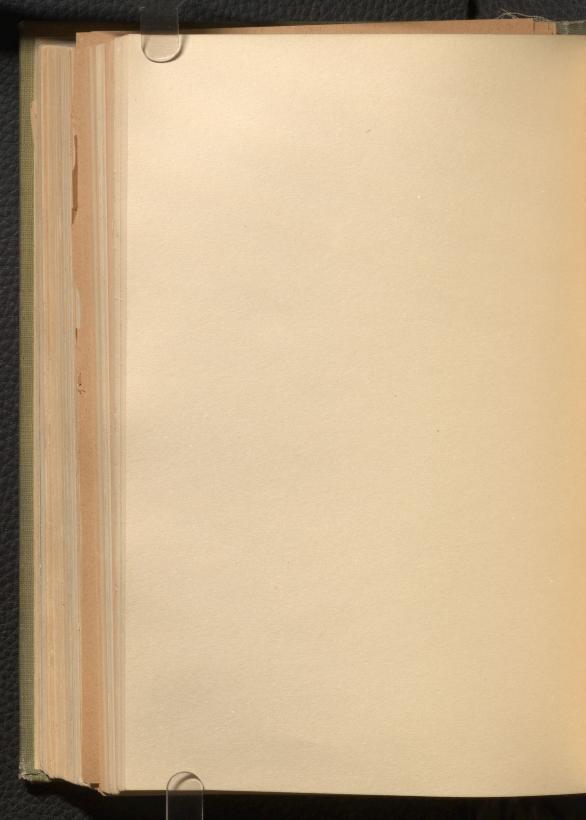


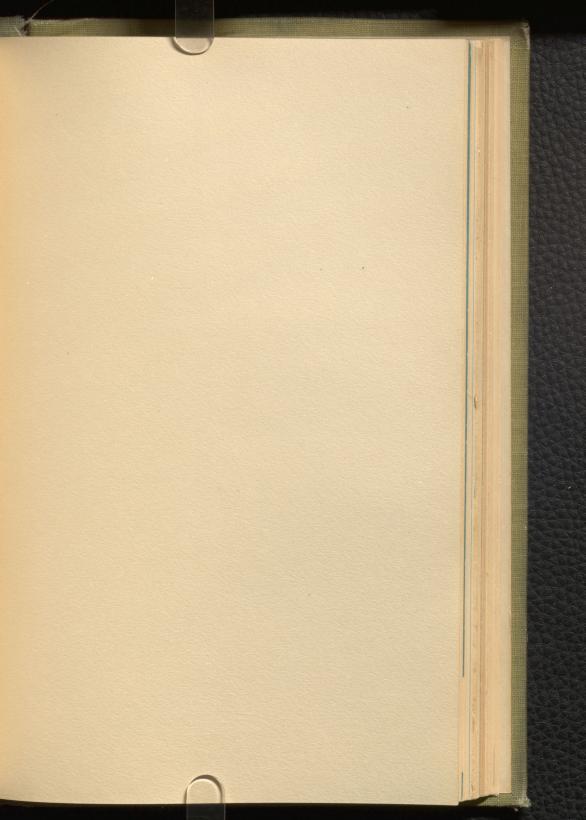


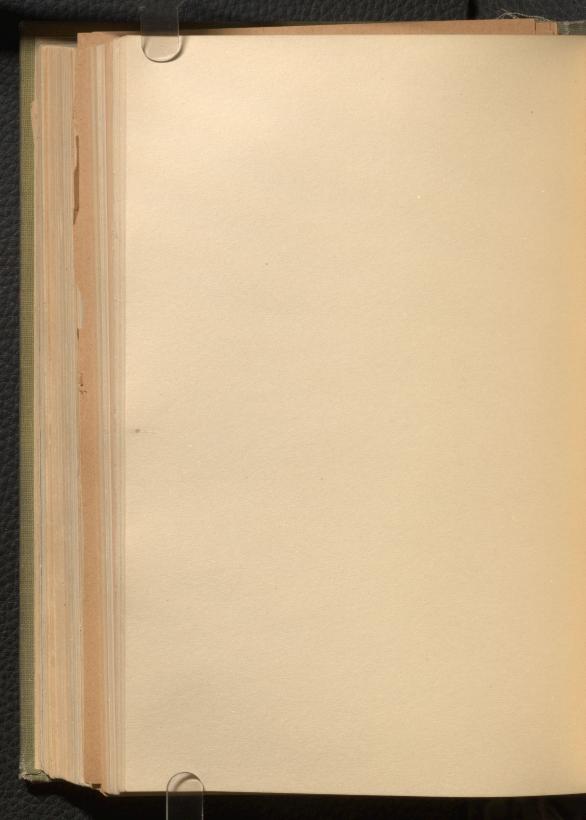


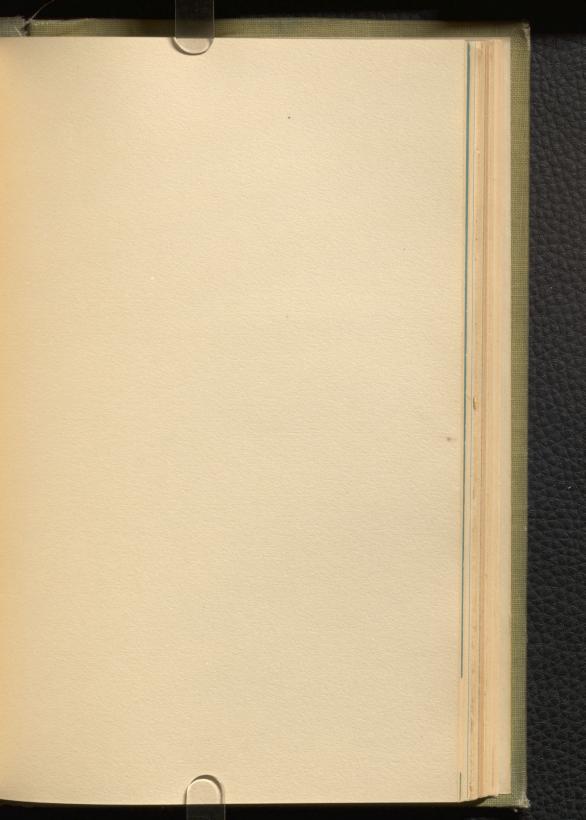


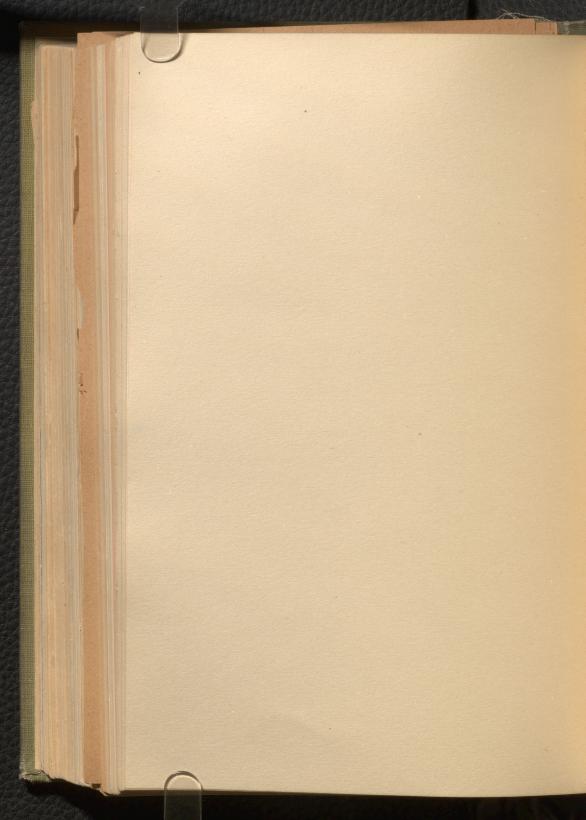


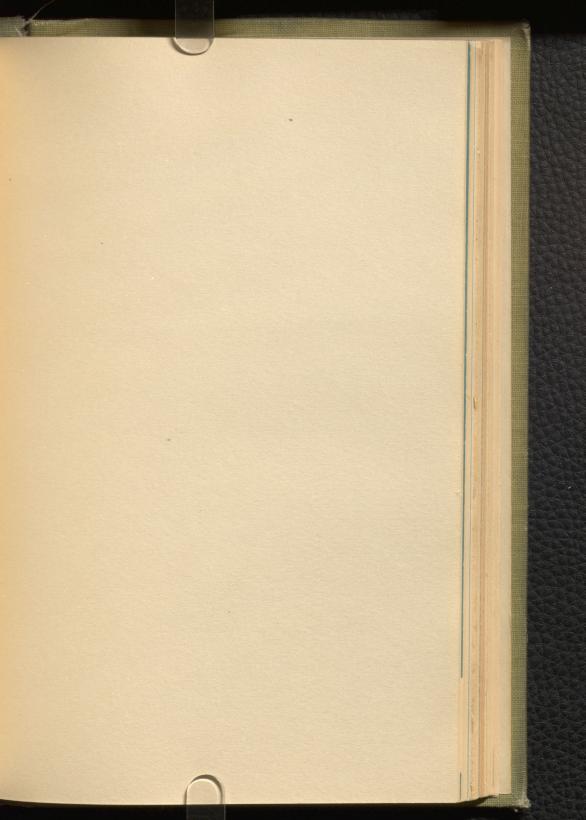


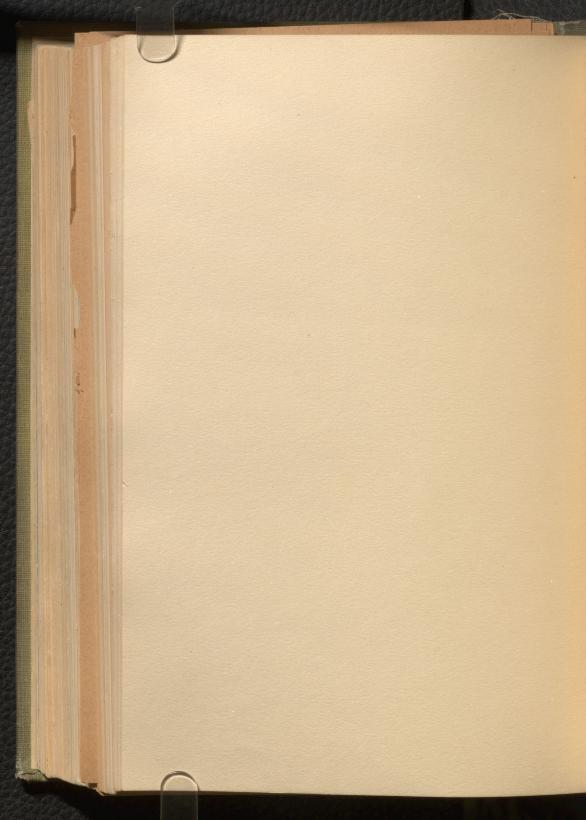


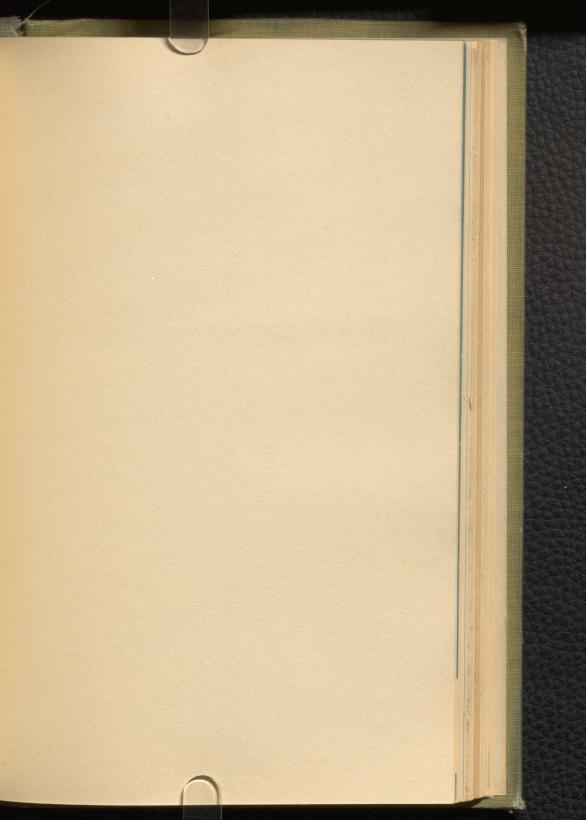


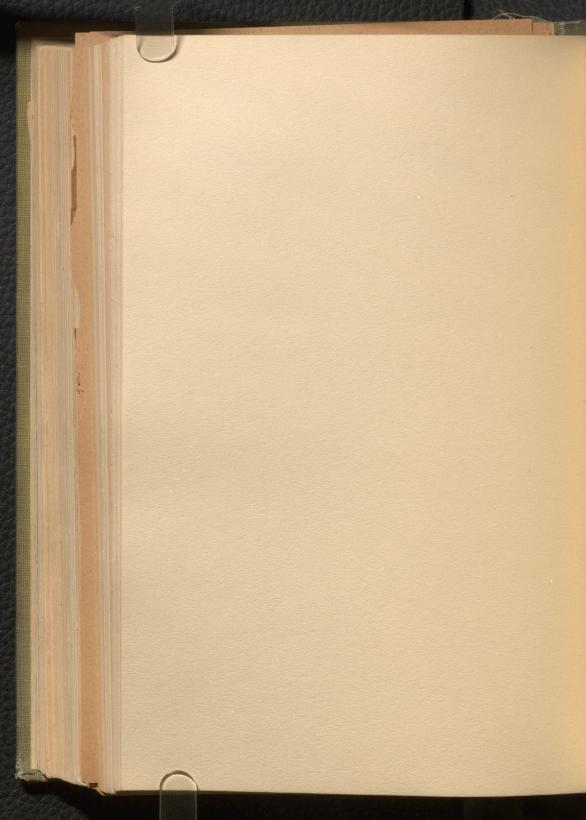


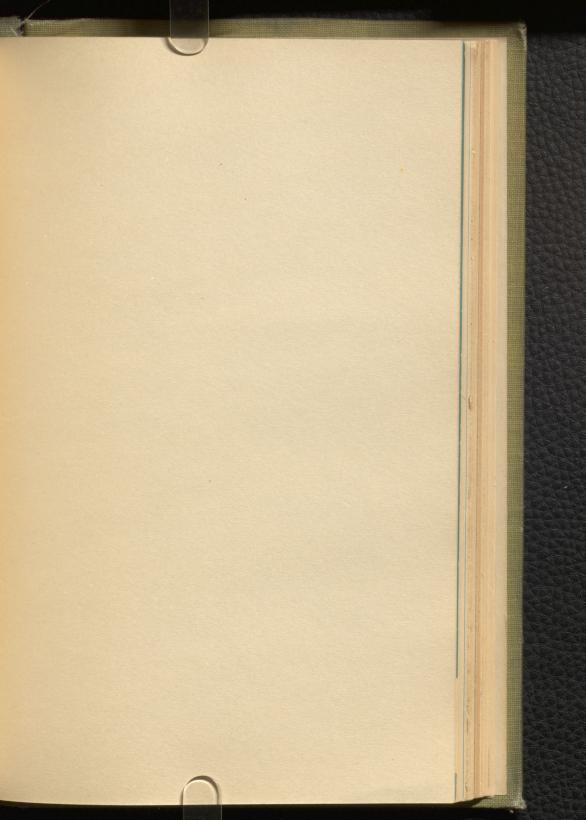


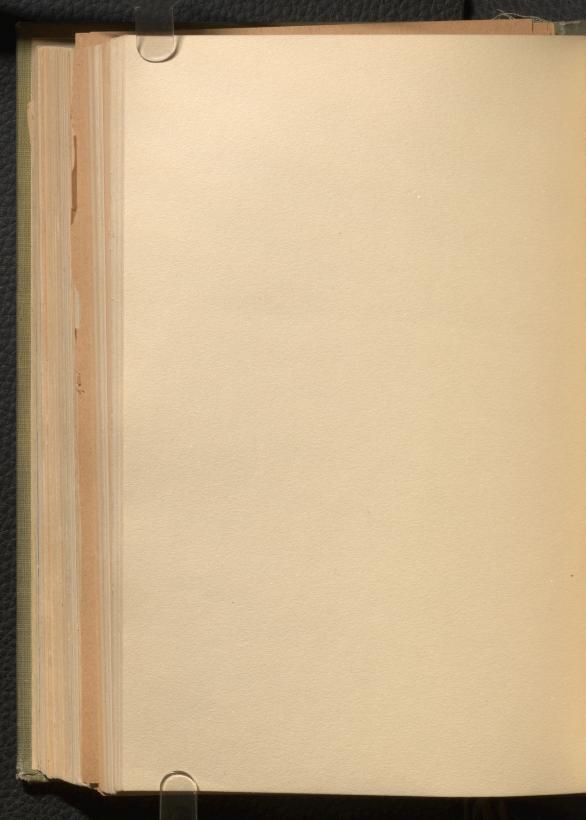


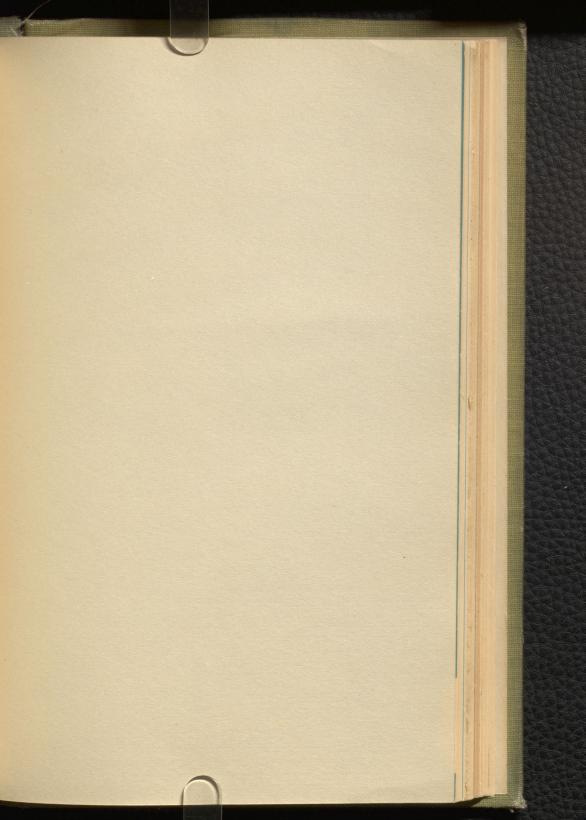


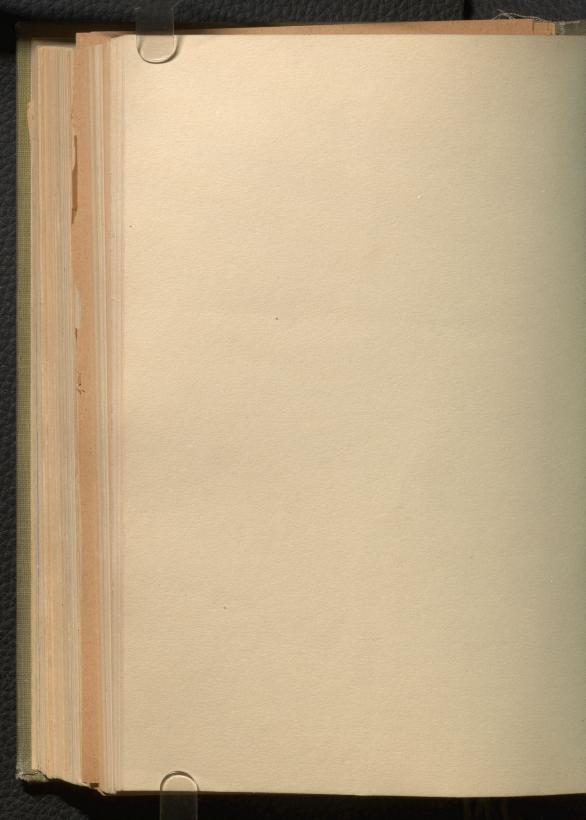












## PROCEEDINGS

AT THE

### ANNUAL MEETING

OF THE

# NATURAL HISTORY SOCIETY

OF MONTREAL.

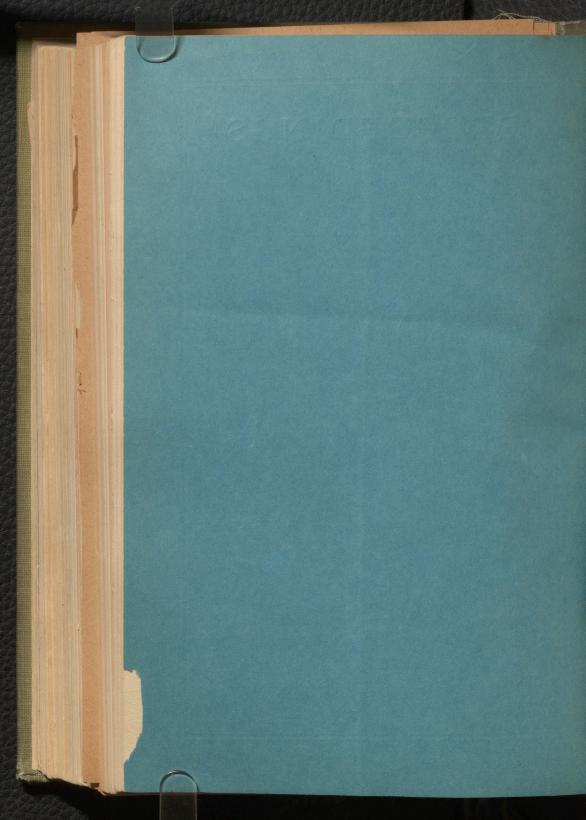
FOR THE YEAR ENDING MAY 18th, 1877.

WITH A

LIST OF THE OFFICERS, RESIDENT MEMBERS, AND ASSOCIATES OF THE SOCIETY.

#### MONTREAL:

MITCHELL & WILSON, PRINTERS, St. PETER STREET. 1877.



#### NATURAL HISTORY SOCIETY.

#### PROCEEDINGS AT THE ANNUAL MEETING

The annual meeting was held on the 18th of May, 1877.

The minutes of the last annual meeting having been read, the annual address was delivered by the President, Principal Dawson, as follows:

#### ANNUAL ADDRESS.

In closing another Session of this Society, we naturally turn to the work of the past year, and in this address it is more especially our scientific labours that claim attention. What have we done in the past year for the advancement of science, and for the credit of our country as one of the civilized nations of the world? I would not underrate what we have accomplished for the popular diffusion of knowledge, by means of our museum, our excursions and our popular lectures, but the original investigations which we have given to the world constitute our best title to regard as a scientific association.

In the course of the winter nine original communications have been laid before thie Society; and of these the greater number have appeared or will appear in our Journal. Of these communications two; namely, that on Inscriptions from Easter Island presented by Mr. D. Robertson, and Notes on Animals of India, did not refer to the natural history of this country. With respect to the former, however, I may say that it has a connection with America in the circumstance that so many indications point to a migration of civilized or semi-civilized men into America by way of the Pacific, and to the probability that Easter Island was one of the stations in this migration. Mr. Hyde Clarke and Dr. Wilson have both directed attention to this subject, and have shown that in languages and physical features there are links of connection between the Polynesian and the Peruvian races, and that the ruins of large stone buildings found in so many of the Polynesian Islands, as well as the arts practised in those islands, point to similar conclusions. The possession of a sort of picture writing for the keeping of family and tribal

records in Easter Island, and the not very remote resemblance of this to some familiar American contrivances of the same kind, furnishes an additional link of connection. On the often disputed question of the source or sources of the aboriginal American population, it now seems to be the settled conclusion of archaeology that we have good evidence of prehistoric migrations of man into America by Behring's Straits from Northern Asia; by the Pacific Islands from Southern Asia; and by the Equatorial Atlantic, by way of the Canaries and West India Islands. To these we have to add the probability of Chinese and Japanese ships having at various times been drifted upon the Pacific coast, and the discovery of Greenland and part of the mainland of America by the Norsemen in the tenth century. Thus there seems to be not one way merely but several in which America may have received its early population, and by which we may account for the native races of America with their languages and customs merely as derivatives from the old world, and without supposing these tribes to be true Autochthones.

Two very interesting communications of a geological character were those of Prof. Hind on the Geology of Labrador, and of Mr. G. M. Dawson on Recent Elevations and Subsidences of the Land in British Columbia. Remote though these regions are from each other, they present some remarkable points of similarity, especially in relation to their more recent geological his-In both we have the evidence of the great glacial age. In both the surface glaciation and transport of boulders seem to have been caused by the joint or successive action of water-borne ice, and glaciers. In both there are the most remarkable evidences of submergence to a great depth in the Post-pliocene age. It is a remarkable illustration of the vastness of the geological changes which have occurred in comparatively modern times, that we should find on the mountains of the Pacific Coast and those of the North Atlantic seaboard the indications of a common submergence, and this of very great amount. Such vicissitudes are not to be accounted for by merely local causes, but by grand agencies effecting at once a whole hemisphere or the whole earth.

In British Columbia there seems to be good evidence of the submergence of the land to such an extent that sea margins occur 5270 feet above the level of the sea, and at various elevations between this and the present sea level. In the Rocky Moun-

tains Mr. Dawson had previously measured the height of similar terraces 4400 feet above the sea. While those great depressions occurred in the Post-pliocene period, there is evidence to show that in the preceding Pliocene age the land in British Columbia may have been 900 feet higher than at present. On the other hand, in modern times the coast would seem to have been going down at a rate in some cases of as much as ten to fifteen feet in a century; while there are Indian traditions of sudden waves overflowing the land, and perhaps occasioned by earthquake movements. With reference to these modern changes, it should be observed that British Columbia forms a part of that great band of volcanic and seismic activity which extends along the west coast of America, and which presents in our own time and in the more recent geological periods, evidences of agencies which have long slumbered on the eastern margin of the continent.

On our own side of America, the numerous terraces so well developed on the Lower St. Lawrence, mark the stages of recession of the Post-pliocene ocean. Mr. Richardson informs me that he has found one of these terraces on the west coast of Newfoundland, at a height of 1225 feet above the sea. On Belœil Mountain, in our own neighbourhood, we find travelled Laurentian stones which must have been water-borne, at a height of nearly 1200 feet, and if the travelled stones found by Prof. Hitchcock on Mount Washington have been deposited by floating ice, then the highest summits of our mountains must have been under water at the time of the greatest Post-pliocene submergence. Mr. Milne Home has recently directed attention to many facts of similar import which are being accumulated in Great Britain and in Norway. Geologists are thus beginning to realize the evidence of a prevalence of the sea over the Northern hemisphere in the most recent of the geological periods; which at one time they would have regarded with the utmost scepticism.

While noticing these papers, I would also direct attention to the evidence which they afford as to the action of sea-borne ice as distinguished from that of glaciers; and in connection with this it is important to note the influence attributed to floating pack ice and "pan ice" by the officers of the late Arctic expedition, as well as by Prof. Hind and by Prof. Milne in recent papers in the Geological Magazine. On the other hand the observations of Hellond on the glaciers of Greenland, published in the Geological Magazine, state the interesting fact that one of the great

glaciers of that country flows seaward at the surprising rate of 20 metres in a day, and gives off a vast abundance of bergs, more or less laden with earthy matter and boulders. A fact like this helps us to understand the gigantic furrows ploughed by some of the old local glaciers of the Laurentian hills, and of which the sluggish glaciers of the modern Alps afford no adequate explanation.

All these new facts tend to strengthen the conclusion that general submergence and the action of floating ice and of local glaciers afford the causes at work in the so-called glacial age.

In the department of Zoology we have reason to congratulate ourselves on the communication of Dr. Osler on the Fresh-water Polyzoa of Canada. These remarkable and interesting animals, though abundant in our canals and ponds and slower streams, have as yet received little attention. The contribution of Dr. Osler brought under our notice several species; some of them forming communities of considerable size, and all of them of very great interest and beauty.

Our attention was called by Dr. Carpenter to the subject of Zoological nomenclature, in connection with a circular issued by Mr. Dalle on behalf of the American Association for the Advancement of Science. With the replies prepared by Dr. Carpenter most of us I think in the main agree; and while we regard as very reprehensible many of the eccentricities of genus-makers and species-makers, more concerned to gain credit to themselves than to advance the interests of science, we equally reprobate the over-scrupulous antiquarianism which would revive uncertain and forgotten names to the exclusion of those sanctioned by long use. There is perhaps little hope that these evils can be wholly remedied in the present state of science, when there is in this respect no king in Israel, and every man does what is right in his own eyes. We believe however that the old rules sanctioned by the British Association, with a moderate amount of self-abnegation and common sense, will be sufficient to secure all that is really necessary.

The lamented death of Mr. Billings is a heavy blow to this Society, as well as to the cause of science in Canada; and one of our meetings was appropriately occupied with an obituary notice by his successor, Mr. Whiteaves. It is not necessary for me to refer to the details contained in that notice. I may remark however that Mr. Billings may be considered as the creator

of Canadian Palæontology, in so far as the Invertebrate fossils of the Palæozoic rocks are concerned. This department he built up from its foundations, and built so extensively and so well, that it will be long before his work can be hidden from view by any additions to be made by his successors. As a worker he was painstaking and cautious rather than rapid, and his results were always regarded with respect and confidence by those engaged in similar pursuits elsewhere. He was not a mere describer of species, but a geologist of sound and broad views, and his earlier works show a power of lucid and popular presentation of his subject which it is perhaps to be regretted he did not follow up in his later years. One of his greatest failings was a certain shrinking from publicity, which rendered him indisposed to take a prominent position even in the work of our own Society, and still more tended to prevent him from entering into any presentation of his favourite studies to the general public in any other form than that of official reports and scientific papers. Such men as Mr. Billings are produced in small numbers in any country, and it may be long before Canada possesses as one of her own sons a second Billings. It is however a remarkable coincidence that such a man should have been preparing himself to second the work of Sir William Logan just at the time when Palæontological work had become a prime necessity for the Canadian Survey.

I have reserved to the last some remarks connected with the subject of my own paper on the Geology of the Intercolonial Railway, and which subject I desire here to refer to in a somewhat broad and discursive manner, demanded I think by the present condition of science and the industrial arts in this country. I would in this connection desire to direct your attention to the immense importance of that great public work, and to the effects which would flow from a further extension of similar enterprise in the west. I can remember a time when the isolation of the Maritime provinces from Canada proper was almost absolute. There was a nearly impassable wilderness between, and no steamers on the waters, and the few whom business or adventure caused to travel from Halifax or St. John to Quebec or Montreal, had to undertake a costly and circuitous journey through the United States, or to submit to almost interminable staging through a wilderness, or to the delays of some sailing craft on the St. Lawrence. In later times steamboats have

supplied a less tedious mode of communication, and now we see placards informing us that the Intercolonial carries passengers from Quebec to Halifax in twenty-six hours. But it has done more than this. The traveller may now see the coal of Nova Scotia travelling upward to Quebec, and the fresh fish of the Atlantic ooast abundantly supplied in our markets, while the agricultural products of the interior travel seawards in return. This is however but the beginning of a great change. A delegation of coal owners was in Ottawa last month endeavouring to attract the attention of members of the Legislature to the fact that Ontario might be cheaply supplied with coal from Nova Scotia in return for her farm products. The representation led to no immediate practical results, but it foreshadows a great future change. Living as we do on the borders of that great nation without any name, except that of America, which does not belong to it, and which builds an almost impassable wall of commercial restriction along its frontier, we cannot long endure the one-sided exchange of commodities which takes place at present so much to our disadvantage. The Nova Scotian cannot buy flour and manufactured goods from a people who refuse to take his coal and iron in exchange; and the Ontarian or Quebecker cannot afford to have the commercial connection with the mother country severed in favour of a nation which will not take the products of our fields, our forests, our mines or our granaries in exchange. We shall have in self-defence to cultivate our own internal trade, and even if we must bring the products of the Pacific and Atlantic Coasts across a whole continent to meet each other, this will be cheaper in the end than to sacrifice our own interests and those of the empire to the Chinese policy of our neighbours in the South.

The diversities of products in countries depends much on differences in latitude, but there are also diversities depending on longitude, and, fortunately our country possesses these in no small degree. On our Atlantic coast we have rich fisheries and minerals not possessed by the interior regions. In these last, through all the great regions extending from Quebec to the Rocky Mountains, we have vast breadths of fertile soil besides many of the elements of mineral wealth, and varied kinds of manufactures are growing up both on the coast and inland. What is to hinder a direct exchange of commodities within ourselves instead of an indirect exchange under the most serious

disadvantages with the United States. Further, such direct exchange would increase our trade with Great Britain and the West Indies, and bind together the somewhat divergent sections of our own population. The opening up of railway communication across the great western plain might do for us what a similar process has done for New York. But from a railway terminus on the Pacific shore we could stretch our commercial relations over that great ocean, and bring all the treasures of the Orient to enrich our markets. Further, in establishing communication with British Columbia, we are not merely establishing a landing place on the Pacific, though this would be an inestimable advantage. British Columbia is in the mining point of view, one of the richest portions of the earth's surface. It is of more value acre for acre than any portion of the Eastern States or of Canada proper. In an appendix attached to a recent report on the Pacific railway, Mr. G. M. Dawson has collected some details as to the mineral wealth of this region. He mentions gold-fields yielding now more than a million and a half of dollars annually. In eighteen years British Columbia with only 10,000 inhabitants has exported gold to the amount of 40,000,000 of dollars; and it is no exaggeration to say that with a larger population and better means of conveyance this yield might be increased twenty fold.

Coal exists on Vancouver's Island and the neighbouring mainland in inexhaustible abundance, and of excellent quality, and represents the sole supplies of that mineral on the Pacific coast of North America. British Columbia might supply the whole Pacific coast and a vast interior region, and might produce many millions of tons annually.

Iron, silver and copper are known to exist in productive quantities, and there is reason to believe that mercury, lead, and platinum might be added.

In short, British Columbia possesses all that mineral wealth which has enriched California and the States adjoining it; and the opening up of communication between it and other parts of the Dominion would be the beginning of a series of events that would build up great and wealthy cities and populous seats of industry in a region now scarcely inhabited, and cut off from direct intercourse with the other provinces politically connected with it.

What the Intercolonial has begun to do for our relations with

the Atlantic provinces, the Canada Pacific must do for our relations with the Pacific province; and if I could present before you in a prophetic picture all that would follow from the establishment of such a connection, and the trade of the great sea and lands beyond, which might flow through our country, you as citizens of a commercial city, as well as in the capacity of votaries of science and scientific art, would at once say that at almost any sacrifice this great work should be executed. The difficulties in the way are undoubtedly great—so great that this generation of Canadians should scarcely be called upon to overcome them unaided, but they are probably not insurmountable, and the mode of meeting them is certainly at present the greatest public problem that our statesmen have to solve. It is further undoubtedly the duty of those whose scientific studies show them the grandeur of this great question and the nature of the practical results of its adlution, to aid in every way that they can the progress towards an unobstructed highway through our territory from the Atlantic to the Pacific.

If it is in our power thus to bring together the resources of the whole breadth of the Continent, we may hope to consolidate our connection with the Mother Country by making ourselves indispensable to her interests, to relieve ourselves from the galling commercial yoke laid upon us by our neighbors, to provide homes and work for the surplus population of our older provinces, to build up the wealth of great trading centres, and to render vast and naturally wealthy regions productive of subsistence for millions of men.

When I look forward to the future of this country and base my anticipations, not on the merely human elements of to-day, but on the geologic treasures laid up in past ages, I see the Dominion of Canada with a population as great as that of the United States, and with some of the greatest and wealthiest cities of this continent in Nova Scotia and British Columbia. Geologists are not merely prophets of the past, they know something of the future as well. It might perhaps be well if we could inoculate our statesmen with a healthy belief in the geological future of Canada, or even with some faint idea of the billions of dollars of accessible treasures that lie beneath the soil of British Columbia and Nova Scotia. We might then see them put forth some effort to realize this El Dorado within the time of those now living, rather than contentedly allow it to wait the action of men wiser and more energetic than ourselves.

Of the future of our own Society I shall say little. Much must depend on a judicious selection of officers, much on the liberality which the public may extend to us, much on the earnest efforts which our working members may put forth, and this not merely in the pursuit of new truths, but in cultivating in others a desire for that knowledge which we know from our own experience to be in itself one of the richest treasures which the world affords.

It is a matter of deep regret to us on this occasion that a recent Act of the Dominion Parliament renders it possible that the Geological Survey of Canada, which has since its commencement had its domicile in this city as the centre of commerce and practical science in the Dominion, may within one or two years be removed to Ottawa. That this, should it be carried into effect, would be a serious loss to this Society, the large number of papers and lectures contributed by members of the Survey, and the active part they have taken in the management of its affairs as officers and members testify. The removal of the Survey would also have its effect on the University, and on the interests of the numerous students who resort to this city for education, as well as on those of gentlemen connected with the numerous mining and similar enterprises which have their centre here. Nor would such removal be without injurious influence on the Survey itself. This Society was the first public body to urge on the Government the undertaking of a scientific survey. The Natural History Society, the University and the citizens generally, have always supported the interests and aided the work of the Survey, and have in many ways promoted its efficiency. Nor can an institution possessing a Museum and Labratories which are the growth of so many years, be hastily removed without serious loss, only to be repaired by renewed effort and the lapse of time.

But to my mind these local considerations are overborne by the change in the constitution of the Survey which has been made, rather, I fear, in the spirit of a narrow bureaucracy than of an enlightened regard for science. Hitherto the Survey, while nominally under the control of an Ottawa Department, has been in reality an independent institution, recognized as such abroad. Its directors and principal officers have been men whose reputation has far transcended that of the gentlemen who temporarily occupy departmental offices at the seat of government. It is now to be a branch of the Civil Service, a mere appendage

to the Department of the Interior. The effect of this may not be felt for a time, but it must eventually tend to deprive the Survey of its independent scientific action, to diminish its importance and consideration abroad, and perhaps in the end to reduce it to a mere industrial bureau, or to place it in the uneasy position of that American Survey of the Territories, which is in like manner attached to the Department of the Interior: but which is there supplemented by the military surveys, and by the surveys of the several states, some of which in their scientific results have far surpassed it. There can be no doubt that considerations of this kind weighed with the eminent and sagacious Canadian who founded the Survey and raised it to its present position of importance, in inducing him so strenuously to oppose its removal to Ottawa. It is to be wished that his fears may not be realised; but I cannot refrain from expressing my own strong conviction that these fears were well founded. The clause providing for the removal of the Survey is, however, not mandatory but only permissive. The carrying it into effect would involve a large expenditure and most serious loss, and would certainly contribute something to the cry beginning to arise, not only in this Province but in those of the Atlantic and Pacific Coasts, that this country is governed, not in the interests of the Empire or of the Dominion in its whole extent, but in those of a section of the people of Ontario. Let us hope that wiser counsels may prevail, or that some turn of the political wheel may suggest other measures or bring in other men.

The report of the Chairman of Council was next read by Mr. G. L. Marler.

#### REPORT OF THE CHAIRMAN OF COUNCIL.

At the close of another session, your Council beg to submit the following short summary of its proceedings during the year, with an occasional note on other matters connected with the business working of the Society.

A field-day was held at Belœil Mountain on Saturday, June 10th, 1876, which was attended by about eighty persons, and a very enjoyable day was spent. It is to be regretted, however, that the receipts on this occasion were not sufficient to meet the necessary expenditure, a circumstance probably owing to the unfavourable aspect of the weather at starting.

On the seventh of September last our Scientific Curator and Rec. Secretary, Mr. J. F. Whiteaves, who has held these offices for fourteen consecutive years, tendered his resignation of both, at a special meeting called for that purpose. Resolutions of thanks for his past services, coupled with congratulations on his new appointment and good wishes for his future scientific career, were passed at this meeting.

In consequence of Mr. Whiteaves' resignation, new arrangements were entered into with Mr. Passmore, who agreed to give his whole time to the work of the Society, and to issue circulars for meetings, &c., for which additional services his salary was raised from \$200 to \$400 per annum.

A Museum Committee was also appointed, consisting of seven gentlemen, whose duties were understood to be to superintend the classification and labelling of specimens in the departments of mineralogy, botany, conchology, entomology, ornithology, and archæology, and to report at stated intervals to the Council on the condition of these collections. The Committee has reported twice since its election, but your Council would suggest the desirability of the appointment of a competent scientific curator who could devote a definite portion of his time to work urgently needed both in the museum and library.

Your Council have to report that ten new ordinary members, two lady associates, and two new corresponding members have been elected during the year. They have, however, to regret the loss of Mr. E. Billings, one of the Vice-Presidents of the Society, and one of its oldest and most zealous members.

The papers read at the regular monthly meetings having been already referred to in the President's address, call for no special notice here.

The free course of Sommerville lectures has been delivered in due course, and the titles of these lectures, the dates at which they were delivered, and the names of the authors, will be found in their proper place in the Society's proceedings. On the nights when these lectures were delivered, the museum was lit up and thrown open free to the public, a privilege of which many availed themselves.

About 1200 persons have visited the museum during the past year, and a large number of these have been admitted free of charge.

In accordance with a recommendation of the Council for the

previous year, the walls of the premises have been tinted, and the eeilings whitewashed; the contents of the cases in the museum have been taken out, and both the specimens and the interior of the cases have been dusted and cleaned.

In October last the use of the rooms was granted free of charge to the Protestant Teachers' Association of the Province of Quebec.

No further action has been taken in the matter of the Fraser Institute.

Finally your Council have to report that the name of Mr. J. Fraser Torrance has been associated with that of Dr. Harrington in the editorship of the *Canadian Naturalist*.

The report of the Scientific Curater and Rec. Secretary was then read by Mr. Whiteaves, as under:

REPORT OF THE SCIENTIFIC CURATOR AND REC. SECRETARY.

The report of the work done in the museum since the last annual meeting embraces only a period of three months, and during this time two days a week were spent at the Geological Survey, by special permission of the Society.

The critical examination of the Marine Polyzoa of the River and Gulf of the St. Lawrence has been almost completed; the Cyclostomata are quite finished, and the Cheilostomata and Ctenostomata nearly so. In the naming of difficult species much assistance has been rendered by the Rev. A. M. Norman, one of the best authorities in Europe on this group, to whom a number of specimens have been sent for comparison, which have been subsequently returned. Mr. Norman has also presented to the Society a large number of named British types.

The fine and interesting collections of marine invertebrates made by Mr. Richardson in 1875 on the west coast of America, have also been carefully studied, and critical forms of molluses, hydroids, and crustaceans have been sent respectively to Messrs. Dall, Verrill and Smith, which have also been returned. The whole series has now been named, with the exception of the Polyzoa, and a report on the whole is in process of preparation.

Some progress has also been made in the naming and mounting of the shells from the Andamans, presented by Col. Bulger.

A committee of the Entomological Society having requested the loan of rare Canadian insects for exhibition at the Centennial, a series has been selected and forwarded for that purpose. As soon as Mr. Pettit has completed the naming of the Coleoptera, the whole will be returned. In the late Mr. Ritchie's catalogue of the Island of Montreal, the Curculionidæ are omitted, probably because at the time no specialists had worked at this particular group. For some years Mr. Caulfield, Mr. Passmore, and myself have endeavoured to collect as many local species of this order as we could, and last summer, knowing that Drs. Horn and Leconte were engaged in a monograph of the group, all our material was sent to the latter gentleman, who has kindly named and returned all the species.

The rather extensive series of beetles collected in British Columbia by Mr. Selwyn and Prof. Macoun in 1875, has also been packed and forwarded to Dr. Leconte, and a list of them has been published in the Report of Progress just issued. This catalogue is an important addition to our knowledge of the distribution of insect life in the Dominion.

In consequence of the cleaning of the museum and the tinting of the walls mentioned in the report of the Chairman of Council, it has been necessary to take down all the ethnological specimens which were hanging in the gallery. These have been re hung in their places, but the labels for them have to be re-written. The mammals, birds, reptiles and fishes have also all been taken out of the cases, and after the inside of the latter had been dusted and cleansed, their previous contents were re-placed.

Appended to this short report is a general summary of the condition of the collections, at the date of my resignation of the office of Curator of the Museum.

#### MINERALS.

These are arranged in four series as follows:

1. The Holmes Collection. This originally consisted of about 4000 specimens, principally from the United States and Europe. A written catalogue accompanies it, but many of the original specimens were missing before the erection of this building. Cardboard labels corresponding to those in the catalogue are affixed on or near to each specimen.

2. Canadian Rocks and Minerals. A poor collection, of which a catalogue exists. It has been supplemented by some subsequent donations, but no special effort has been made to perfect it, in consequence of the presence in our midst of the fine and almost complete collection of the Survey. All the specimens are labelled like those last named, but both require going over, as some of the tickets may have become detached or misplaced.

3. A fine series of the Volcanic Rocks and Minerals of Vesuvius and its neighbourhood. All in good order and labelled, doubtful specimens having been kindly examined and determined

by Dr. T. Sterry Hunt.

4 Miscellaneous Rocks and Minerals. All labelled, with the name of the species and the locality from which it was collected, when known.

#### FOSSILS.

The fossils in the museum are mostly from the United States and Europe, the intention being to supplement the Survey Collection as far as possible, and to illustrate such manuals as those of Lyell, Phillips, Jukes and Dana. All are named and labelled, but only a portion of the late Sir Duncan Gibb's donation has been incorporated into its place in the general series.

#### PLANTS.

A collection filling 21 portfolios of North American plants, arranged according to the Natural System. Although corrosive sublimate was mixed with the paste with which the plants are fastened to the papers, it has been recently noticed that a small beetle has been and is still making burrows through some of the fasciculi, and the matter requires immediate attention.

#### INSECTS.

Some additional species, mostly scarce Coleoptera, have been added during the year, which were collected by Mr. Passmore and myself. My reports for the past two years give a detailed account of the work done in this department. It was found during the summer that the larvæ of *Dermestes lardarius* had done some damage to a few Lepidoptera in one of the drawers, and the specimens affected were destroyed, and measures were taken to prevent further injuries from this source, but the cabinet will always require periodic inspection.

#### MOLLUSCA AND MARINE INVERTEBRATA.

This part of the collection is in tolerable order, but the nomenclature of the species requires some revision.

#### FISHES AND REPTILES.

The stuffed specimens are in fair condition, though some improvement can be made in the labelling of the Canadian fishes, which were identified only in a provisional kind of way several years ago. A commencement has been made of a new collection of alcoholic preparations, which are temporarily placed in the vestibule, but this part of the work was stopped for want of a supply of good glass stoppered bottles and of alcohol.

#### BIRDS AND MAMMALS.

The series, especially of native species, badly wants replenishing with new and fresh specimens; but those we have, though though mostly old and often in very poor condition, are all carefully named. The Society's collection of the eggs of North American birds, is very good, and could be made of much value to students at a very trifling expense.

#### MISCELLANEOUS.

A number of objects of interest, such as Indian antiquities and modern ethnological objects, have been temporarily arranged in the best manner the cases at my disposal would admit. Quite a large number are contained in drawers, &c., there being no cases available for their proper exhibition.

#### THE GULF DREDGINGS.

The history of these investigations may be briefly summed up as follows: In 1867 and 1869 dredgings in the Gaspe district were carried on at my sole expense in the summer months, and these require no further comment. In 1871 the Government gave me, as the Society's representative, a passage and some opportunities for dredging on government vessels. The cost of the necessary outfit and travelling expenses, amounting to about \$120 or \$130 were shared by the Society and myself, the Society paying about \$90, and myself between \$30 and \$40. In 1872 and 1873 the Government defrayed all the expenses, but the Society paid my salary during the time of my absence.

All the alcoholic and many of the dry specimens obtained in these dredgings, with the exceptions which will shortly be noticed, are placed provisionally in a large cupboard in the vestibule, with five compartments, which was constructed for the purpose. A few of the mollusca and celenterates are incorporated into the general series in the gallery.

The whole of the collection of marine worms has been sent to Dr. McIntosh of Murthley, by Dunkeld, in Fifeshire, who is engaged in their examination, and who has published a report on part of them in the Annals of Natural History.

A few critical Polyzoa are also in the possession of the Rev. A. M. Norman.

The Ostracoda, which have been studied and reported on by Messrs. Robertson and Brady, have not yet been returned, but are still in the hands of the former gentleman.

Duplicates have been sent to Professors Verrill and Smith, of Yale College, and to Mr. Alfred Brown of Glasgow. From the former gentleman the Society has received a named series of marine invertebrates from their dredgings on the New England coast; and from Mr. Brown a number of species of exotic shells

As soon as I can find time to put my notes into shape, I propose to publish a final report on the results of the whole of these dredgings.

COLLECTIONS DEPOSITED BY THE GEOLOGICAL SURVEY.

These consist of marine invertebrates from the Gulf of Georgia and other parts of the west coast of British North America, for the most part dredged or collected by Mr. James Richardson, also of a collection of dried plants from the Pacific coast made by the same veteran explorer. These require to be labelled with tickets stating clearly to whom they belong, in case they should be claimed by the Government or by the Directors at any future time.

Finally, while resigning the offices of Scientific Curator and Recording Secretary, permit me to express the hope that the members generally will overlook or excuse any shortcomings or remissness on my part during the past fourteen years, and that they will believe that my sole object during this long period has been to endeavour to promote the advancement of knowledge and to popularize the study of Natural History in this city.

Mr. E. E. Shelton, as Treasurer, submitted the annexed financial statement:

	Mr. Passmore, " attend. meetings last year.  Mr. Foote, commission on collections. for Coal	1876-77.  By Balance in Treasurer's hands, May 17, 1876.  "Cash received, Government Grant.  "Member's Yearly Subs.—Ladies.  "Gentlemen 500.00  "Museum Entrance fees.  "Rent of rooms.  "Rent of rooms.  "Interest on Deposit in Bank.  "Second 17.  "Second 18.  "Secon
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### LIABILITIES:

Mortgage on Society's	Buildings in	favor	of Royal	
Institution	********			\$1000.00

Montreal, 17th May, 1877 Audited and found correct, after comparing Vouchers, &c.

J. H. Joseph, G. L. Marler. It was moved by A. R. C. Selwyn, seconded by Dr. J. Baker Edwards, and resolved:

"That the reports just read be adopted and printed separately for distribution to the members."

On motion of Mr. A. R. C. Selwyn, seconded by Mr. G. L. Marler, it was resolved unanimously:

"That Dr. P. P. Carpenter and Mr. J. F. Whiteaves be elected Honorary Life Members of the Society."

It was moved by Mr. Marler, seconded by Dr. J. Baker Edwards, and carried by acclamation:

"That the bye-law relating to officers be suspended, and that Principal Dawson be re-elected President."

Mr. Selwyn moved, seconded by Mr. Marler:

"That Mr. E. E. Shelton, be re-elected Treasurer."

The motion was carried unanimously.

On motion of Mr. Marler, seconded by Dr. J. Baker Edwards, Mr. F. W. Hicks, M.A., was elected Corresponding Secretary; and on motion of Mr. Selwyn, seconded by Mr. Shelton, Dr. J. Baker Edwards was elected Recording Secretary.

Messrs. M. H. Brissette and A. H. Foord having been elected scrutineers, the following gentlemen were elected officers, by ballot.

Vice-Presidents—Rev. A. DeSola, LL.D.; His Lordship the Metropolitan; Prof. P. J. Darey, M.A., B.C.L.; Dr. P. P. Carpenter; G. L. Marler, C. Robb, A. R. C. Selwyn, F.R.S., F.G.S.; Jas. Ferrier, Jr.

Council—Dr. W. Osler, R. W. McLachlan, J. F. Whiteaves, Prof. R. Bell, M. H. Brissette, J. H. Joseph, Dr. B. J. Harrington, J. B. Goode and W. Muir.

It was moved by Mr. Shelton, seconded by Dr. J. Baker Edwards, and resolved:

"That the members of the Library and Membership Committee be re-elected and that the names of Dr. Wolfred Nelson and J. Fraser Torrance be added to their number."

On motion of Dr. Wolfred Nelson, seconded by Mr. F. W. Hicks, a vote of thanks was passed to the officers of the past year, and a special vote to the same effect was also passed to the Scientific Curator for fourteen years services in that capacity, the mover being Mr. W. Muir and the seconder Dr. J. Baker Edwards.

# LIST OF RESIDENT MEMBERS

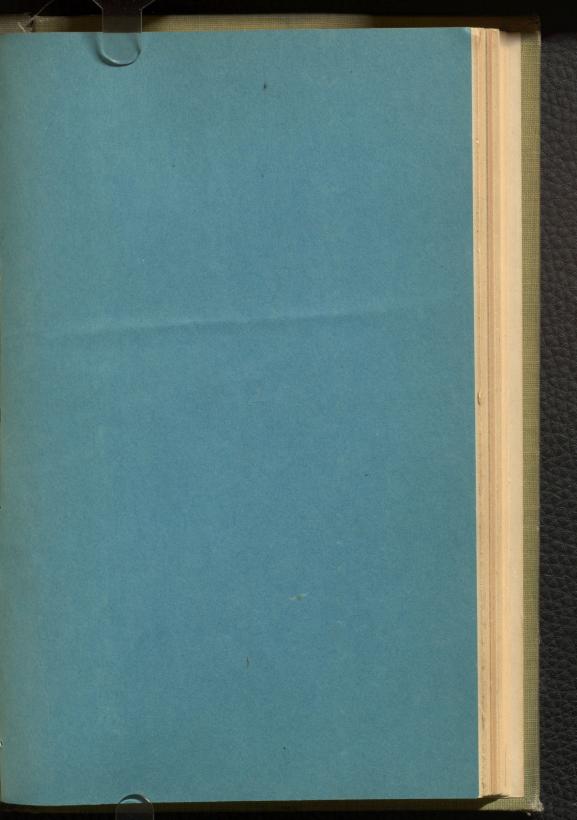
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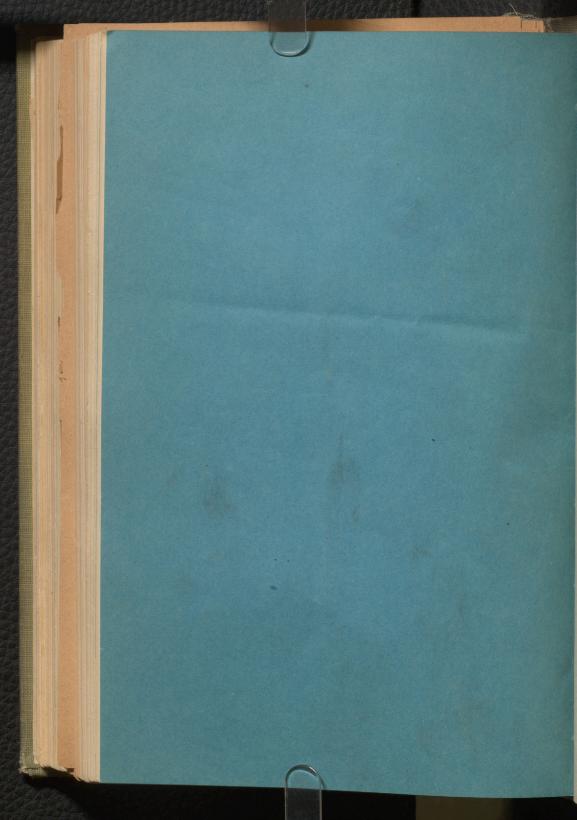
# NATURAL HISTORY SOCIETY OF MONTREAL.

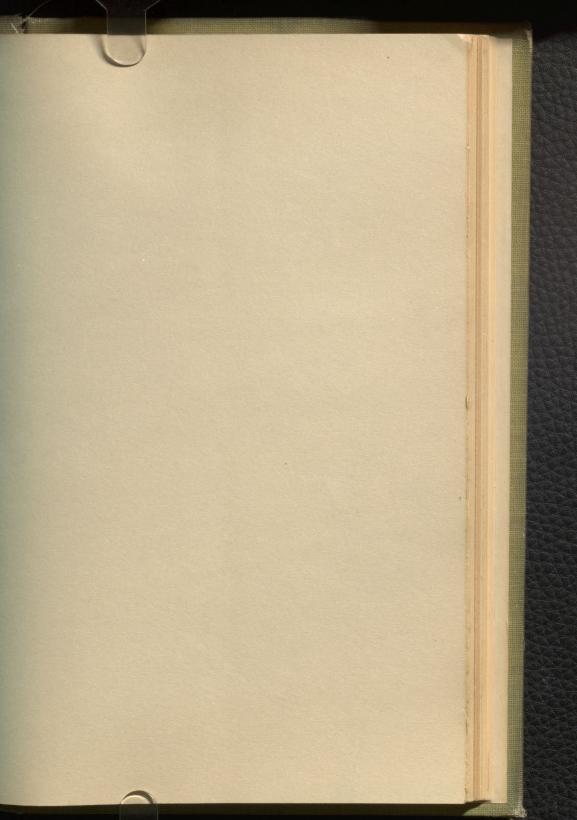
## LIFE MEMBERS.

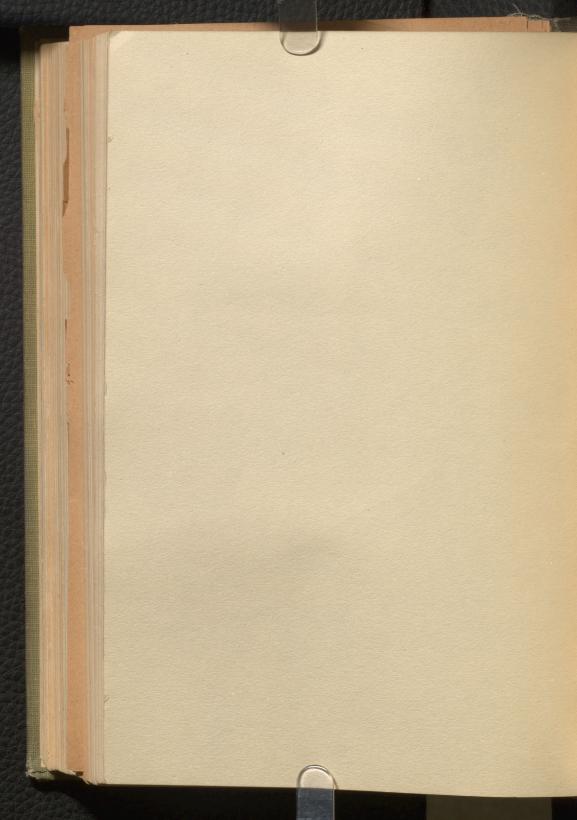
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CHAMPION BROWN, Esq.
HENRY CHAPMAN, Esq.
J. F. CLAXTON, Esq.
T. J. CLAXTON, Esq.
A. H. DAVID, Esq.
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REV. A. DE SOLA, LL.D.
G. A. DRUMMOND, Esq.
HON. JUDGE DUNKIN.
W. EWAN, Esq.
HON. JAMES FERRIER, M.L.C.
JAMES FERRIER, JUN., Esq.
W. H. HINGSTON, Esq., M.D.
WM. HOBBS, JUN., Esq.
HON. L. H. HOLTON. M.P.
HENRY. J. IBBOTSON, Esq.
J. H. JOSEPH, Esq.
W. F. KAY, Esq.
MAJOR L. A. H. LATOUR.
WILLIAM LUNN, Esq.

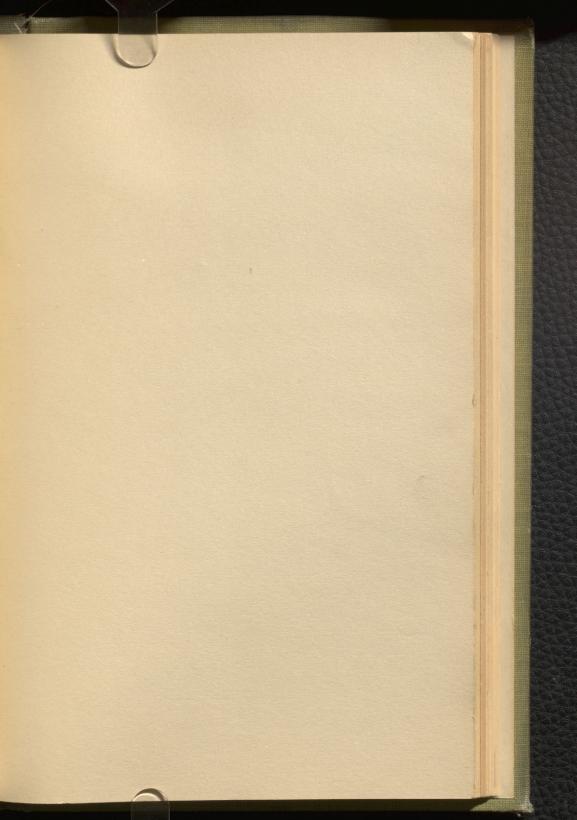
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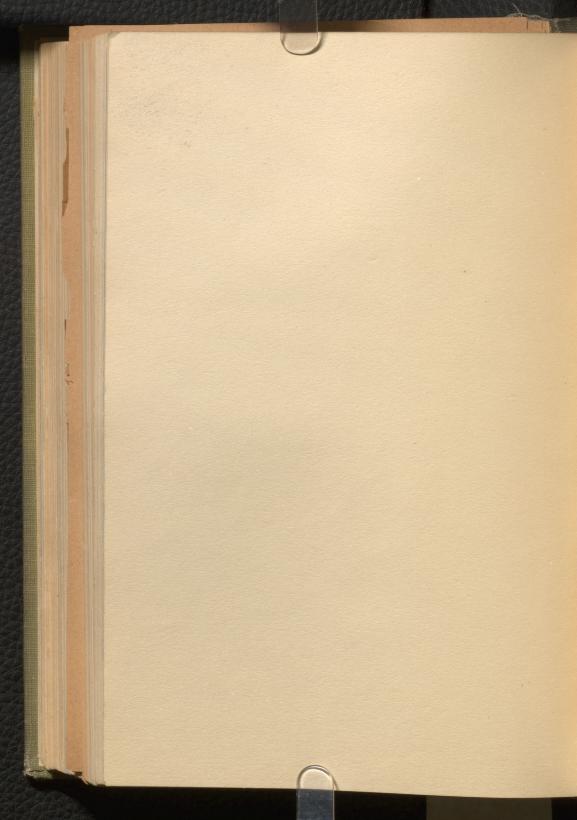


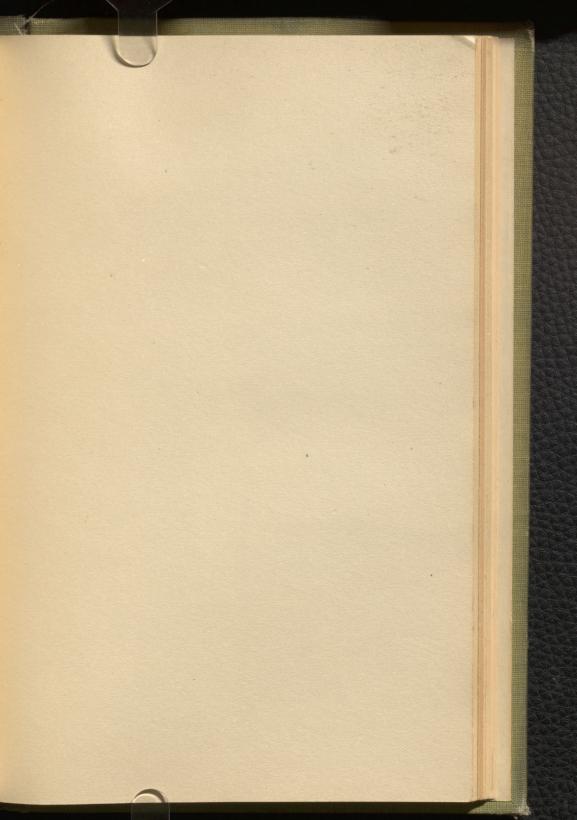


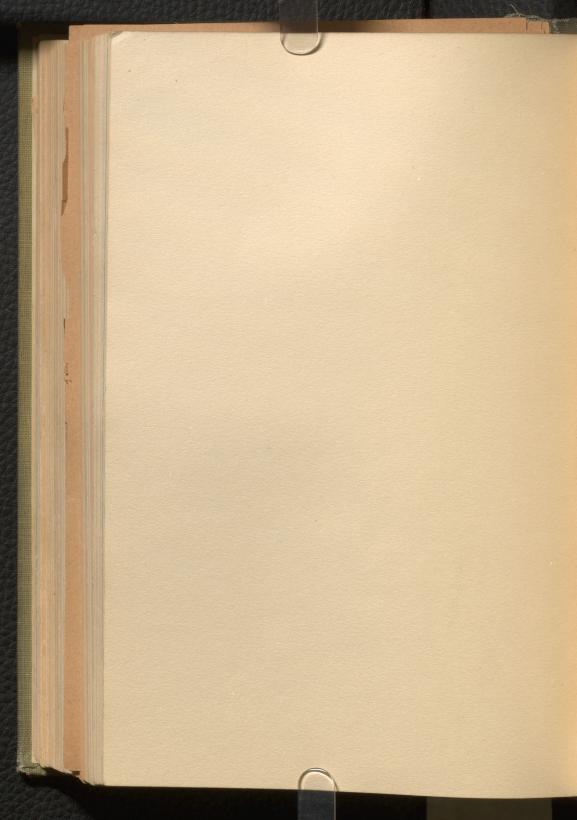


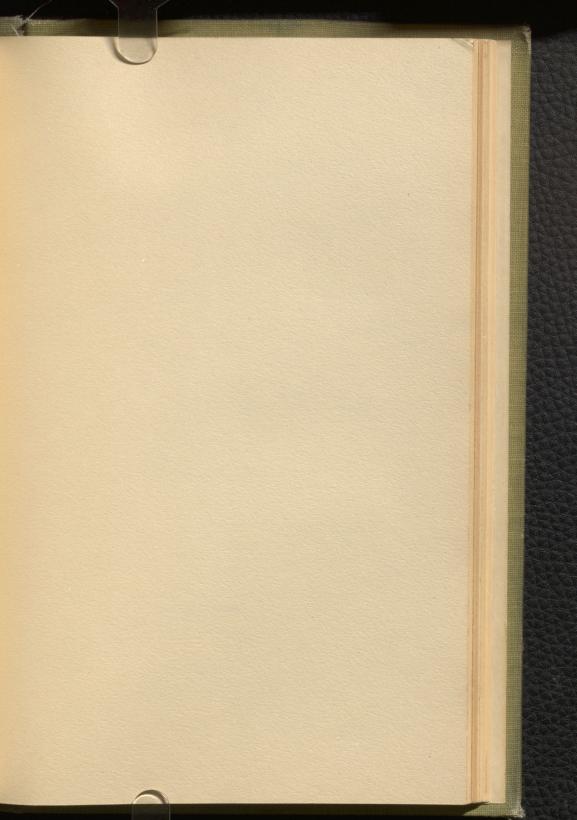


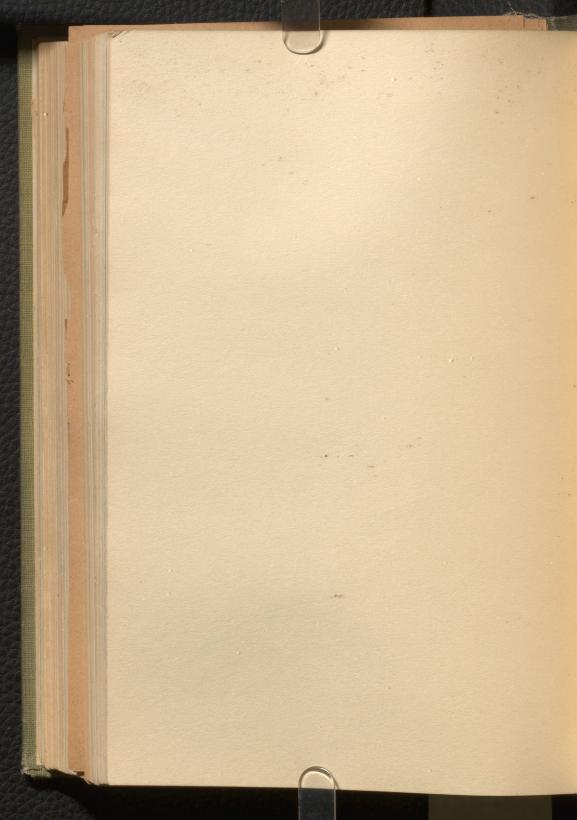


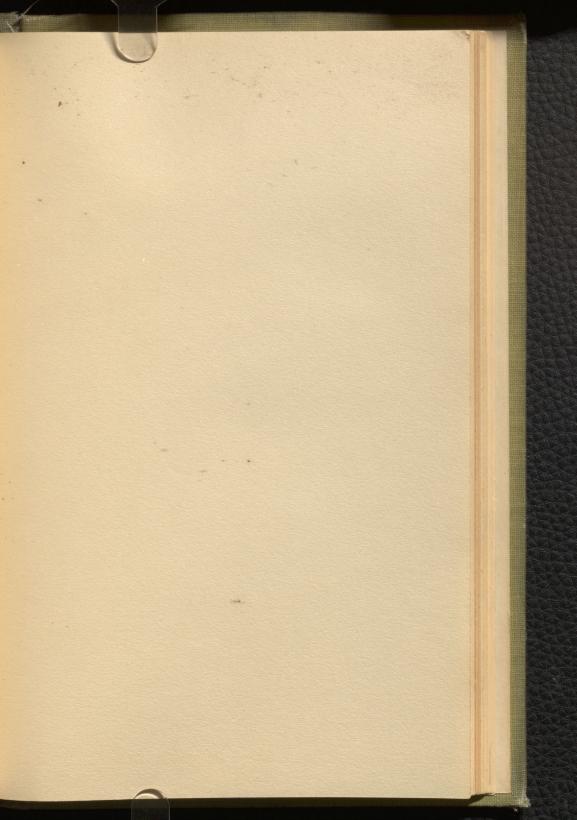


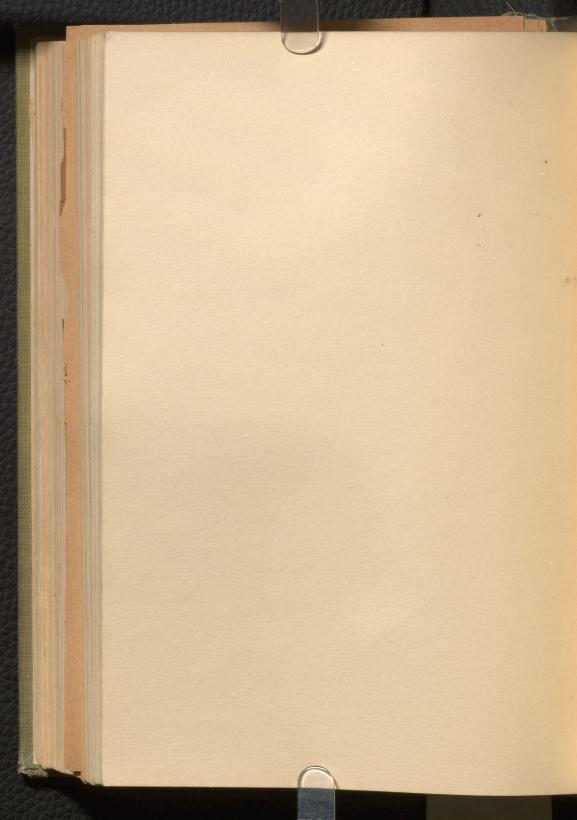


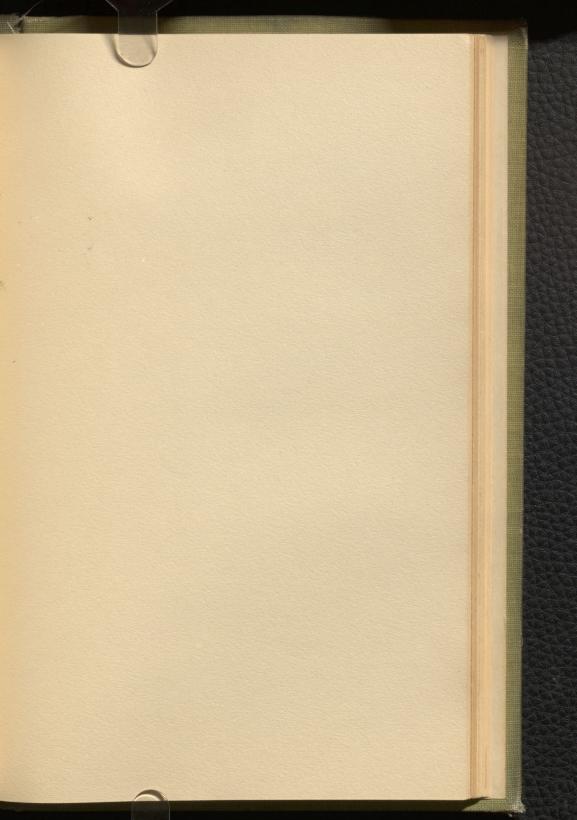


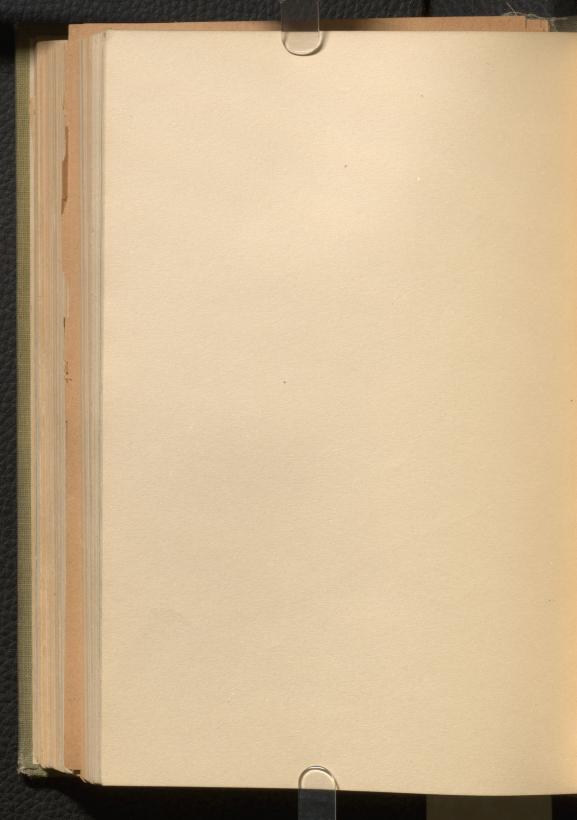


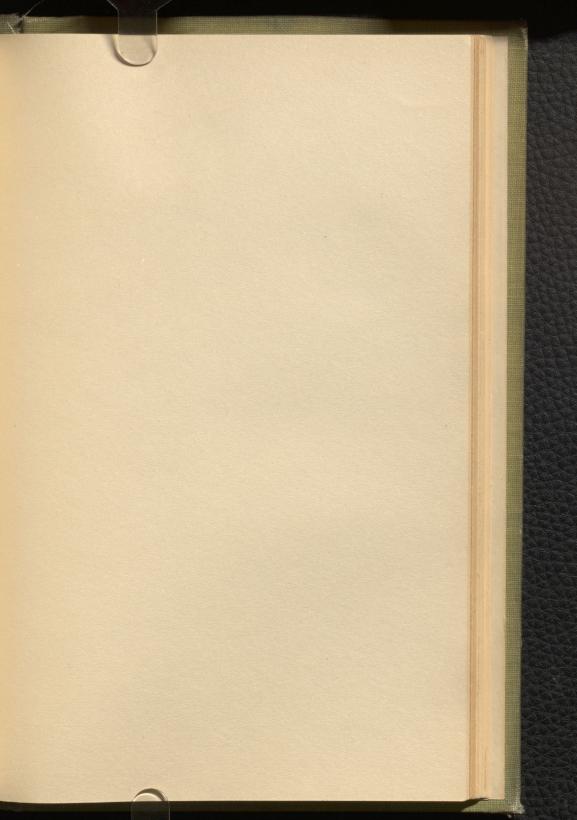


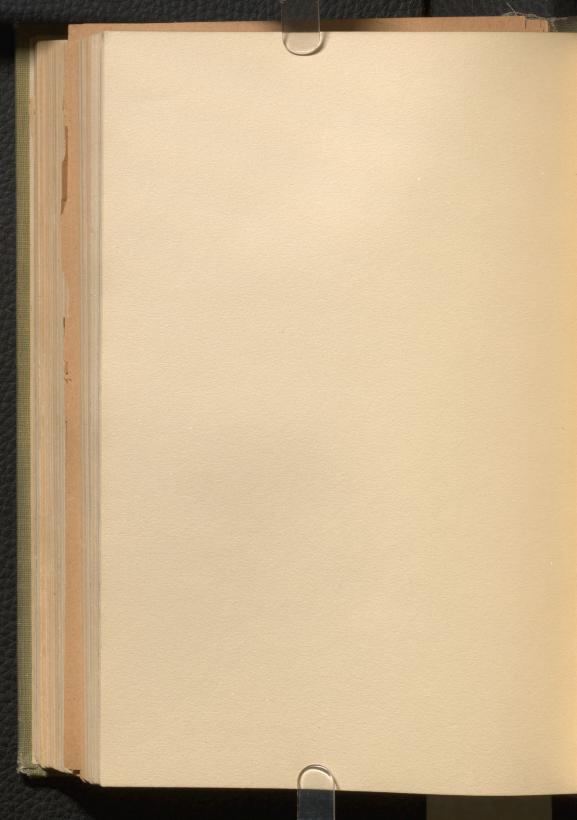


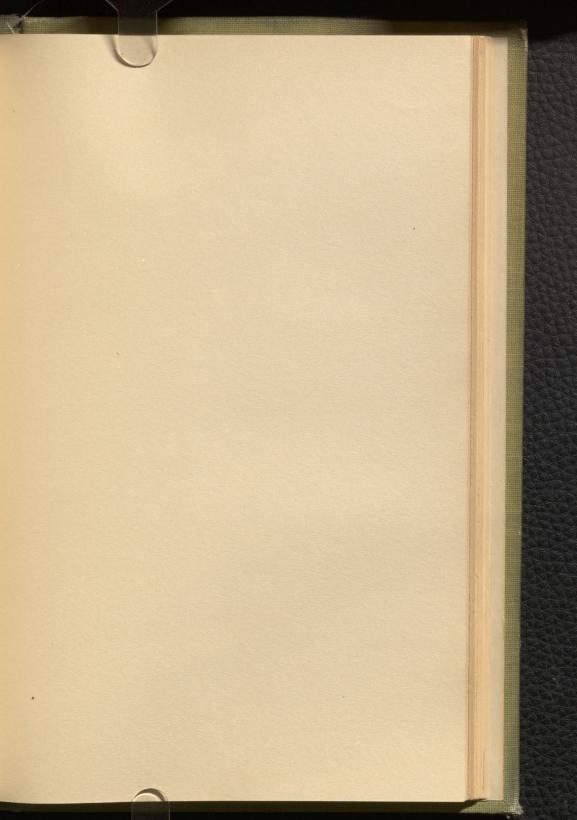


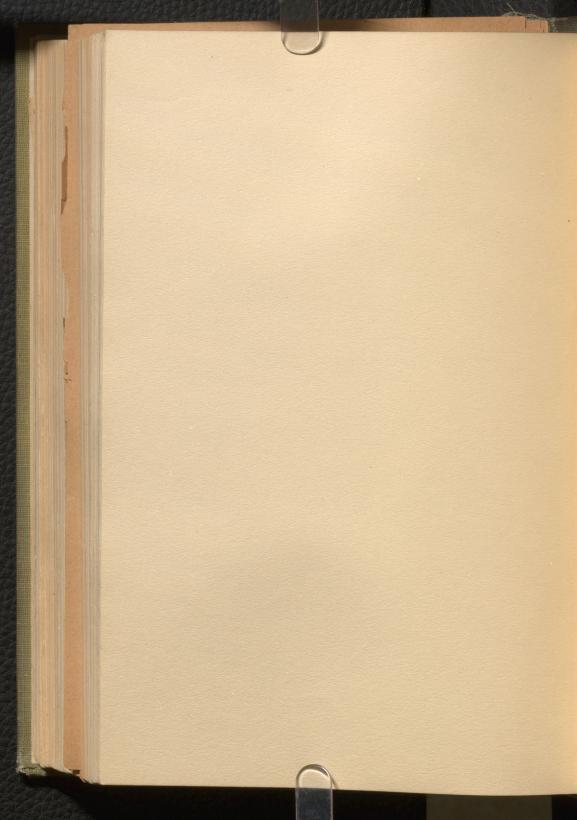


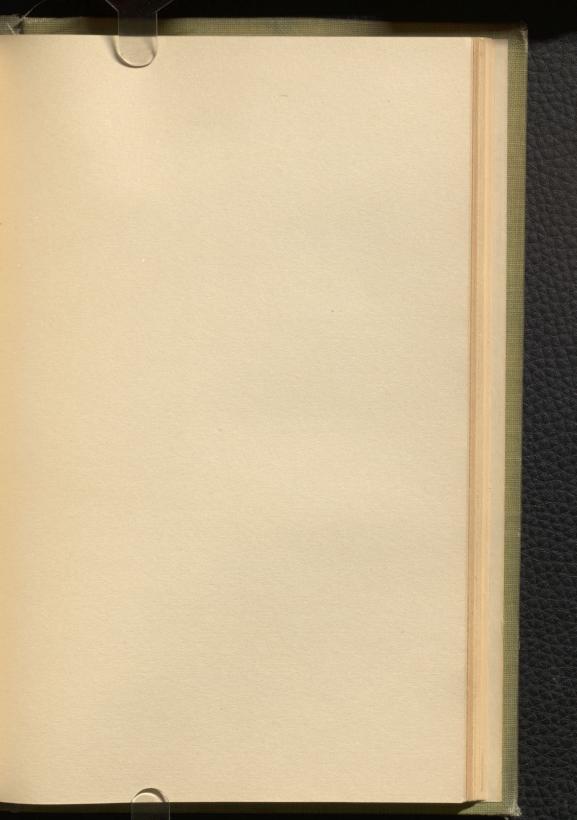


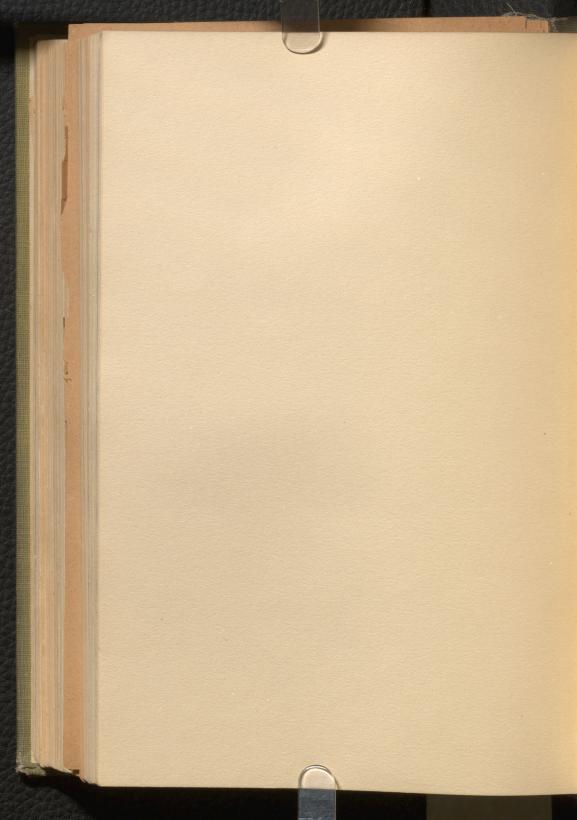


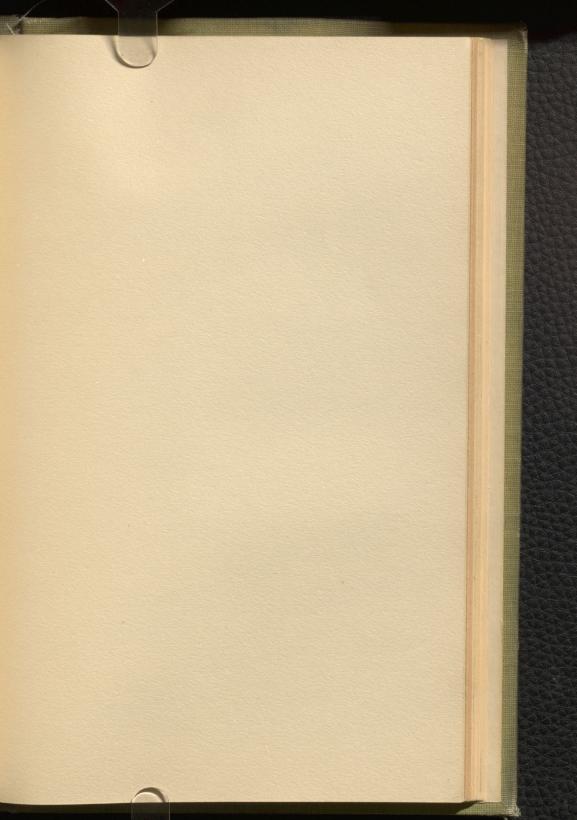


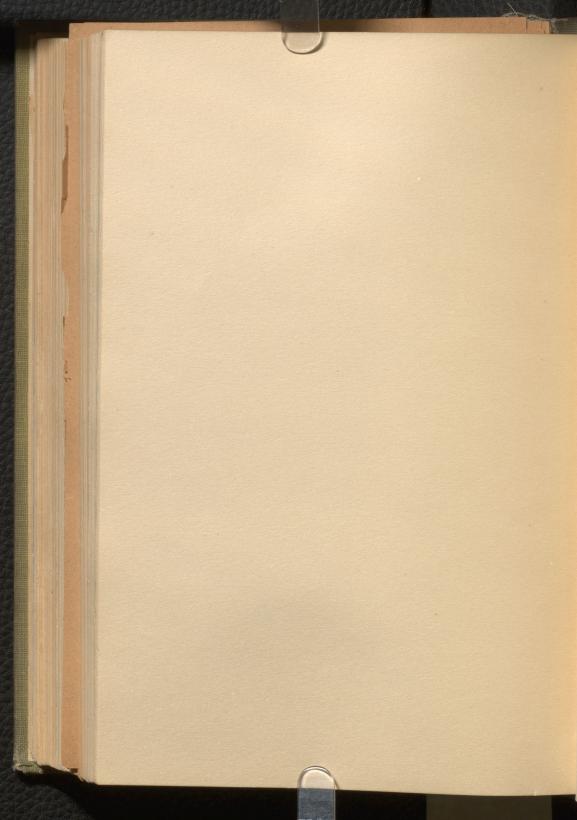


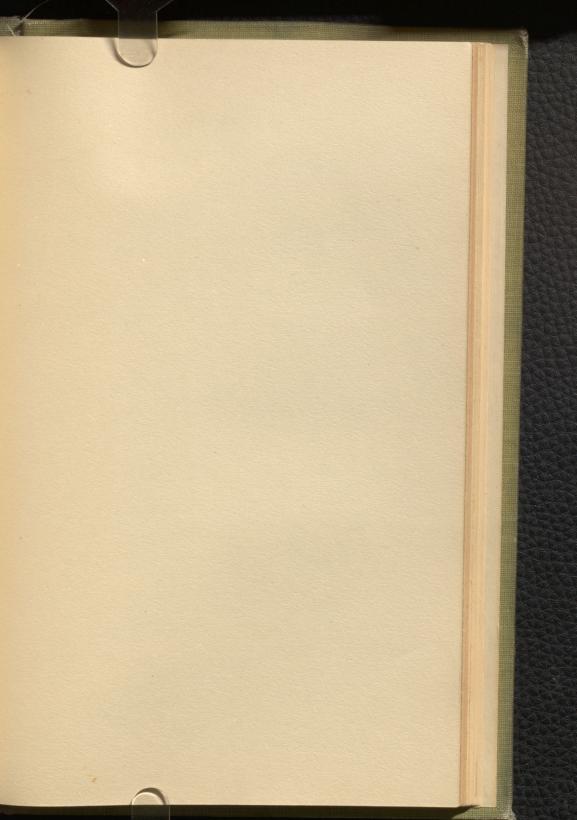


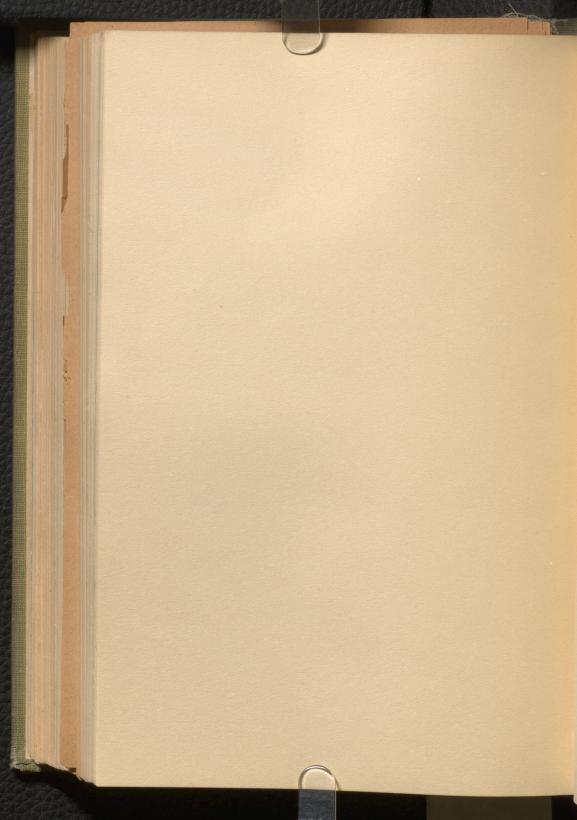


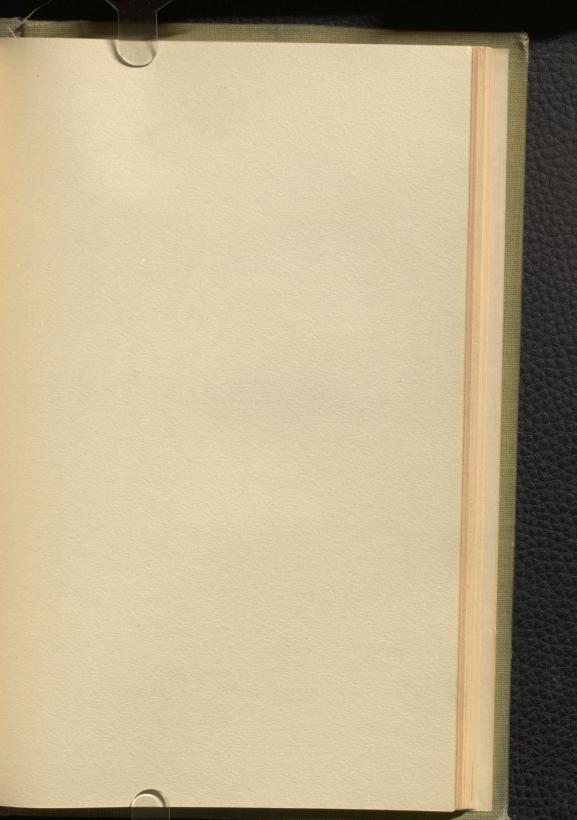


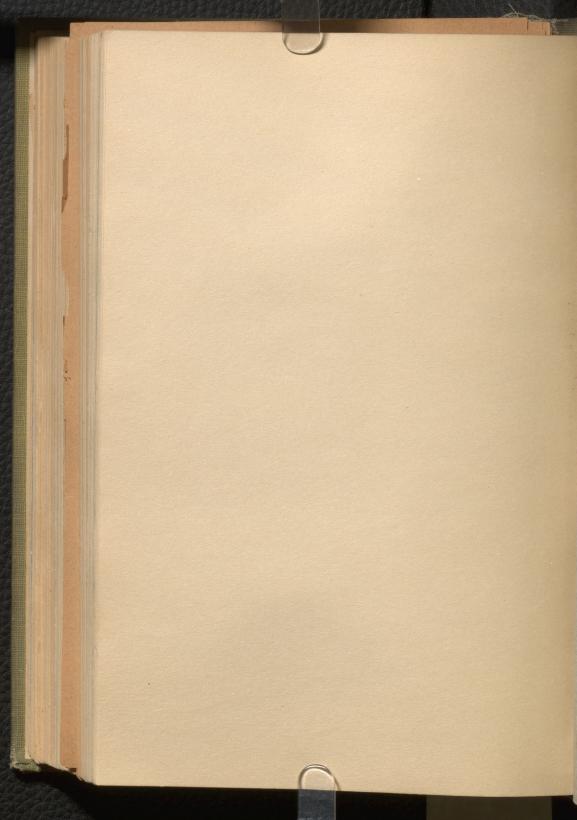












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# PROCEEDINGS

AT THE

# ANNUAL MEETING

OF THE

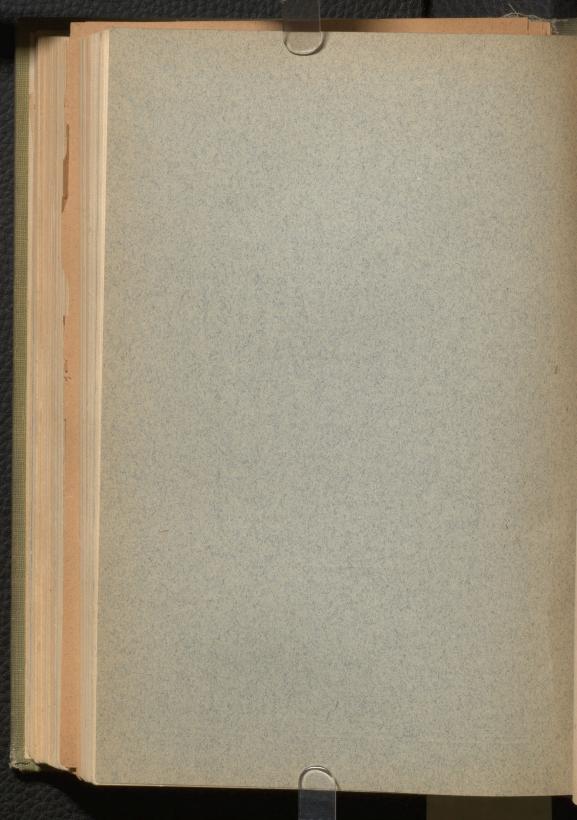
# Notural History Society of Montreal

FOR THE YEAR ENDING MAY 17TH, 1878.

Montreal:

MITCHELL & WILSON, PRINTERS, 192 ST. PETER STREET.

1879.



## NATURAL HISTORY SOCIETY.

### PROCEEDINGS FOR THE SESSION 1877-78.

#### MONTHLY MEETINGS.

1st Monthly Meeting, held October 29th, 1877.

Principal Dawson read a communication "On some Fossil Remains of Phoca Greenlandica," forwarded by Dr. Grant of Ottawa.

Mr. A. R. C. Selwyn exhibited and described a large calcareous sheath of an extinct geyser, disinterred at Three Rivers, and sent to the Museum of the Geological Survey by M. Genest.

Dr. Graham Bell's Telephone was exhibited in operation by Mr. Murray of the Canadian District Telegraph Company, and placed in communication with Emmanuel Church. The instrument was explained and illustrated by Dr. Baker Edwards, and conversations, music, &c., successfully transmitted.

2nd Monthly Meeting, held November 24th, 1877.

A paper was read by Mr. G. L. Marler on the Society's excursion to Oka, also an account of the settlements of the Indians there.

Principal Dawson read a paper "On the recent Earthquake, with an historical sketch of celebrated Earthquakes in Canada."

A very fine display of Canadian fish and game was hung in the lecture room, being a portion of the Canadian food collection prepared for the Paris Exhibition by Dr. S. P. May, and chiefly collected from the markets in Montreal during his brief visit here. Mr. Marler made some remarks on the birds, most of which had fallen to his own gun on various occasions. Mr. Whiteaves named and commented upon the fishes exhibited.

3rd Monthly Meeting, held January 28th, 1878.

Mr. F. B. Caulfield read a paper on "The Colorado Beetle," which has since been published in the Canadian Spectator.

Principal Dawson presented a communication from Mr. L. S. Parker on a "remarkable form of Dendrite," resembling a fossil leaf, but formed of Tourmaline crystals. Other forms of dendrite in sandstone and in slate were also exhibited.

4th Monthly Meeting, held February 25th, 1878.

This meeting was devoted to Microscopic illustrations by members of the Microscopic Club, and the subject introduced by a brief description of the different modes of microscopic illumination, by the Recording Secretary. Messrs. McEachren, Osler, and Edwards were a Committee to arrange for the illustrations, and the students of the Colleges interested in the subject were invited through their Professors. More than thirty valuable instruments were exhibited, and the Committee were especially indebted to Messrs. Ferrier, Baillie, J. F. Whiteaves, W. Muir, E. Murphy, Dr. Wilkins, Dr. Osler and Dr. McEachren for illustrating the various modes of illumination both under high and low powers.

The meeting was well attended, and much pleasure expressed by those present.

Fifth Monthly Meeting, held March 25th, 1878.

Dr. G. M. Dawson read a paper "On the Surface Geology of the Pacific Slope of the Rocky Mountains."

He also made an interesting communication on some skulls and Indian antiquities brought by him from British Columbia, and exhibited at the meeting.

Sixth Monthly Meeting, held April 29th, 1878.

Principal Dawson read a communication from Lt.-Col. Grant, of Hamilton, on "Recent Discoveries in the Niagara Limestone." Also a paper by himself on "New Facts relating to the Geology of the Maritime Provinces."

The consideration of holding a field day was referred to the Lecture Committee.

#### ANNUAL MEETING.

The Annual Meeting of this Society was held on the 18th of May, 1878, and after the reading of the minutes, the President delivered the following address:

ADDRESS BY PRINCIPAL DAWSON, LL.D., F.R.S.

It becomes us in our present meeting to commemorate the names and services of eminent Naturalists associated with this Society who have passed away in the course of the year.

Dr. Philip Pearsall Carpenter was a son of the late Dr. Lant Carpenter of Bristol, and a member of a family distinguished for brilliant gifts and philanthropic enterprise. His brother, Dr. William B. Carpenter of London, and his sister lately deceased, the well known philanthropist, Mary Carpenter, need only to be mentioned in illustration of this. Dr. Carpenter was born in Bristol in 1819, and was thus fifty-six years of age at the time of his lamented decease. In 1865 he selected our city as his place of residence, and soon became one of our best known and most beloved citizens, distinguished more particularly for his fervent devotion to temperance and sanitary reform; and though much remains to be done in both of these benevolent efforts, he lived to see great good accomplished, largely by his own personal exertions.

But it was as a man of science that he was most widely known. He had devoted himself more especially to the study of the Mollusca. His collection of shells was one of the finest private collections extant, and his extensive knowledge and critical discrimination with reference to species and generic types, were un surpassed anywhere. He was ready at all times to give aid and guidance with respect to any difficulty of determination either in recent or fossil forms; and his familiar expositions of the structures and habits of his favourites, and the way in which he made clear and intelligible their functions and modes of life, must be fresh in the memories of many of our members. We all esteemed him highly as a naturalist and loved him as a man, and we should thank him for the noble legacy he has left to our University in his magnificent collection of shells. While engaged in the work of classification and arrangement of this collection, Dr. Carpenter was occupied in preparing notes for publication on special points, and in determining and naming collections which had been placed in his hands by societies, institutions and individuals, in all parts of America. His latest special work is an elaborate revision of the difficult group of the Chitons, illustrated with figures, executed by an eminent American artist, who was induced to visit Montreal for the purpose. This paper, left unfinished at his death, will probably be published by the Smithsonian Institution.

The second name which it becomes me to mention here, is that of a man less known to many of you, but intimately known to me, and whom we have the right to claim as a Canadian geologist, and one of the highest standing-Charles Frederick Hartt, late Professor of Geology in Cornell University, and Director of the Geological Survey of Brazil, who died at Rio de Janeiro on the 19th of March last, at the early age of thirty-eight years. He was a native of Nova Scotia; and at Horton in that Province, where he studied at Acadia College, and while still a student, he became known to me as a diligent and successful collector of fossils of the Lower Carboniferous rocks. He subsequently engaged in educational work in St. John, and with his friend Mr. Matthew had the honour of fisst rendering intelligible the complicated geology of that district, and of discovering and almost exhausting its rich Devonian Flora and Cambrian Fauna. The collection and determination of the Cambrian fossils of what is now known as the Acadian group, and the excavation of the numerous fossil plants of the Devonian of the same district, constitute in my judgment two of the most important advances ever made in the palæontology of Eastern America, and are even yet bearing fruit. It was my good fortune to be able to aid and encourage Mr. Hartt in these earlier efforts, to determine his Lower Carboniferous and Devonian plants, and to afford him in my 'Acadian Geology' a medium of publication for his Primordial fossils. Acting under my advice, Mr. Hartt, in order to perfect his knowledge of palæontology, entered the school at that time recently established by Agassiz at Cambridge. This led to his appointment to a chair of geology first at Vassar College and subsequently at Cornell, and also to his connection with Brazil, which began with his being attached in 1865 to the "Thayer Expedition" to that country under Prof. Agassiz. The magnificent opening for geological work in Brazil seems to have fascinated his mind, and I remember well the enthusiasm with which he wrote to me at a subsequent time of the almost identical fauna and flora of the Brazilian coal-measures with those he

had in earlier days explored in Nova Scotia. In 1870 he returned to that country with an expedition from Cornell, and in 1875 he was appointed to the direction of the Survey then instituted by the Brazilian government, having already had a semi-official connection with the government for about a year. In the three years in which he worked in connection with the Brazilian government, he had explored and mapped large districts of the country, had accumulated a valuable geological museum, and had prepared the MS. of voluminous reports which he was about to publish at the time of his death. It is to be hoped that some worthy successor may still give them to the world.

In his character Hartt was, like our friend Carpenter, an amiable, exemplary, benevolent and christian man, and I have known few of our younger men of science who gave greater promise of brilliant success.

His rapid advancement to high and important positions shows that science is not without its advantages as a profession, and may perhaps serve to encourage others to devote themselves to similar pursuits, however such ardour may be checked by the remembrance of his early death. But it is better to live well and to good purpose than merely to live long.

Another member of this Society removed by a too early death, Dr. John Bell, deserves more than a passing notice. Taken away at the early age of thirty-three years, he had already achieved no small professional reputation, and had done good scientific work. He took the degree of B.A. in Queen's College, Kingston, in 1862, and that of M.A. in 1865. He graduated in medicine in McGill University in 1866, and in the same year took his degree of M.D. at Queen's College. After graduating he spent about a year in the army hospitals of the United States, in the vicinity of Louisville, Kentucky, and obtained the highest testimonials for his ability, industry and efficiency. He commenced practice in Montreal in 1868, and from his union of professional ability with all the highest feelings of a christian gentleman, and with all the tenderness of a sympathising heart, earned for himself not only the confidence but the love of a large and increasing number of patients. Though well informed in geology, zoology. and physical science, his favourite scientific pursuit was botany, and in this he had made large collections, and had become a reliable authority. He collected in the country around Kingston, on the Ottawa, at Owen Sound, in the Manitoulin Islands,

in Gaspe and the west coast of Newfoundland, and lists of some of these collections were published in the Reports of the Geological Survey and the Canadian Naturalist. He contributed many rare and interesting plants to the collections of the University and of this Society. He entered with zeal into the project of collecting a subscription for the erection of a monument over the bones of the pioneer American botanist, Frederick Pursh, and at the time of his death had succeeded in securing nearly a sufficient sum for the purpose. It is a sad coincidence that this subscription was commenced several years ago by another of our young botanists, the late Dr. Barnston, who also was removed by an early death.

Dr. Bell was a man of excellent gifts for scientific pursuits, and one whom we could have wished to give a larger amount of time to original research, but his noble and self-denying devotion to his high calling as a medical man, and especially to the relief of the poor and unfortunate, constitutes a higher claim to our regard than that which even brilliant scientific discoveries would have merited. I may add that Dr. Bell was always ready to aid our Society, and to give his valuable time to work in connection with our botanical collections.

Turning from the memory of the dead to the work of the living, I find that in all seventeen papers or communications on scientific subjects were brought under our notice in the past Session. Besides the reading of these papers, one evening was devoted to an exposition and illustration of the Telephone by Dr. Edwards and Mr. Murray; another to the exhibition of the collection of Canadian game formed by Dr. May for the Paris exhibition, and its explanation by Mr. Whiteaves and Mr. Marler, and still another to an exhibition of Microscopes and objects, for which we were specially indebted to Dr. Osler, Dr. McEachren, Mr. Ferrier, Mr. Muir, Mr. Murphy, and other microscopists. The arrangements for these meetings were made by our indefatigable Secretary, Dr. Baker Edwards, and they were all pleasant and successful.

Of the papers read the greater part were on geological subjects. Two eminent exceptions were that on the Locust in the North-West in 1876, by Dr. G. M. Dawson, and that on the Colorado Beetle by Mr. Caulfield. The former is the sequel to a series of papers on the same subject published in the *Naturalist*, and commenced when Mr. Dawson was geologist on the Boundary

Commission. On this occasion, as a private enterprise of his own, he issued circulars and blank forms to a great number of persons in the North-West, inviting replies, numbers of which were sent in from year to year. The result was the publication in our Journal of a series of papers which it is scarcely too much to say reach to all that is certainly known as to the locust plague and its remedies, and may probably be found in the sequel as important as the expensively obtained statistics now being collected by the United States Commission. I may add that not only have these reports been published in our Journal, but a large number of extra copies have been circulated throughout the West, without any expense to the country.

Mr. Caulfield's paper was an elaborate investigation of a plague which has reached nearer to ourselves. This paper has been published in one of our city newspapers, but deserves a much wider circulation. The time was when this Society was the subject of jeux d'esprit in the city press on the subject of "bug-hunting," but the Colorado beetle has vindicated the claims of the bugs to some degree of respect.

Of the geological papers, the following deserve especial mention: - the communication of Mr. Selwyn on the calcareous pipe found at Three Rivers in Post-Pliocene clays, and referred to the action of a hot spring penetrating those clays in Post-Pliocene times. That of Prof. Hind, in which he sought to illustrate the effects of Arctic ice in producing ocean currents. That of Mr. Whiteaves on new Jurassic fossils from British Columbia, in which the evidence for the existence of Jurassic rocks in that country is for the first time fully discussed. That of Dr. G. M. Dawson on the Surface Geology of the Pacific slope of the Rocky Mountains. That of Dr. Harrington on the microscopic structure of igneous dykes traversing the Laurentian rocks, one of our first Canadian contributions to Microscopic Petrology. I pass over several minor contributions, and also papers of my own on fossils from different formations, and on the Earthquake of November 10th, 1877.

On the whole our Session may be said to have been a fruitful and agreeable one, and I feel confident that the members who have attended our meetings and have looked into our published proceedings, have derived both instruction and recreation from our work. I cannot however refrain from expressing regret that our meetings have not been more largely attended, and that so

few of our members have brought under our notice facts or specimens. Surely no more rational or pleasant way of spending an evening can be found than in listening to new facts on the natural history of our country, and in examining and discussing the interesting and often rare or new specimens by which they are illustrated; and it should be borne in mind that we do not expect long or elaborate papers, but are quite content to receive the simplest and shortest notes on any natural phenomena that may be observed, or on any natural facts, either of scientific interest or of practical utility. Our Sommerville Lectures are largely attended by the public, and it appears to me that many of our monthly meetings have been of quite as great interest even to those not deeply versed in science, and vastly more so to those who are. Scientific societies in a country like this are of slow growth, but surely after an existence of half a century, and after having held up the torch of science for that long time in this community, this Society should have acquired greater strength. In the present Session it has completed its fiftieth year, and I think that it is time its members should make greater efforts to revive and strengthen it, so that it may be able with some vigour and eclat to celebrate its jubilee.

The address of the President was followed by the Report of the Chairman of Council, Mr. G. L. Marler, as follows:

REPORT OF THE CHAIRMAN OF COUNCIL.

At the close of another Session your Council beg to submit the following résumé of proceedings during the past year.

There has been little of extraordinary moment to which to call the attention of the members, but it may be stated that the labours of the Society seem to have been better appreciated than in the past, and also that there has been a larger attendance at the Sommerville Lectures and more visitors to the Museum.

The usual field day was a success in point of numbers, about 109 persons having been present. The trip was a very enjoyable one, as the weather was bright and pleasant. The party went by rail to Lachine, thence by boat up the river St. Lawrence, past Ile Dorval to Ile Perrot, where the boat stopped for a couple of hours to enable the excursionists to gather botanical specimens. The steamer then proceeded up through the Lake of Two Mountains to Oka, at which place the stay was too short, there not being sufficient time left for the ascent of

Mount Calvary. As usual the receipts were scarcely sufficient to meet the expenses.

In order to carry out the recommendation of the Report of the Council of the previous year, concerning the appointment of a competent Scientific Curator to devote most of his time to the museum and library, Mr. F. B. Caulfield was engaged at a salary of \$200. Since his engagement he has been devoting himself to his work to the satisfaction of the Council.

Your Council have to report that thirty-two new members have been added to the Society, but they greatly regret the loss of Dr. Philip P. Carpenter and Dr. John Bell, to whose death the President has alluded in his address. In them the Society loses two of its most active members.

The papers read at the usual monthly meetings have received full attention in the President's address, and call for no further mention from your Council.

The Sommerville Lectures have been delivered as usual, and were highly appreciated by the members of your Society and the public, the attendance having been much larger than formerly. The subjects of the lectures were as follows:

- Feb. 7. On Insects, their Habits and Habitats: By the Rev. T. W. Fyles, illustrated by Microscopic Photographs taken and projected by Mr. Charles Baillie.
- 2. Feb. 14. On the Eye and its Mechanism. By Dr. Buller.
- 3. Feb. 21. On Glaciers, past and present, and the work they perform. By Dr. C. A. Wood.
- 4. Feb. 28. On the Ear and its Mechanism. By Dr. Proudfoot
- 5. Mar. 7. On a visit to River de la Plata; its scenery, resources and local constitution. By Dr. Blackader.
- 6. Mar. 14. On Health. By Professor Bovey.

On the evenings of the lectures the museum was thrown open to the public, and was visited by about two thousand persons, in addition to one thousand visitors at other times during the year; a much larger attendance than there has ever been before. The greater portion of these were admitted to the museum free of charge.

The rooms have been rented during the year to several kindred societies, &c., and realized as rent the sum of \$600.

The vestibule of your building has also been greatly improved by closing the space on the left going in and the stairway. The Reports of the Scientific Curator, Mr. F. B. Caulfield, and of the Library Committee, were then read.

#### REPORT OF THE SCIENTIFIC CURATOR.

During the past year the donations to the museum have not been very numerous. A fine specimen of the Carolina Grey Squirrel, Sciurus Carolinensis, and six species of Canadian birds have been presented; also a specimen of the Snow Goose, Anser hyperboreous, and a fine pair of the common Gar Pike, Lepidosteus osseus, has been purchased.

The entomological collection has been re-arranged and classified, and measures have been taken to prevent injury from the larvæ of *Dermestes*, &c. The number of species in the local collection of Coleoptera has been largely increased by collections made and presented by Mr. Whiteaves and Mr. Passmore, and by duplicates from my own cabinet. The valuable series of beetles collected in British Columbia by Mr. Selwyn and Prof. McCoun, and determined by Dr. LeConte of Philadelphia, have also been labelled and pinned into their proper place in the cabinet.

The Diurnal Lepidoptera, Sphingidæ, and part of the Noctinidæ, have been classified and labelled, but owing to want of space the whole of the remaining families of smaller necturnal moths cannot be exhibited. The Orthoptera are also nearly all named, and along with a large series of Hymenoptera, Hemiptera, Neuroptera and Diptera, are ready for exhibition as soon as another cabinet can be provided.

In the last annual report of my predecessor, Mr. Whiteaves, it was stated that "although corrosive sublimate was mixed with the paste with which the plants are fastened to the papers, it has been recently noticed that a small beetle has been and is still making burrows through some of the fasciculi, and the matter requires immediate attention." On examining the herbarium, it was found that many of the plants had been attacked by the larva of a small beetle, Anobium foveatum. Every plant was separately examined and the grubs removed and destroyed. Camphor has been placed in the herbarium and strips of cotton velvet fastened on the edges of the doors, so as to make them fit as tightly as possible; and it is believed that as the plants were examined at the season when the insect was in the larval condition and easily detected, the herbarium has been thoroughly freed from them, and with a little care can be kept in good order.

Many of the plants, however, are old and worthless, and should be replaced by fresh specimens as soon as they can be obtained.

Some of the jars containing Fish and Reptiles have been refilled with alcohol, but a larger supply is needed, especially for the collection of marine invertibrates.

The cases containing the Mammalia, Birds, Fish and Reptiles need re-papering, as they are badly stained and discolored. The glass fronts of the cases should also be washed, and the floors throughout the museum more frequently scrubbed, as the dust which accumulates is very injurious to the specimens.

All donations to the museum and library have been recorded, and the circulars for the monthly meetings have been regularly addressed and posted.

F. B. CAULFIELD.

#### REPORT OF THE LIBRARY COMMITTEE.

The Library Committee have to report that although few meetings have been held during the year, the condition of the library has been considerably improved.

About twenty-five volumes of various scientific journals have been bound and are now on the shelves, while twenty-seven more have been arranged and are now in the hands of the binder.

A good deal has also been done in the way of collecting together the scattered numbers of some of the more important journals, transactions, &c., and a list of them has been prepared by Mr. Caulfield to show what numbers are in the library and what missing. The proportion of the latter is unfortunately large, and there are very few journals of which complete volumes can be made up for any number of consecutive years.

There are now about 1333 bound volumes in the library, classified by Mr. Caulfield as follows:—

inca by in. Cadimora as a series		
Botany	96	vols.
Chemistry	- 37	66 .
Geology and Mineralogy	64	.66
Natural History in General	- 280	66
Natural History in General Science -	91	66
Philosophy and General Science	- 50	66
Voyages, Travels, &c.	44	"
Biography and History -	- 115	66
Miscellaneous -		"
Periodicals, Reports of Scientific Societies &	06653	
	1000	
Matal	1333	

The accompanying statement was then submitted by the Treasurer, Mr. E. E. Shelton:

12

1877-78.	Recapitulation.		1877-78	8.	Recapitulation.	
66 66 66 66 66 66 66 66 66	Mr. Cauldfield's Salary. Mr. Passmore's "	400.00 8.00 11.50	" Cash	received,	easurer's hands	245.00 18.50
	•	31540.91				\$1540.91

#### LIABILITIES.

Mortgage on Society's Bu		
Institution		\$1000.00
Balance, Dawson Brother	S	175 00

Montreal, 17th May, 1878 Audited and found correct, after comparing G. L. Marler. W. Muir. J. H. Brissette.

Mr. W. Muir moved, seconded by Mr. J. B. Goode, "that the reports now read be received, approved and printed in pamphlet form for distribution to members."

Moved by Mr. G. L. Marler, seconded by Mr. Shelton, "that the by-laws relating to the election of officers be suspended, and that Principal Dawson be re-elected President of the Society." Carried unanimously.

Moved by Mr. Marler, seconded by Dr. Harrington, "that Mr. E. E. Shelton be re-elected Treasurer." Carried unanimously.

Moved by Dr. Dawson, seconded by Mr. Joseph, "that Dr. Baker Edwards be re-elected Recording Secretary, and Mr. Frank W. Hicks Corresponding Secretary." Carried unanimously.

Moved by Dr. Edwards, seconded by Mr. Marler, "that Mr. F. B. Caulfield be re-elected Scientific Curator for the ensuing year." Carried unanimously.

Moved by Mr. Marler, seconded by Mr. J. H. Joseph, and carried, "that the Council be requested to make suitable arrangements for the Editorship of the Naturalist and report to the Society."

Messrs. J. B. Goode and Brissette having been appointed scrutineers, the following gentlemen were elected by ballot:

Vice-Presidents—Rev. A. DeSola, LL.D.; A. R. C. Selwyn F.R.S.; G. L. Marler, Esq.; Prof. P. J. Darey, M.A., B.C.L.; James Ferrier, Jr., Esq.; J. F. Whiteaves, Esq., F.G.S.; C. Robb, Esq.; Rev. Canon Baldwin; J. H. Joseph, Esq.

Council—W. Muir, Esq., J. H. Brissette, Esq., Dr. B. J. Harrington, J. B. Goode, Esq., Prof. R. Bell, Dr. Osler, R. W. McLachlan, Esq., Dr. D. McEachren, Dr. G. M. Dawson.

Library Committee—Dr. B. J. Harrington, Convener, Dr. McConnell, Mr. Joseph Bemrose, Mr. J. Fraser Torrance, Mr. Charles Baillie.

A vote of thanks to the retiring officers closed the proceedings.

The Recording Secretary announced that the Annual Excursion would take place on the 1st of June, to St. Jerome, and the usual prizes would be offered for the best field collections.

#### DONATIONS TO MUSEUM AND LIBRARY—SESSION 1877-78.

#### From

N. P. Leach, Esq.

J. C Stockwell, Esq.

G. W. Stephens, Esq.

J. F. Whiteaves, Esq.

#### TO THE MUSEUM.

Carolina Grey Squirrel, Sciurus Carolinensis. White-throated Sparrow, Zonotrichia albi-

Red-winged Blackbird, Agelaius Phæniceus. Ptarmigan, Lagopus albus.

White-bellied Swallow, Hirundo bicolor. Northern Phalarope, Phalaropus hyperboreus Caterpillar of Moth, Samia Columbia.

Three stuffed Ptarmigan, Lagopus albus. A series of the Coleoptera of the Island of Montreal.

A series of Coleoptera & Lepidoptera of the Island of Montreal.

A number of Indian bones, dug up in a field between Peel and Metcalfe Streets, Montreal

Snow Goose, Anser hyperboreus. Pair common Gar Pike, Lepidosteus osseus.

Mr. Passmore.

Master Arthur Weir, and Master Frank Mitchell.

By Purchase.

#### TO THE LIBRARY.

The High Commisson of Brazilian Biographical Annals, 3 vols. Brazilian National Exhibition.

The Trustees of the British Museum

List of the Lepidoptera Heterocera in the British Museum, Part 1. Catalogue of British Hymenoptera Part 1.

Catalogue of Birds, Part 3. Catalogue of Fossil Reptiles of South Africa.

British Fossil Crustacea (list of).

Gigantic Land Tortoises. Guide to the Departments of Natural History and Antiquities in the British

Museum.

Tableau synoptique des Oiseaux du Canada Catalogue of Birds, Fishes, Reptiles, Woods &c., in the Museum of the Literary and

Historical Society of Quebec. D'Orbigny's Palæontology, 2 vols.

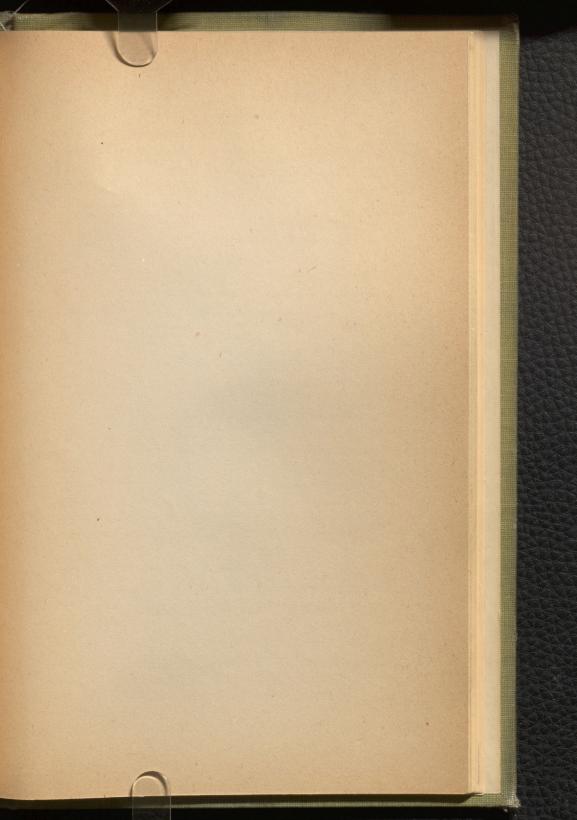
Quarterly Journal of Geological Society of London 3 vols.

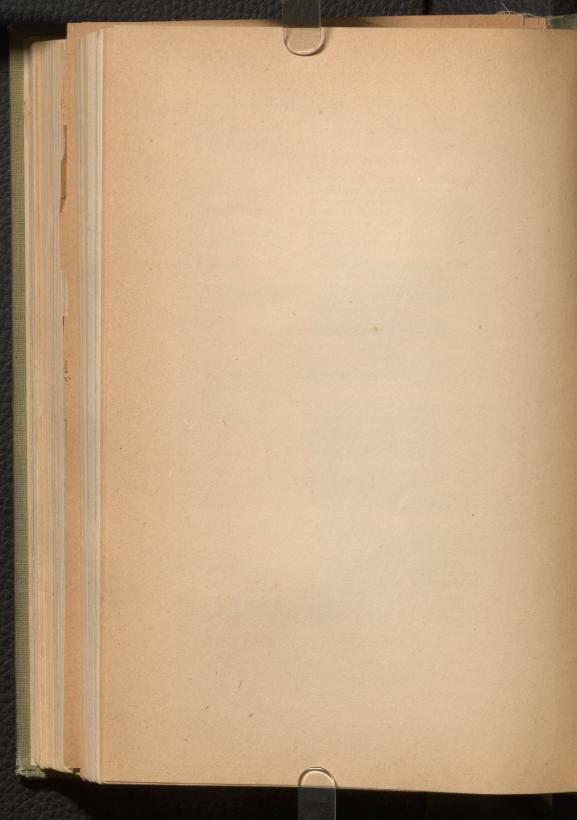
Owen's Palæontology, 2nd Edition. Acadian Geology, 3rd Edition.

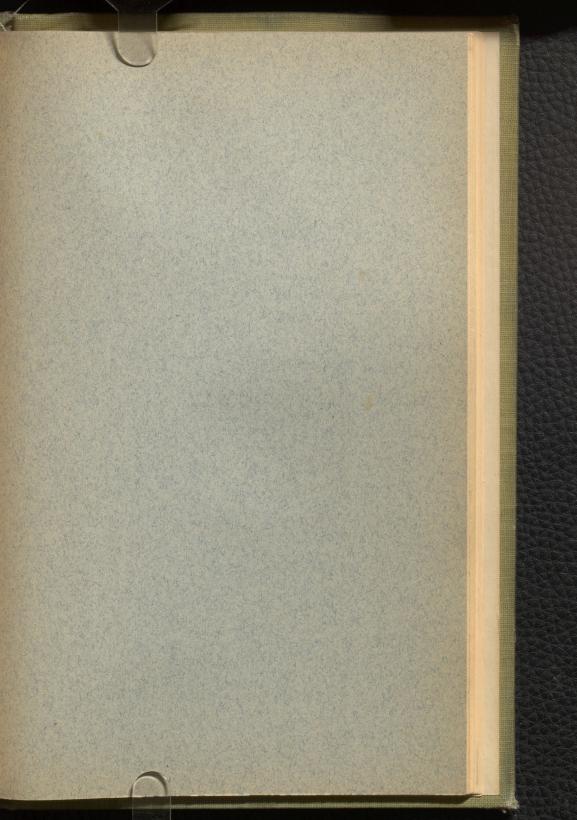
J. M. LeMoine, Esq.

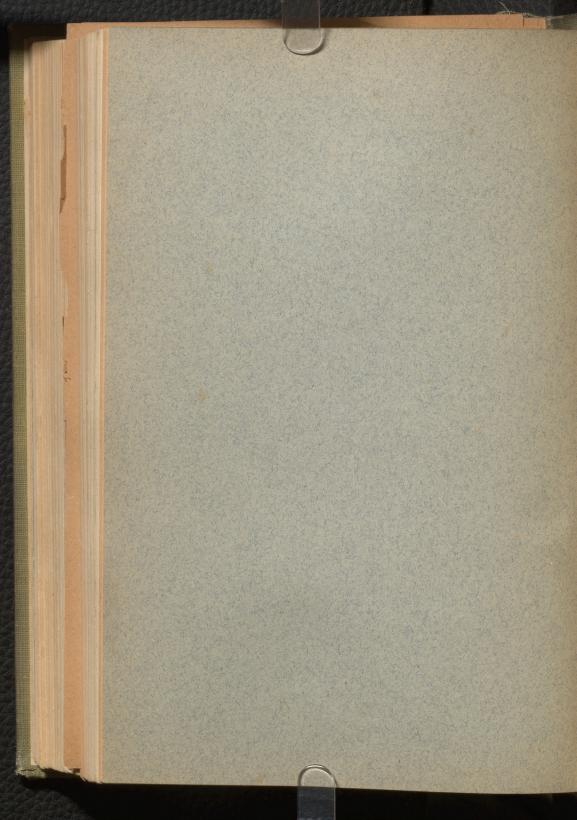
A. H. Foord, Esq.

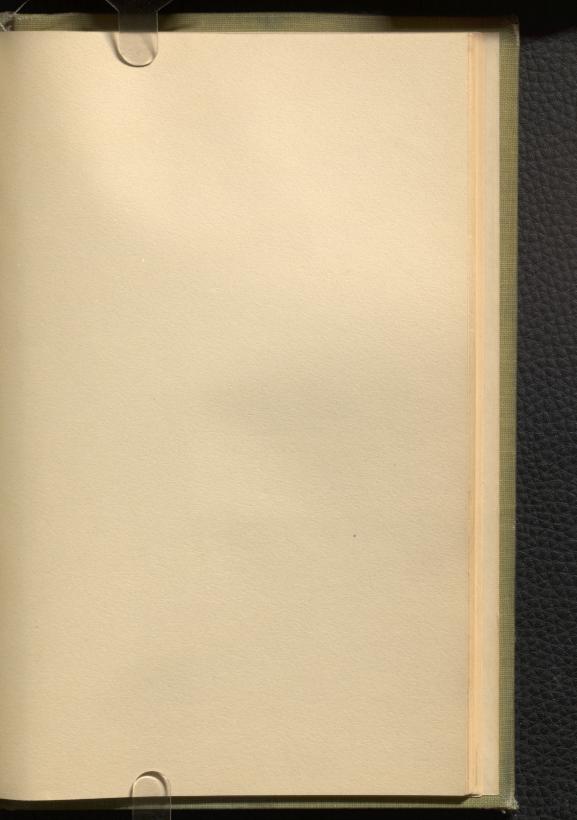
J. F. Whiteaves, Esq. Principal Dawson.

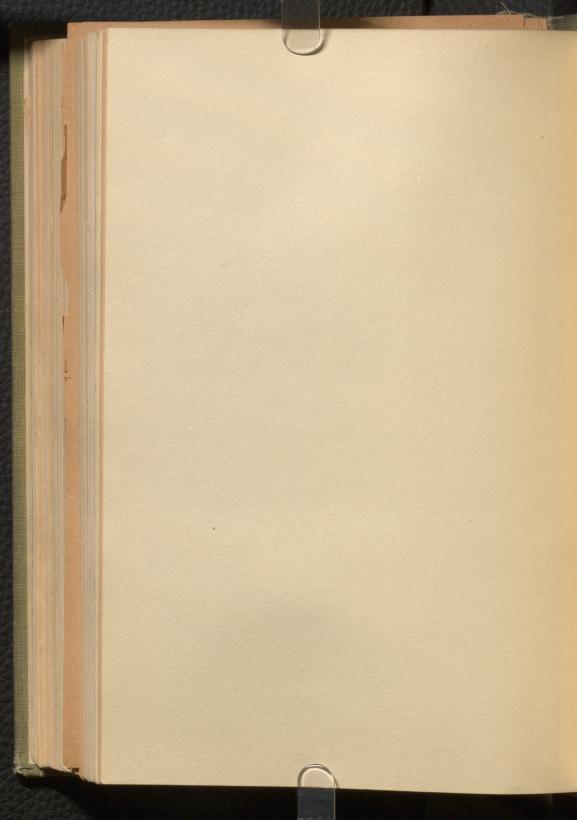


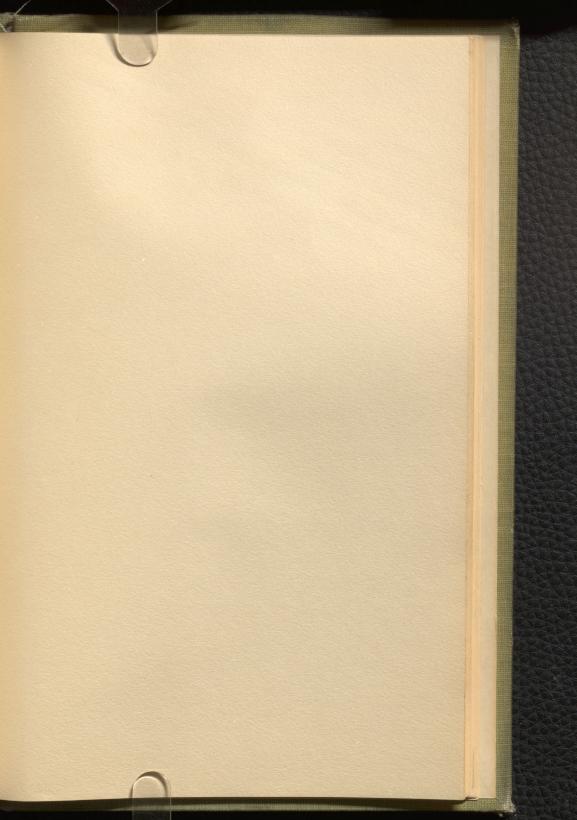


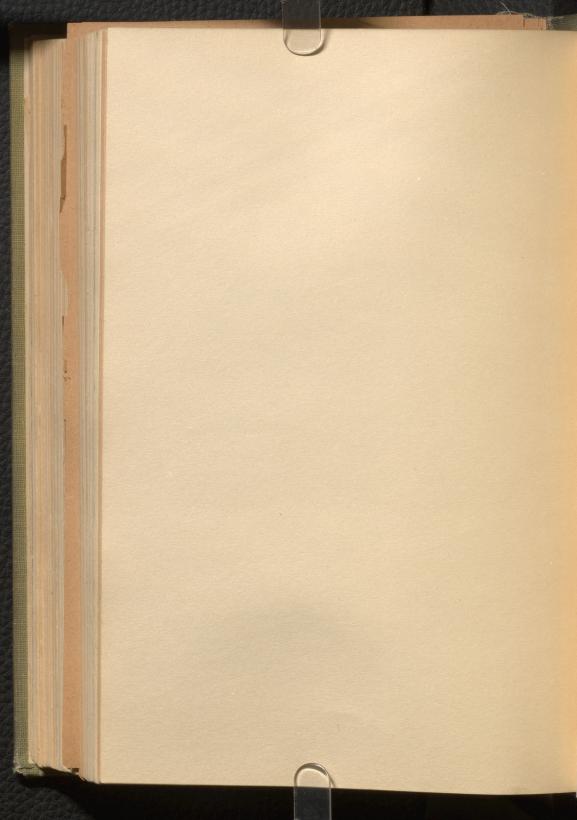


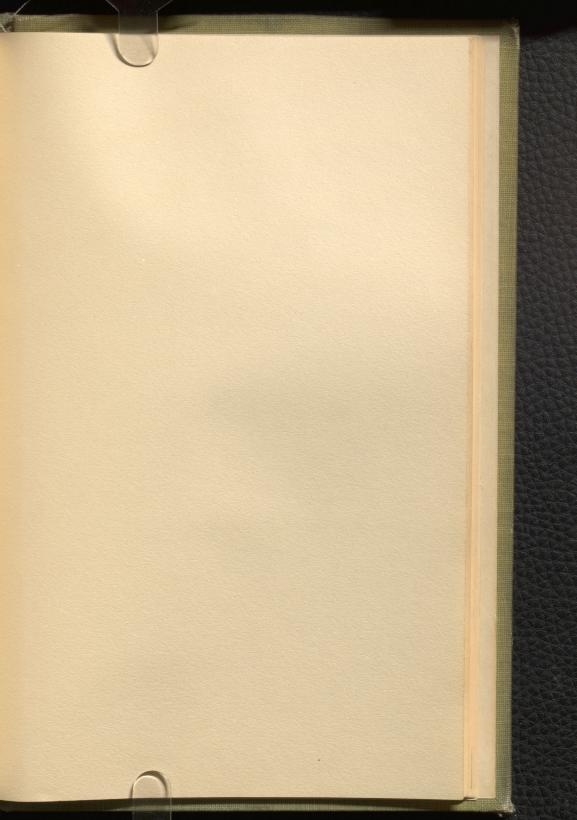


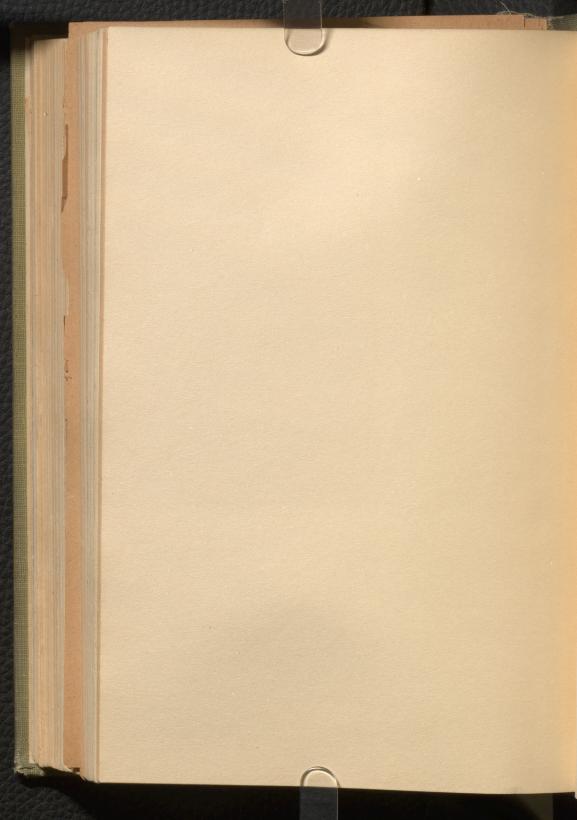


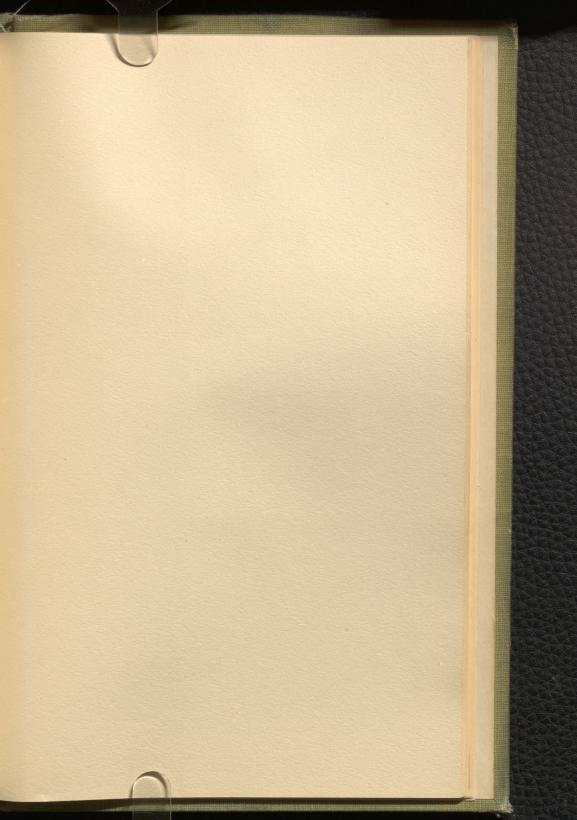


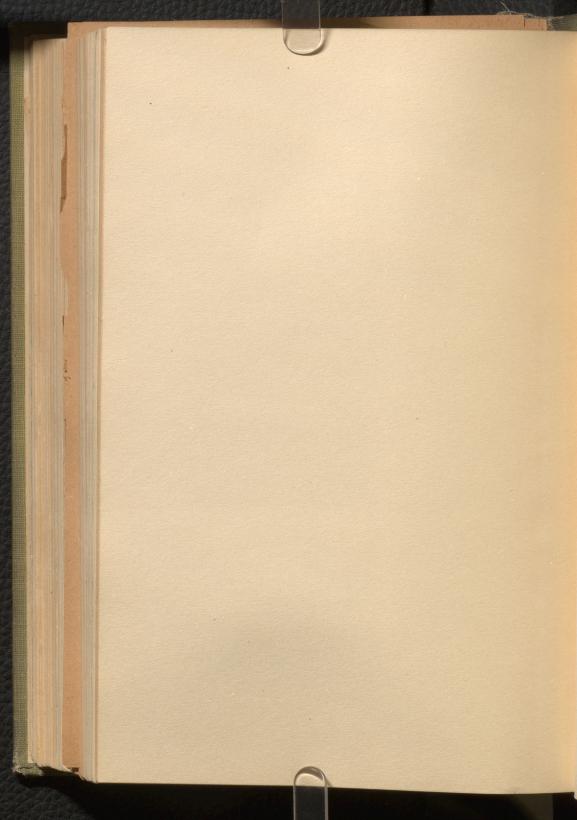


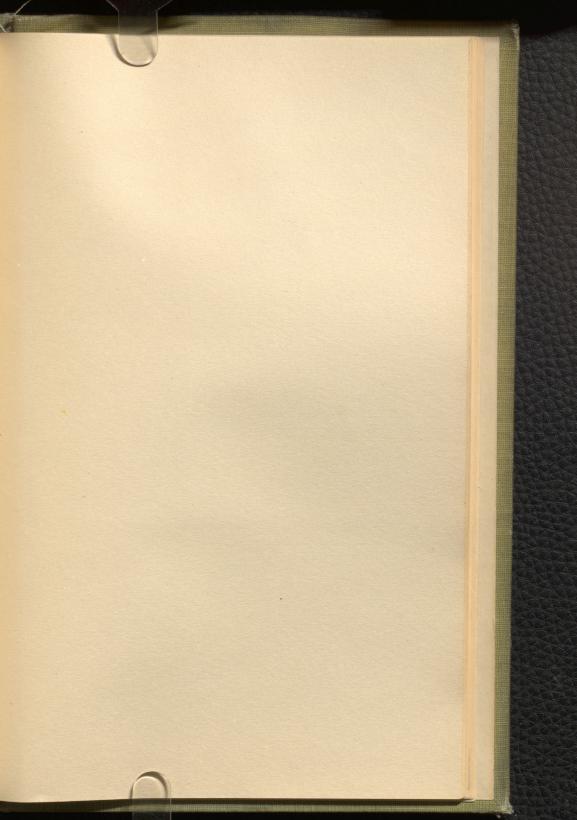


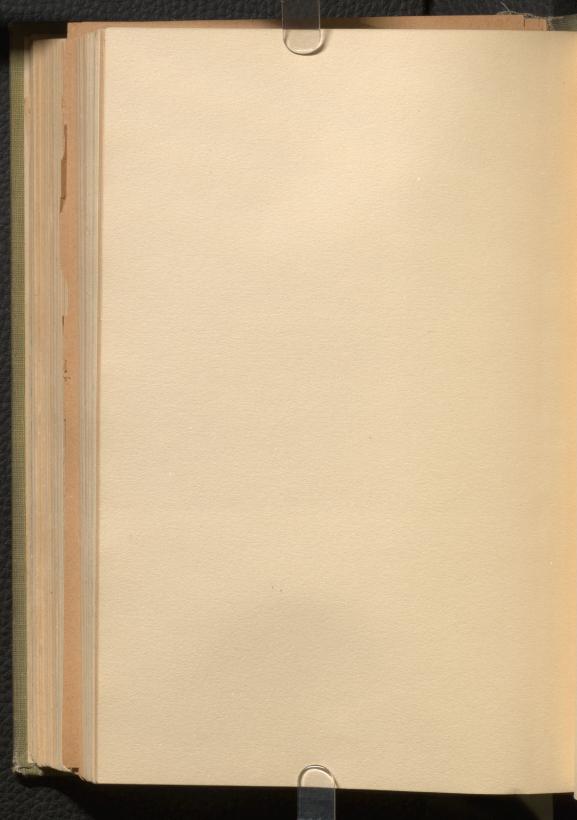


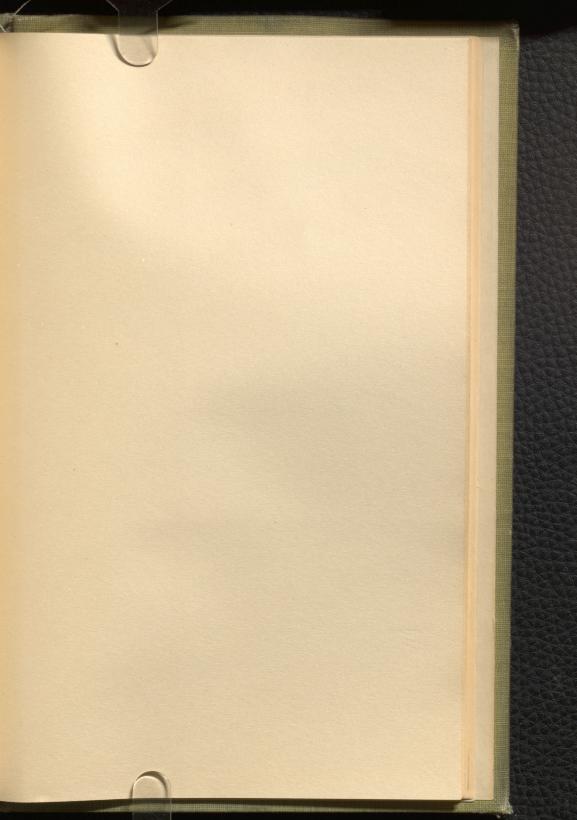


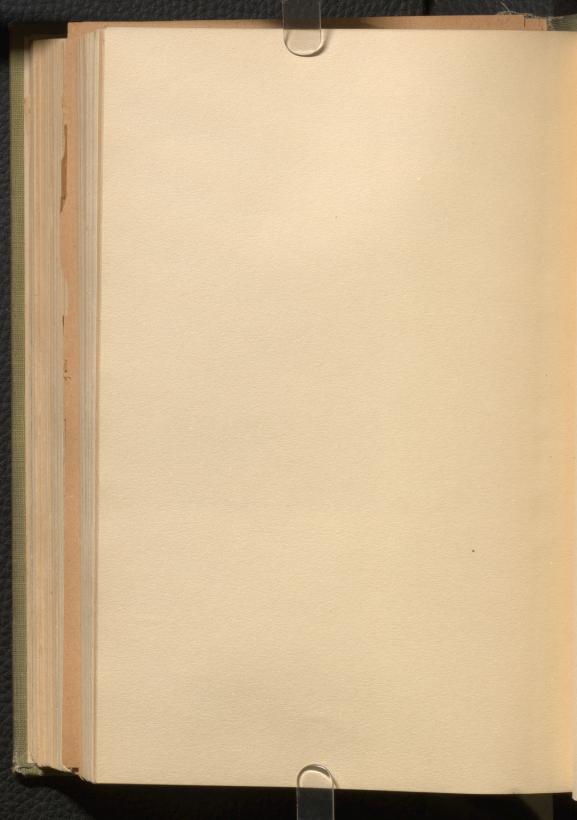


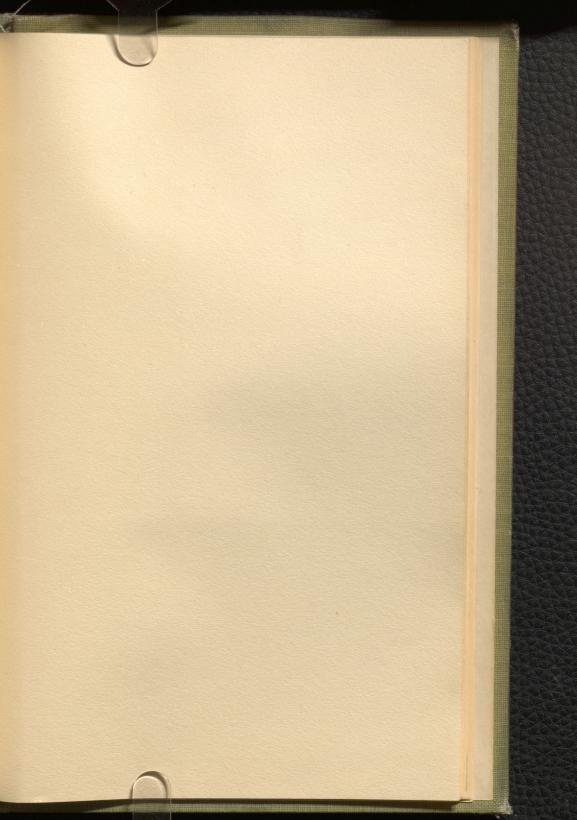


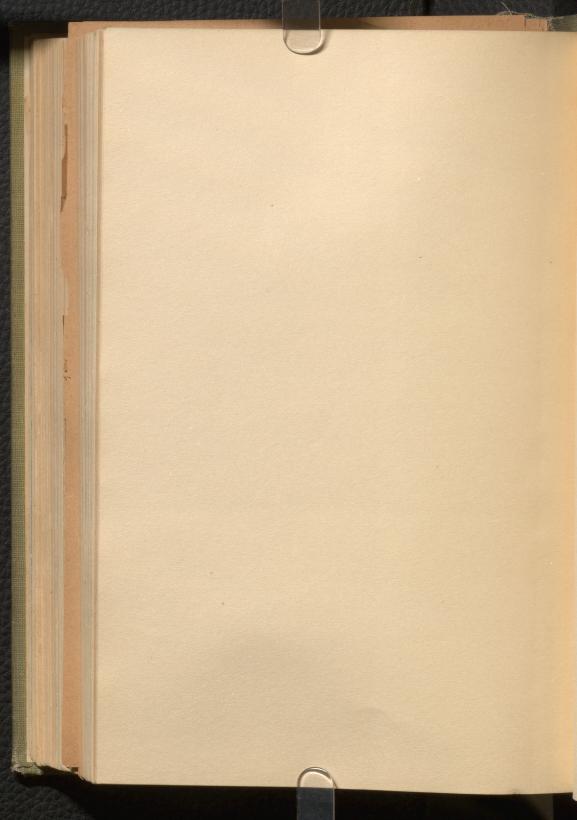


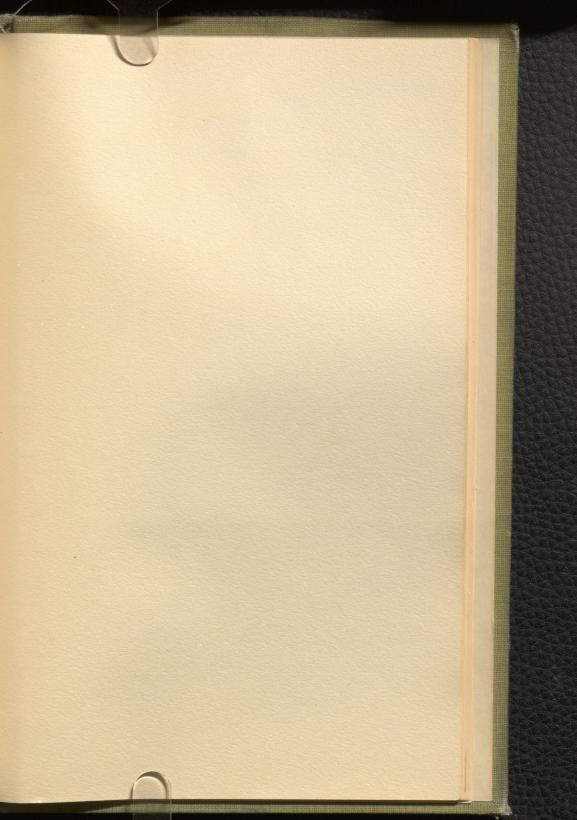


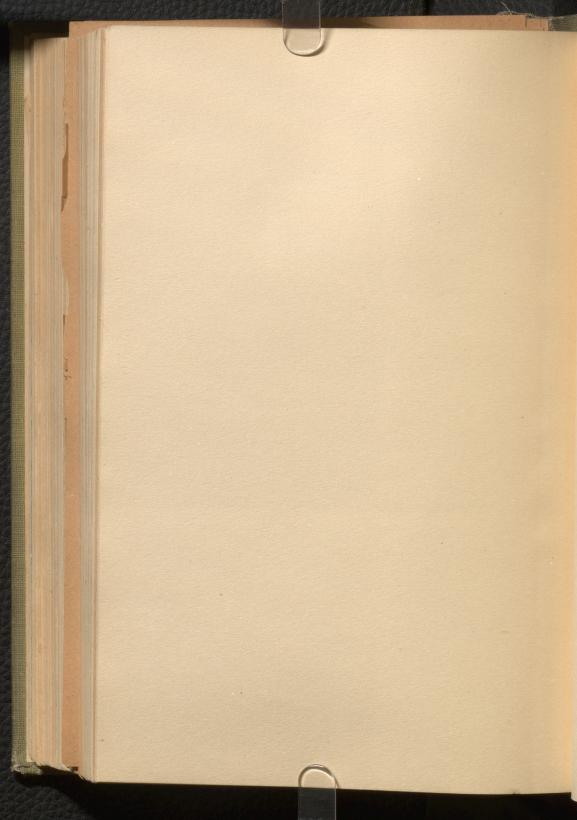


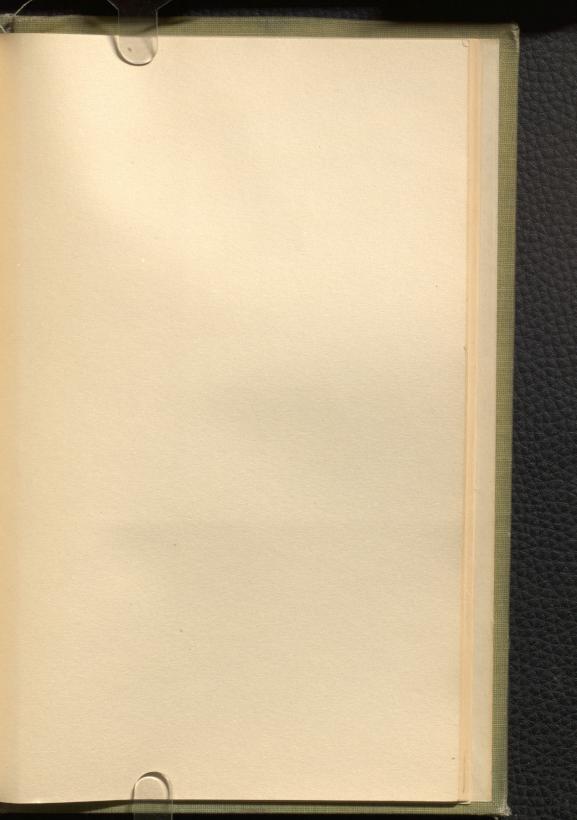


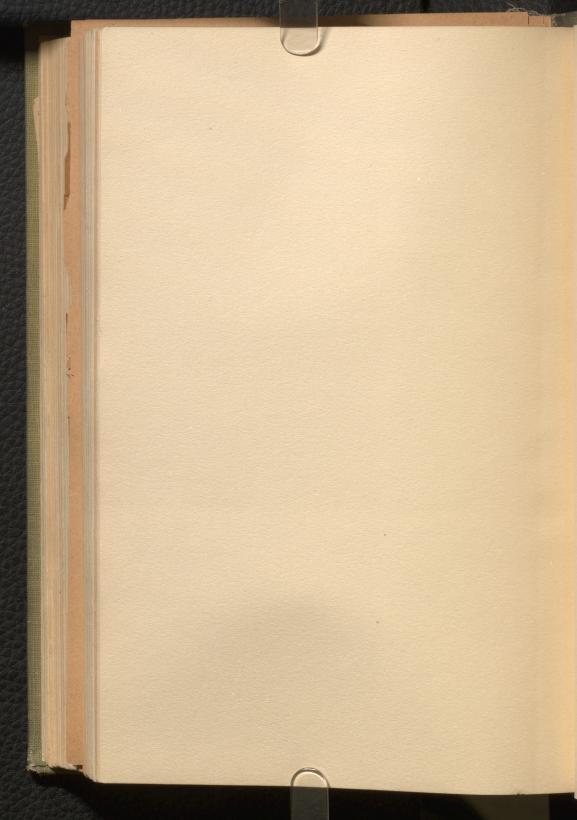


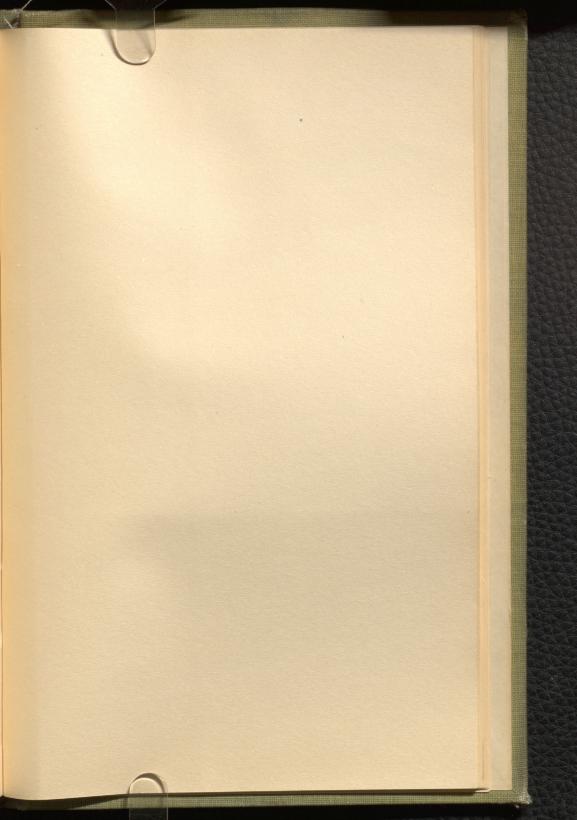


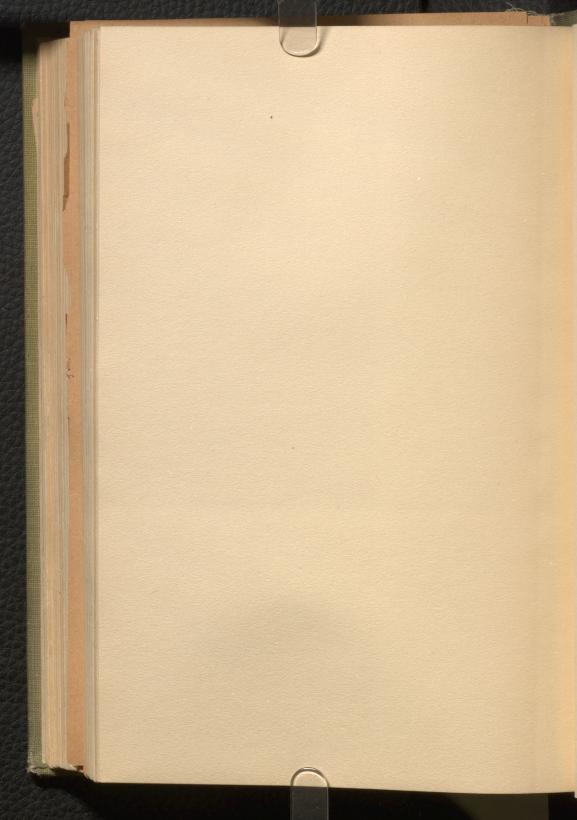


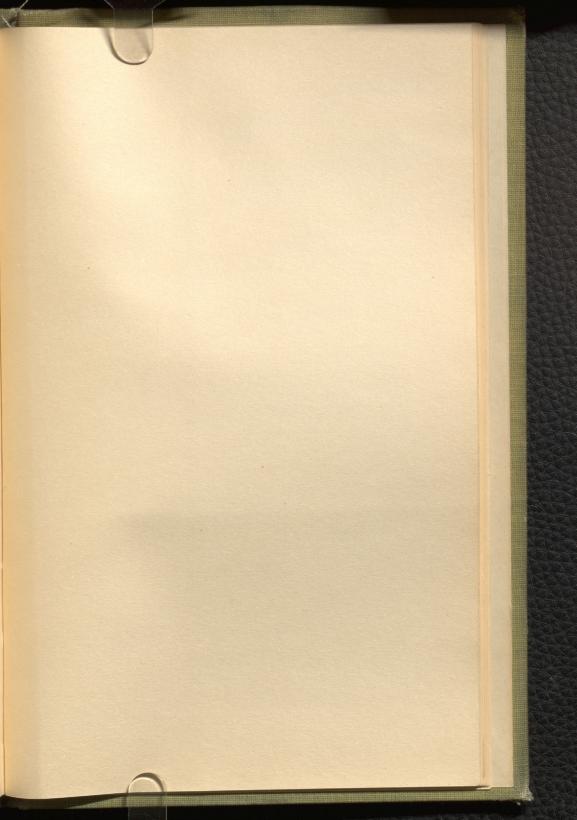


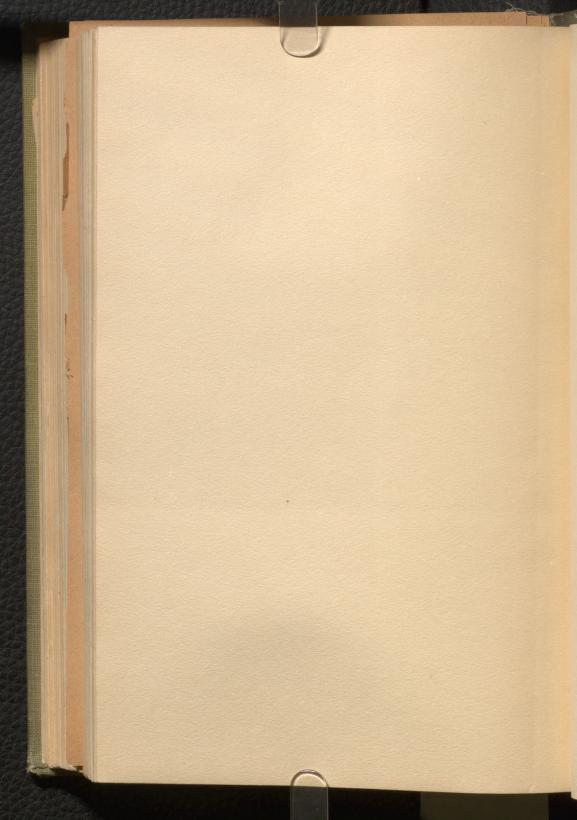


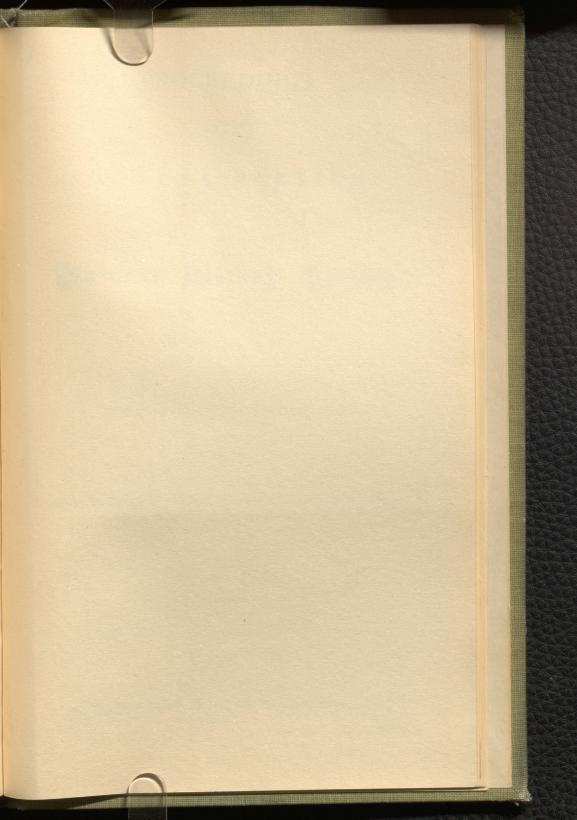


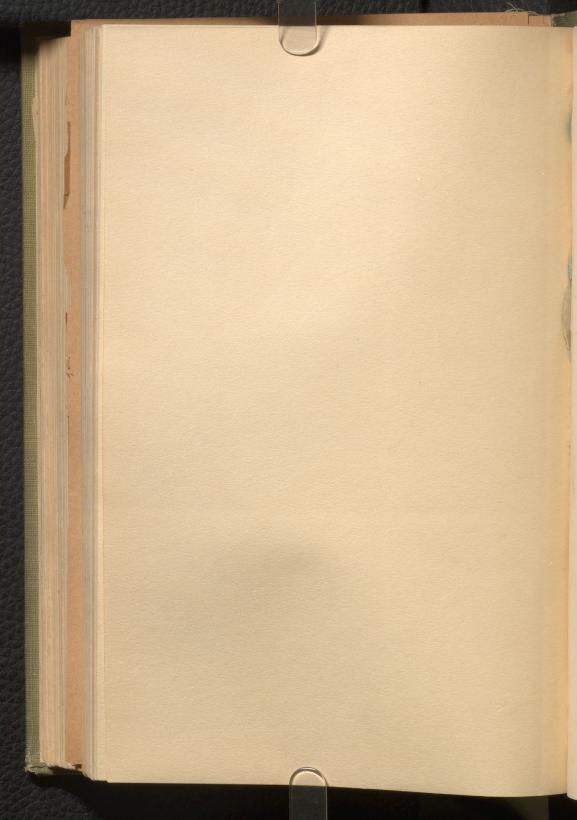












# PROCEEDINGS

AT THE

# ANNUAL MEETING

OF THE

# Natural History Society

OF MONTREAL,

FOR THE YEAR ENDING MAY, 1881.

WITE

A LIST OF THE OFFICERS, LIFE, HONORARY AND CORRESPONDING MEMBERS OF THE SOCIETY.

#### MONTREAL:

MITCHELL & WILSON, PRINTERS, 341½ NOTRE DAME STREET.
1881.

# NATURAL HISTORY SOCIETY OF MONTREAL.

## BY-LAWS MADE SINCE 1859.

#### OF MEMBERS.

January 29th, 1866.

"That ordinary members not resident in Montreal shall be required to pay an annual subscription of three dollars, and shall be entitled to receive the *Canadian Naturalist* for each year; the said contribution to be paid in advance, and that such members be designated "Non-Resident Ordinary Members."

#### January 28th, 1867.

"That the annual subscription of ordinary members be raised from four dollars to five, and that of life members from forty dollars to fifty."

#### March 25th, 1867.

"That the by-laws relating to membership be amended, and that, in future, Ladies shall be eligible for election as Associates of the Society. Such Associates are to be elected in the same manner as ordinary members, and to enjoy all the privileges of ordinary members except that of voting at meetings of the Society. Such Associates shall pay an annual subscription of two dollars."

#### May 18th, 1881.

"That the annual subscription to the Society be reduced to four dollars, including the subscription to the Canadian Naturalist, and to three dollars without the subscription to that paper."

#### OF OFFICERS AND OF THE COUNCIL.

#### June 30th, 1862.

"That three additional Vice-Presidents be elected, not to be numbered 1st, 2nd, 3rd and so on, but that all be enumerated in order as elected.

"Also that four additional members be added to the Council, so as to make altogether nine members."

#### OF COMMITTEES.

#### April 19th, 1867.

"The Council of the Society at its October meeting in each year shall nominate a Committee, not exceeding five members, to be appointed by the Society at its October meeting. Such Committee shall be named the 'Lecture Committee,' and is to mature all the arrangements for the annual course of Somerville Lectures and such other lectures as may be sanctioned by the Society, as well as the annual Conversazione, and to report at each meeting of the Society throughout the winter. The President and the Recording Secretary shall be ex officio members of the Lecture Committee.

#### OF MEETINGS.

#### September 24th, 1866.

"That By-Law No. 3, Chapter 3, be amended, and that the meetings of the Council be held on the *Fuesday* before the monthly meetings instead of the Thursday."

## PROCEEDINGS OF ANNUAL MEETING,

МАУ 18тн, 1881.

The Annual Meeting for the Session 1880-81 was held on Wednesday evening, May 18th, 1881. The President, Principal Dawson, occupied the chair. The minutes of the last annual meeting were read and sustained.

Having presented Major Latour with the Society's Bronze Medal for his many important services to the Society, the President delivered his

#### ANNUAL ADDRESS,

in the course of which he said that the year just closed had been distinguished more for the improvements made in the Museum of the Society and in its financial position than for extent of scientific work, though the latter had not been inconsiderable. The Society had sustained a great loss by the removal to Ottawa of several very efficient members connected with the Geological Survey and it was the more important on this account that it should endeavour to increase its membership and more particularly to attach to itself young men who take an interest in science He referred to the discoveries resulting from the labors of Mr Ells, Mr. Whiteaves, Mr. Foord and Mr. Weston in the upper part of Baie des Chaleurs. The remarkable association in that locality, within a very limited space, of Upper Silurian, Devonian and Lower Carboniferous rocks, was in itself of much interest, and the remarkable group of Upper Devonian fishes worked out by Mr. Whiteaves, and described by him at one of their meetings, completed a link of connection between the fossils of this country and of Great Britain. The plant remains of this locality also, connecting as they did the Gaspé sandstones with the Perry beds and with the Cattskill series of New York, were of the highest interest. A communication received latter in the session, from

Mr. R. Chalmers, on the Postpliocene of the same region, has further added to our knowledge of this interesting region, on the confines of New Brunswick and Quebec. In connection with more Western regions, Dr. Selwyn, of the Geological Survey, has presented a paper on discoveries of fossil plants in the Lignite tertiary of Roches Percées, in the Western Territories. Another interesting geological subject was that of the structure of the Peace River District, as explained by Dr. G. M. Dawson, and more especially the recognition in that region of the Cretaceous series represented farther south, holding not only valuable beds of coal, but also fossil plants, seeming to connect some of the distinct floras recognised by American palæontologists to the southward. Having referred to the papers of Dr. Osler on Fresh Water Polyzoa, Mr. Donald on Baking Powders and Dr. Edwards on the qualities of certain Well-water, he said that much interest had been added to the meetings by the specimens submitted by their zealous curator, Mr. Muir, to whom they were also indebted for an illustration of a new illumating lens for the microscope, which he himself had invented. A Committee had been working throughout the Session in arranging for the visit of the American Association for the Advancement of Science in 1882, and it was hoped that their efforts would be successful in bringing about a scientific meeting even more successful than that of 1857

In the absence of Mr. Whiteaves, who has removed to Ottawa, Mr. G. L. Marler read the following

#### REPORT OF THE CHAIRMAN OF COUNCIL.

Your Council has to regret the loss; since last annual meeting, of several of your most active members by the removal to Ottawa of the Geological Survey. Your Society has, by such removal, been deprived of a number of very active members, and your Council takes this, opportunity of tendering to these gentlemen its sincere thanks for the valuable services they have rendered the Society, and hopes that although removed from this city they will not cease to interest themselves in the Society's proceedings, but will continue their connection with it as corresponding members. To attain this end your Council recommends that these gentlemen be regularly elected corresponding members.

During the Session now about to close your museum has received large additions both by purchase and donation. The specimens in the museum have been cleaned and remounted. This has added very materially to their appearance and value. Improvements have also been made in the building, and though much has been done, much yet remains to be done to carry out the proposed alterations and to make the building and its contents more worthy the objects for which they exist.

The land adjoining the building on the north side having passed out of the hands of the Royal Institution, and building thereon having been commenced, certain necessary expenses will in consequence fall on your Society. Arrangements have been made between your Society and the proprietor of the land adjoining your building to the north, to cede to him the few inches of land lying between your property and his, and for the sale of that portion of the north wall which he intends using and the land on which it rests. This will oblige your Society to alter the slope of the roof, to close three of the windows and to make other alterations; this arrangement has been made under your resolution approved of by your Council.

The usual free course of Somerville lectures was duly given to the number of six. Your Council recommends that the thanks of your Society be tendered and conveyed to the gentlemen who so kindly and ably gave their valuable time and labour in the preparation and delivery of these lectures, which, as proved by the large attendance, were well received and much appreciated. The lectures were as follows:

1881.

Feby. 3rd. On Mind in Nature. By Principal Dawson.

Feby. 10th. On Magnetism and Electricity as aids to Intelligence. By Dr. Barnes, Point St. Charles.

Feby. 24th. On Sugar and its Varieties. By Dr. J. Baker Edwards.

March 3rd. On the Brain as a thinking organ. By Dr. Osler.

March 10th. On Tobacco and its effects on the Brain, the Nervous System and organs of Vision. By Dr. Buller.

March 13th. On the Whence and Whither of a Sunbeam. By H. Sugden Evans, Esq., F.C.S. Your Council thinks that the change of Janitor has been beneficial to your Society, and hopes that it may not be long before your resources will enable your Society to employ permanently a regular Taxidermist. This is now almost a necessity as the Museum must henceforth attract more attention from the public owing to removal to Ottawa of the Geological Survey. Your Council has also to report that the annual field-day took place as usual, Lachute being the place selected for exploration; the day was everything that could be desired, and the Council would not only recommend that these field-days be kept up but would suggest that several be held through the summer.

As Treasurer of the Society, Mr. Marler presented the subjoined

#### TREASURER'S REPORT.

Your Treasurer has much pleasure in reporting that notwithstanding the large amount expended in improving the Museum and adding to it a large number of valuable and rare specimens, your Society has been able to reduce the mortgage on the property by paying a sum of \$250, leaving only a balance of \$250 to be paid, and there yet appears to your credit a balance of \$74. Like every other institution your Society is feeling the influence of the good times upon which our country is now entering. This is seen from the fact that members who were in arrears with their membership fees are now making payment of the same. Your Treasurer hopes therefore to be able to show at an early date the mortgage on the building paid off and a considerable balance on hand.

~

.880. May 18.       \$268.61         Fo balance on hand       \$268.61         1880-81.       700.00         Fo Government grant       700.00         "Donation from Mr. Hy. Joseph       10.90         "Rent of Rooms       510.50         "Entrance Fees to Museum       75.80         "Members' Fees       409.63	By Printing and Advertising  "Additions and repairs  "Petty repairs, furnishing, etc.  "Salaries, gratuities and labour  "Gas and Water  "Editing Naturalist  "Excursion  "Plumbing and Gasfitting  "Hire of Piano, old account.  "Directory, John Lovell.  "Wood and Coal.  "Insurance.  "Repairs, (windows in upper part, &c.).  "Interest on debt.  "Dawson Brothers' account  "Hy. Joseph, Esq. on account of debt.	270.00 43.96 457.00 147.25 50.00 30.00 15.16
	" Balance on hand	74.4

Outstanding Debt on Mortgage, \$250.00.

Examined and found correct, L. A. HUGUET LATOUR, Auditor.

G. L. MARLER
Treasurer.

Mr Muir then presented the

REPORT OF THE CABINET KEEPER AND OF THE LIBRARY COMMITTEE.

This report may be arranged under three divisions.

1.-Work on the Building.

2.—Work in the Museum.

3.—Report of Library Committee.

1st. Work on the Building .- On the left hand side of the entrance hall, a convenient store-room has been added, the ceiling of which gives a floor suitable for the accommodation of several specimens formerly in the Museum. The side entrance has been enclosed by a ceiling and partition, forming an inside porch, adding greatly to the comfort of the place in winter; and the head of the rear stairway leading up to the gallery has been floored over, increasing the accommodation offered by the gallery. Eleven windows have been put in on three sides of the gallery, giving increased cheerfulness and light; curtains have also been placed on the sky-lights. The large wall cases, twenty-seven in number, have been cleaned and painted, the shelves made narrower and better adapted to show the specimens thereon. The north and south sides of the gallery fronts have been raised, levelled and supported. The benches in the Lecture Hall have been repaired and strengthened by bolts.

2nd. Work in the Museum.—The whole of the birds, (1194 in all), the mammals, reptiles and fishes have been thoroughly dusted and cleaned; the birds have been re-mounted on handsome black walnut stands and painted blocks and the old soiled labels replaced by new ones; the fishes have been removed to the aquarium room, and the mammals re-arranged and put in the space thus left vacant. The whale, two of the alligators, and the large seal have been removed to the floor covering the storeroom to the left of the main entrance hall, and the floor cases, formerly in the aquarium room, have been brought into the main room. Mr. John S. Brown having offered to stock and take charge of the aquaria for the Society, two aquaria loaned by Messrs. Wm. Muir and Jas. Ferrier, jr., together with those belonging to the Society, have been placed in position, and it is hoped that before the season is over a good representation in this department will be one of the attractions of the Museum. Mr.

Brown has also generously offered to pay the cost (\$6) of tables upon which to place the aquaria.

The following is the list of birds found to be so much injured that they were destroyed:

Grass Finch Poecetes graminsus.
Purple Martin, Progne purpurea.
Red-shouldered Hawk, Buteo lineatus.

- \* Lesser Red Poll, Egiothus linaria.
  Common Crow, Corvus Americanus.
  Yellow-throated Fly Catcher, Vireo flavifrons.
  Cat Bird, Galeoscoptes Carolinensis.
  Brown Thrush, Harporhynchus rufus.
  Red-eyed Fly Catcher, Vireo olivaceus.
- \* Sparrow Hawk, Tinnunculus sparverius.
- \* Shore Lark, Eremophila cornuta.
  Satin Grakle (female), Kitta holosericea.
  Great Northern Shrike (old male), Collyrio Borealis.
  " " (female) " "

Dipyllodes magnifica. New Guinea. J. F. W.

\* These three have been replaced—and it is to be hoped that if any of our members can aid us in replacing the others they will do so.

The following are the additions to the Museum since June, 1880:

#### DONATIONS WITH NAMES OF DONORS.

Apatite crystal, from Bob's Lake, Bedford, Ont. W.J. Morris, Esq. Moss, coated with mineral matter, from Colorado. Dr. Kennedy. Collection of English Plants. Col. G. E. Bulger, F.L.S., F.Z.S. A fine Limitus polyphemus. Miss E. Mathewson.

Grey Squirrel, Sciurus Carolinensis. N. P. Leach, Esq.

Albino Robin, Turdus migratorius.

Barred Owl, Syrnium nebulosum. J. A. Ogilvy, Esq.

". " " Jno. Nichols, Esq. Horned Grebe, Podiceps cornutus. "

Great Blue Heron, Ardea herodias. Geo. Edwards, Esq., Thurso.

Blue Jay (2), Cyanura cristata. G. L. Marler, Esq.

A Remora or Sucking Fish. Geo. F. Phelps, Esq.

A Bull-head Fish. "
Head of a male Salmon. Robt. J. Fowler, Esq.

A box made out of a plank from the Royal George, and a lock of Grace Darling's hair. Capt. Dutton, S. S. Sardinian.

Wild Goose (2), Bernicla leucopareia. G. L. Marler, Esq.

Brant Goose, Bernicla Brenta.

American White-footed Goose, Anser albatus. "

Hare (mongrel). P. Keutzing.

Prairie Wolf. Chas. Selwyn, Esq. 44 Specimens of Lepidoptera. P. Keutzing.

#### PURCHASES.

BIRDS.

Belted Kingfisher, Ceryle Alcyon.

Coot, Fulica Americana.

Baltimore Oriole, Icterus Baltimore.

Sparrow Hawk, Tinnunculus sparverius.

Shore Lark, Eremophila cornuta.

Loggerhead Shrike (male and female) Collyris Ludovicianus.

Bonaparte Gull (Young), Larus Bonapartii.

Black-bellied Plover (2), Squtarola helvetica.

Loon, Colymbus glacialis.

Spruce Partridge, Tetrao Canadensis ..

Hooded Merganser, Lophodytes cucullatus.

Goshawk, Astur atricapillus.

Goshawk (old)

Horned Grebe, Podiceps cornutus.

Royal Tern, Sterna Regia.

Brewers Duck, Anas Breweri.

American Avoset, Recurvirostra Americana.

Great Marbled Godwit, Scolopax fedoa.

Red-necked Grebe (2), male and female, Podiceps rubricollis.

Ruddy Duck (2), male and female, Fuligula rubida.

Greater Blackhead Duck (2), male and female, Fuligula marila.

Snowy Owl (2), Stryx Nyctea.

Herring Gull, Larus argentatus.

Killdeer (young), Ægialitis vociferus.

Harris Woodpecker (2) male and female, *Pieus Harrisi*. Vancouver's Island.

Yellow Rail, Rallus noveboracensis, Labrador.

Arctic Towhee (male), Pipilo arctica.

Fork-tailed Fly Catcher, Muscicapa savanna.

Horned Grebe (winter plumage), Podiceps cornutus.

Great Northern Diver, Colymbus glacialis.

Black-throated Diver, Colymbus arcticus.

Snow Bunting (2), Plectrophanes nivalis.

Black-throated Blue Warbler, Dendroica Canadensis.

" Green " " virens.

Black and Yellow, " " maculosa.

Green Black Cap Fly Catcher (male, winter plumage), Muscicapa pusilla.

Mealy Red Poll (summer plumage) Ægiothus exilipes.

Little Minaret, Pericocotus peregrinus.

Wild Pigeon, Ectopistes migratoria.

#### MAMMALS.

Canadian Lynx, Lynx Canadensis. St. Jerome.

Racoon (old female), Procyon Lotor.

(young), "

Mink, Putorius vison.

Weasel (2), Putiorus vulgaris.

Prairie Dog, Spromophilus ludovicianus.

Skins presented on a former occasion by the Smithsonian Institute and now mounted:

California Grey Squirrel, Sciurus fossor.

Thirteen Striped Squirrel (2), Spermophilus tridecemlineatus.

Mice (7)—various species.

#### Skins re-mounted:

Red-shafted Woodpeckers (2), Picus querulus?.

Swift Parakeet, Melopittacus undulatus. Australia.

Hardwicke Shrike, Collyrio.

Yellow Bird (female), Chrysomitris tristis.

3rd. Report of Library Committee.—List of books, pamphlets and periodicals received into the library during the year ending May 1st, 1881:

American Journal of Science. Vol. 19, Nos. 110, 113; Vol. 20, Nos. 115, 116, 117, 118, 119, 122, 123.

Boston Society of Natural History. Vol. 20, Part 3.

American Philosophical Society. Vol. 18, No. 105.

Canadian Antiquarian and Numismatic Journal. Vol. 8, Nos. 3, 4; Vol. 9, No. 3.

Canada Medical and Surgical Journal, for the year.

Canadian Entomologist,

Le Naturaliste Canadien,

Statutes of Canada. Vols. 1 & 2. 1880.

Geological Record for 1877, by Wm. Whitaker. London, 1880.

United States Fish Commission Report; from Smithsonian Institute. Scientific Proceedings of the Royal Dublin Society, from Nov. 1877

to July, 1880. Scientific Transactions of the Royal Dublin Society, from Nov. 1877 to June, 1880.

Academy of Natural Sciences of Philadelphia. Parts 1st and 2d. Jany. 1880 to Sept. 1880.

Proceedings of the Rhode Island Historical Society, 1879–1880 and 1880–1881.

Transactions of the Connecticut Academy of Arts and Sciences. Vol. 1, Part 2, 1867 to 1871.

Annals of the Lyceum of Natural History. Vol. 11, No. 13.

Annals of New York Academy of Science, late Lyceum of Nat. His. Vol. 1, Nos. 11 to 13.

Contributions to Archæology of Missouri; from St. Louis Academy of Science. Part 1. Pottery. 1880.

Proceedings of the American Philosophical Society, 100th Anniversary, at Philadelphia. March, 1880.

Geological and Natural History Survey of Minnesota, 8th An. Report, 1879.

The American Antiquarian.

The American Naturalist. Vol. 14, Nos. 8 to 12; Vol. 15, Nos. 3 to 5. Annals of the Museo Nacionalde. Mexico, 1880.

Journal of the Linnæan Society of London. Vol. 14, No. 80; Vol. 15, Nos. 81 to 83; Vol. 17, Nos. 103 to 107.

Proceedings of the Royal Society of London. Vol. 29, No. 197 to 205. June 1879 to June 1880.

Transactions of the Edinburgh Geological Society. Vol. 3, Part 2. 1879.

The Glasgow University Calendar, 1880-1881.

Science Gossip; for the year.

Quarterly Journal of Microscopical Science, for the year.

Journal of the Royal Microscopical Society, for the year.

Journal and Proceedings of the Royal Society of New South Wales. Vol. 12. 1878.

Transactions of the Philosophical Society of Adelaide, South Australia. Vol. 1, 1878; Vol. 2, 1879; Vol. 3, 1880.

Geological Survey of Canada. Report of Progress. 1878-1879.

Annual Report of the Entomological Society of Ontario for 1880.

Bulletin of the Essex Institute. Vol. 12, No. 769.

Ninth Annual Report of the Curators of the Wesleyan University, Middleton, Conn., U. S., 1880.

Nature. London. A Weekly Journal; for the year.

Archives Neerlandaises des Sciences Exactes et Naturelles—Societé Hollandaise des Sciences, Haarlem.

Archives Musée Teyler.

Nederlandsch Meteorologisch Iuarbackvoor, 1879.

Sitzungs-Beritche der Naturwissen schaftlichen Gesselschaft Isis in Dresden, 1879 and 1880.

Zeitschrift der Deutschen geologischen Gesellschaft—Berlin, 1879. 2 Vol. One No. April to June 1880.

Leopoldina. Dresden. Jany. 1878, Jany. 1879.

Nova Acta Academæ Cæseræ Leopoldina-Carolinæ, Germanical Naturæ curiosorum. Dresden and Halle, 1878.

Brachiopodes Etudes Locales. Extraits du Silurien du centre de la Bohemé. Vol. 5. Par Joachim Barrande. Paris.

Memoires de L'Academie des Sciences, Arts et Belle-Lettres des Dijon. 1878-1879.

Beritche uber die Verhandlungen der Koniglick sachsischen Gesselschaft der Wissenchaften Zur Liepzig. 1879.

Abhaudlungen der Mathematish-physischen classe der Königl, clas 12, Nos. 2 to 4. Leipzig, 1879–1880. Also, No. 2, 1879.

Annals of the Museo Nacionalde. Mexico. Part 2. 1880.

Bulletin de la Societé Imperiale des Naturalistes de Moscow. Nos. 1, 2, 3, 4. 1879.

Acta Horti Petropolitani. Tomus VI, Fasciculu 2. St. Petersburg. Bulletin et Memoires de Université Imperiale de Kazun (en Russe) 1879. No. 1 to 6.

Transactions of the Edinburgh Geological Society. Vol. 3, Part 3.

Proceedings and transactions of the Nova Scotian Institute of Natral Sciènce. Vol. 5, Part 2. 1879–1880.

Report of the Wisconsin Naturalist Society, German. 1880-1881.

Annual Report of the Department of Mines, New South Wales. 1880.

Do. do. do. for 1880. With maps.

Transactions of the American Philosophical Society. Vol. 15, New Series, Part 3.

Proceedings of the Royal Geographical Society. London. Vol. 3. No. 4.

In concluding my report allow me respectfully to suggest to the Council the following necessary and desirable repairs, improvements and additions in the Museum and building, besides those rendered necessary by the construction of the building on the northern side:

1st. The drains will require to be lowered, to enable them to drain the water from the under part of the furnaces.

2nd. In the heating department a new furnace or furnaces will be required (the old ones are worn out), which, in addition to the present heating arrangements, shall convey a shaft for hot air to the floor of the Museum.

3rd. The excessively crowded condition of the Hall on the occasions of the Somerville lectures revealed the necessity of providing for the more rapid influx of fresh air and egress of heated air. Increased accommodation can also be partially provided by arranging the folding doors on the north-east corner of the Hall so that they can be thrown open if desired.

4th. The addition to our stock of birds and mammals during the past year and the likelihood of equal addition during the coming year necessitates the acquirement of more wall cases in the Museum. The Secretary then read the

REPORT OF EDITORS OF THE "CANADIAN NATURALIST."

The Editors of the "Naturalist" would report that this Journal has been issued as usual during the past year, four numbers having appeared since last annual meeting. They regret to state that but scanty material has during the past year been placed at their disposal by members of the Society. They would again urge upon members the necessity of doing all in their power to contribute and procure articles suitable for the Society's publication.

It was agreed on motion of Dr. DeSola that the reports now read be received and adopted and printed in the *Naturalist* and that a Membership Committee be appointed to enlarge the subscription roll and increase the interest in the Society.

Dr. A. R. C. Selwyn was proposed as an honorary life member; Dr. Ross was proposed as on ordinary member, and Dr. Robert Bell, Dr. G. M. Dawson, Messrs. Foord, Ells, Richardson and Whiteaves, as corresponding members.

The election of officers was then proceeded with, resulting as follows:

President-Principal J. W. Dawson, LL.D., F.R.S.

Vice-Presidents—The Rev. Dr. DeSola, Mr. J. H. Joseph, Prof. P. J. Darey, Dr. T. Sterry Hunt, Major H. Latour, Dr. A. R. C. Selwyn, Dr. Hingston, Prof. B. J. Harrington and Mr. D. A. P. Watt.

Recording Secretary—Prof. F. W. Hicks, M.A.

Corresponding Secretary-Dr. J. Baker Edwards.

Treasurer—Mr. G. L. Marler.

Cabinet-Keeper and Librarian-Mr. Wm. Muir.

Council—Messrs. Thomas Craig, J. T. Donald, J. Bemrose, H. M. Sanborn, Dr. Osler, the Rev. Mr. Empson, M. H. Brisette, John S. Brown and S. Bagg.

Library Committee—Messrs W. Muir, J. Bemrose, J. S. Brown and J. T. Donald.

Editors of Canadian Naturalist—Professor B. J. Harrington and Mr. J. T. Donald.

Mr. Wm. Muir gave notice of motion to alter the by-law concerning annual membership fee.

The meeting then adjourned until June 16th.

The adjourned annual meeting was held on June 16th. Principal Dawson in the chair.

The minutes of the meeting of May 18th having been read and sustained, it was moved by Mr. J. H. Joseph, seconded by Prof. F. W. Hicks, and resolved: that in accordance with notice given at the meeting on the 18th ult., "the annual subscription to the Society be reduced to four dollars including the subscription to the Naturalist and to three dollars without the Naturalist.

The chairman of Council and the Recording Secretary were requested to issue a circular announcing the change in the subscription and urging members to endeavor to increase the membership list."

Messrs. Geo. Craig and P. Keutzing were proposed as ordinary members, after which the meeting adjourned.

#### LIST OF

# Life, Yonorary, and Corresponding Members

OF THE

# NATURAL HISTORY SOCIETY OF MONTREAL.

### LIFE MEMBERS.

CHAMPION BROWN, Esq. HENRY CHAPMAN, ESQ. J. F. CLAXTON, Esq. T. J. CLAXTON, Esq. A. H. DAVID, Esq., M.D. J. W. Dawson, LL.D. F.R.S. REV. A. DE SOLA, LL.D. G. A. DRUMMOND, Esq. W. EWAN, Esq. HON. JAMES FERRIER, M.L.C. JAMES FERRIER, JUN., ESQ. W. H. HINGSTON, Esq., M.D. WM. HOBBS, JUN., Esq. E. M. HOPKINS, Esq. HENRY J. IBBOTSON, Esq. J. H. Joseph, Esq. W. F. KAY, Esq. L. A. H. LATOUR, Esq. PETER REDPATH, Esq.

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## HONORARY LIFE MEMBERS

	THE MIDELLO.
DATE	OE ELECTION.
May	29, '50—A. M. McWhinnia
Nov.	29, '50—A. M. McWhinnie London, England.
	29, '52—General G. Lefroy, F. R. S
	England
	Aimé Bouchard, M.CAcademie des Sciences,
	David
Dat.	Milne Edwards, M.D " " " " "
Feb.	28, 33—Professor Joseph Henry, Secretary
	of the Smithsonian Institute
March	20, 00 Di. Rae
Jan.	5, '54—O'Bryan Bellingham M D
May	10, 00 C. Small Wood, M.D. Li, D. D.C.T. ar
Sept.	26, 50—I folessor James Hall
Oct.	
May	19, '73-T. S. Hunt, LL.D. F.G.S.BMontreal.
May	18, '77—P. P. Carpenter LL.D. F.G.S Montreal.
	J. F. Whiteaves F.C.S
Oct.	25, '80—Henry Montgomery, EsqToronto.
	Rev. Chas. Rogers II D
May	Rev. Chas. Rogers, LL.D
1.00	, Ott

## CORRESPONDING MEMBERS.

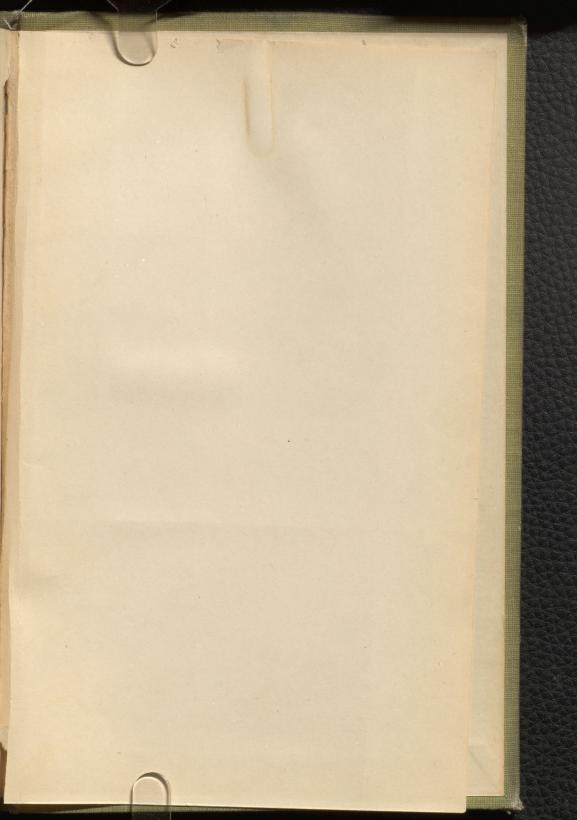
DATE		ELECTION.	
Aug.	26	6, '37—Dr. Sabourin United States.	
Sept.	29	9, '44—Major Kendall	
June		6, '46-Dr. W. Newcomb Troy, N. Y.	
June		5. '47—J. W. LeayeraftQuebec.	
Nov.	20,	), '47—Henry Holmes Croft, Professor of	
		Chemistry, University CollegeToronto.	
April	24.	, '48-Major Lachlan	
June	25	5, '49-Dr. John Hillier Blount Birmingham, England.	
July		, '49—Jean Charles TachéQuebec.	.mol.
oury	50,		
	-	Charles Payn, M.DUnited States.	
May		), '50-T. McDonaldJamaica.	
Jan.	27,	, '51—Cecil Percival Stone	
April	25.	, '52-Samuel Kneeland, M.D Boston, Mass.	
Aug.		, '52-Dr. Robert M. HustonPhiladelphia, Penn.	
mug.	00,	Wm. Rogerson Royal Observatory, G	lucon-
			теец-
		wich.	
		J. Adolphus Thurburg Louisiana.	
Sept.	8,	, '52-M. C. Brodie Beauharnois.	
		E. A. H. Allen Troy, N. Y.	
Oct.	25.	, '52-Wm. Goodenough Wheeler, M.DChelsea, Mass.	
000.	٠,	Rev. William Scott Sherbrooke, C. E.	
NT	00	, '52-B. P. Johnston, See'y. Agrichtural	
Nov.	29,		
		Society New York.	
		Samuel WalkerRoxbury, Mass.	
		Sir John P. Boileau, Bart., F.R.S London.	
		John L. LeConte, M.DPhiladelphia.	
		J. Eliot Cabot. Cor. Sec. of the Boston	
		Society of Natural History Boston, Mass.	
		John Gunlach, M.D Cardenas, Cuba.	
		Prof. W. BucklandToronto.	
	00		
Feb.	28,	'53-Dr. Charles Huguet Latour St. Rémi.	
		Dr. J. W. Salisbury Albany.	
		George Weber Breton	
		George Gephson Rumley Dublin.	
		Archibald Cameron Pointe du Chêne.	
March	98	'53-Hon. Jos. Cauchon, M.P.PQuebec.	
Haiou	20,	Benjamin Franklin Niles Washington, D. C.	
		Francis Markoe, jr Washingtoh, D. C.	
		Samuel Dutton	
		H. ThielekeQuebec.	
		Chas. Laberge, EsqSt. Johns, P. Q.	
		Rev. F. Pilote, College of Ste. Anne	
		de la Pocatière	
		Dr. Theop. Huguet LatourBoucherville.	
	07	'53—Vertue EdwardsLondon, England.	
April	21,	75- Vertue Edwards London	
		Thomas Wakley, jrLondon.	
		William BellLondon.	
		Philipe Claiborne Gooch, M.D Richmond, Va.	
		Col. Campbell, C.BSt. Hilaire.	
		Ehen, Wight, M.DBoston, Mass.	
		Alexander Murray Woodstock, C. W.	
T 1-	06	'53—George G. FrancisSwansea, England.	
July	20,	Geo. Prev. de BouchervilleSt. Hyacinthe.	
		Rimonski	
		Msgr. J. LangevinRimouski.	had
		Albert Baker, M.DStancross, Devon, Englander	udo
		John GilsonRome, Italy.	

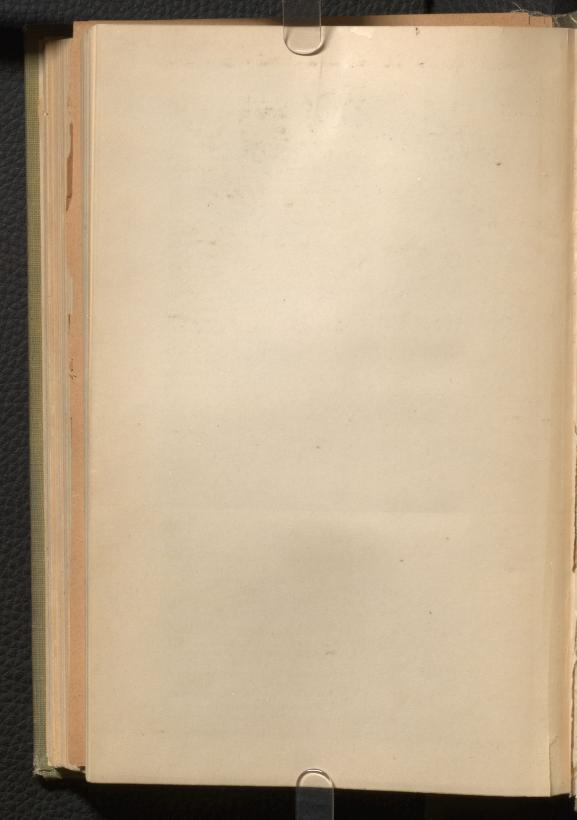
Nov.	28	, '53-	-Cassimir Dessaulles Hamilton D. Jesup, M.D	St. Hyacinthe.
7AT	90	150	-M. Turcot, M.D	St Hypginthe
Nov.	29	, 55-	Rev.M. Lavallée	St Vincent de Paul
April	94	251	-Rev. Michael Ashton	Adalaida Australia
June	20	, 04-	-Rev. M. A. Trudeau	Ruffalo N V
June	90	, 04-	Edward Crisp, M.D	London
			Edward L. Ormerod, M.B	Brighton
			James Spence	
Oct.	20	254-	-Rev. Louis Ed. Bois	
000.	00	, 01	Dr. Amédée Wellbrain	Tournay, Belgium
Jan.	90	255-	-Sir James Ed. Alexander	
June			-General Rowan	
oune	20,	00-	Dr. Litchfield	
Oct.	90	155_	-William Couper	
			-Sir G. E. Carter, Bart. M. P	
11101011	01,	00	A. Brunel	
			Rev. W. Brethour, M. A	
April	28	753-	-Hon. Judge Sicotte	
May			-Asst. Com. Gen. Ibbotson	
Jan.			-P. L. McDougall, Advocate	
-	,	00	J. C. Lee, M.D	
			Prof. P. J. Heyfelder	
Dec.	29.	256-	-H. P. Gosselin	
200.	20,	-	Alex. Copeland	
Feb.	25.	257-	-Prof. O. P. Hubbard, M.D., Dart	
200-	,		mouth College	
			Rev. A. J. Tellier, President St	
			John's College, N. Y	
			R. L. Pell	
April	27.	*57-	Jules Flavin Gingras	
July			Count Motschulsky	
April	27.	·57—	Rev. M. Curtis, D.D.	Hillshurgh II S
			W. S. Sullivan	
			S. Durkee, M.D	
May		*60-	-Rev. Louis Wurtele	Actonyala
July		,60-	-M. J. Mitcheson	Philadelphia
Oct.	-,	·60-	-Henry Poole	Halifay N S
			Rev. D. Honeyman, F.G.S	Antigonish N S
			Ed. Bowen, M.D	Brantford
Nov.	-,	'60-	-Barnard R. Ross	Ft. Simpson Runart's Land
Jan.	-,	'62-	Thos. Macfarlane	Actonvole
June	3,	'62-	-Professor Baird	Smithson'n Inst Wash'aton
			W. Stimpson, M.D	11 16 66
			Rev. A. Forrester, D.D	Principal of Normal Schools
				Truro Movo Santia
Sept.	29,	*62-	-Dr. Lowe, F.R.S.	Brighton England
Nov.	24.	62-	-S. H. Parkes	Rirmingham Fraland
March	30,	'63-	Hugh E. Montgomerie	London England
			N. W. Bethune	Ottown O W
Oct.	26,	'63-	-W. Saunders	Tondon O W
			A. S Packard	D
			H. Kose	Charles O' D
			G.F. Matthew	C4 T.1 37 T
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Nov.	29,	'63-	John Drown	O and the or and
Oct.	24,	'63-	-nev. n. McDenaid	
a.ben			Professor H. Y. Hind	Wind
Nov.	28,	64-	-Captain Rooke, S. F	CHARLE FIRMA

March 27' '65-Dr. P. O. Fortin, M. P., &c	Laprairie.
Nov. 29, '65—Professor Westwood	Oxford. England.
Professor Daniel Wilson	Toronto.
G. F. Angas, Esq., F.Z.S., &c	London, England.
Jan. 29, '56-Alexander Agassiz	Cambridge, Mass.
March 26, '66-Rev. T. Robinson	Abbotsford.
Feb. 25, '67-H. Woodward, Esq	British Museum.
Bryce M. Wright, Esq	
Thos. J. Moore. Esq	
Nov. 25, '67—Sandford Fleming, Esq	
Feb. 24, '68—John Macoun, Esq	
Oct. 26, '68-Bt. Maj. G. E. Bulger, F.L.S &c .	
March 29, '69—Cyril Graham, Esq	
Jan. 31, '70—Prof. J. W. Marsh	
Jan. Oi, 10 I for o. W. Maish	Oregon.
April 25, '70-Alfred Bell	
Feb. 27, '71—Prof. J. Wajeika	
Jan. 29, '72—Sir Duncan Gibb Bart, F.G.S	
Prof. Edward Morren	
Prof. André Devos	
Prof. Robert Middleton	
Nov. 27, '76—Albert J. Hill	
April 30, '77—Count Premio de Real	
Nov. 24, '77—Rev. T. W. Fyles	
May 18, '81-Robert Bell. M.D	
Dr. G. M. Dawson	"If belong I to be near
J. F. Whiteaves, F.G.S	" flatst adal 12_000 f
R. W. Ells, Esq	The state of the s
A. H. Foord, Esq	Strait and water 2 and order
James Richardson Esq	si don 1 St not all 3 z a see

# Presidents of the Natural Society of Montreal, 1827—1881.

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1843–44.— "
1844–45.—M. McCulloch, M.D.
1845–46.—John Brondgeest.
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1847–48.—A. H. David, M.D.
1848–49.—A. C. Sewell, M.D. 1849-50.—A. H. David, M.D. 1850-51.—John Ostell. 1851-52.- " " 1852-53.—A. Charles Sewell, M.D. 1853-54.—Major R. Lachlan. 1854-55.—Revd. W. T. Leach, D.C.L. 1855-56.—The R. R. the Lord Bishop of Montreal and Metropolitan, 1856-57.—Principal J. W. Dawson, F.G.S. 1859-60.—The Lord Bishop of Montreal (Fulford) 1860-61.— " " " " " " 1861-62.— " " " " " " " " 1862-63.— " " " " " " 1863-64.—Principal J. W. Dawson, LL,D., F.R.S. 1864-65.— " " " " " " " " 1865-66 —Charles Smallwood, M.D., LL.D., D.C.L. 1866-67.—T. Sterry Hunt, LL.D., F.R.S. 1867-68.—Revd. Abraham De Sola, LL..D. 1868-69.—Principal J. W. Dawson, LL.D., F.R.S. 1869-70.—Sir William E. Logan, LL.D., F.R.S. 1870-71.—Principal J. W. Dawson, LL.D., F.R.S. 1871-72.— " " " " " 1872-73.—George Barnston. 1873-74.—Principal J. W. Dawson, LL.D., F.G.S. 1874–75.—A, R. Ĉ. Selwyn, F.R.S., F.G.S. 1875–76.— " " " " 1876-77.—Principal J. W. Dawson, LL.D., F.G.S. 1877–78.— " " " " " " " 1878–79.— " " " " " " 1879-80.—A. R. C. Selwyn, F.R.S., F.G.S. 1880-81.—Principal J. W. Daswon, LL.D., F.G.S.





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