

43 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.

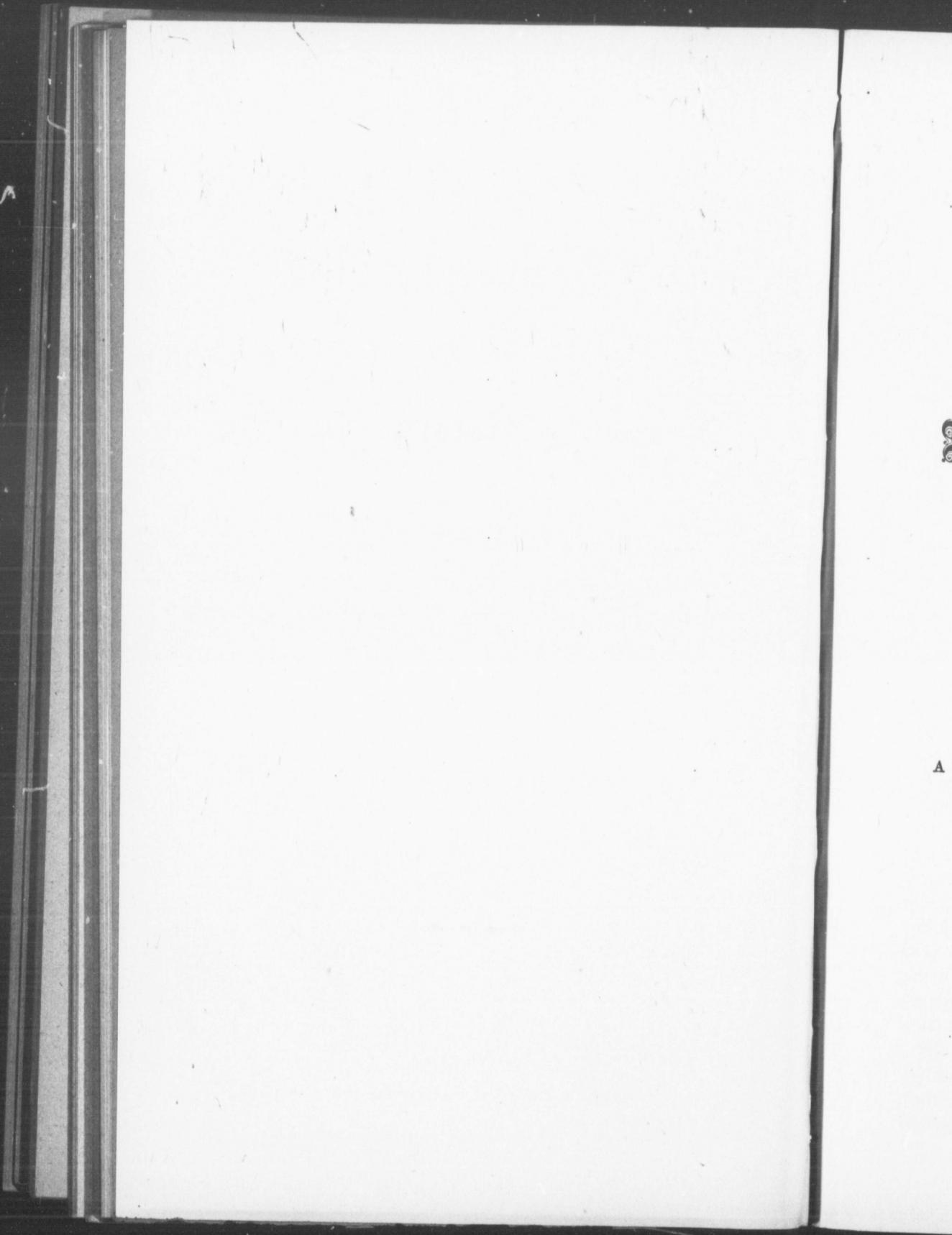
MONTREAL :

MITCHELL & WILSON, PRINTERS, 464 NOTRE DAME STREET.

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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 Ritche, 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

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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, not 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 Museum 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 havoc 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 Province 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. Cr.

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| 1870-'71. | | |
| To Cash paid J. F. Whiteaves, salary..... | \$400.00 | |
| " " W. Hunter, " | 100.00 | |
| " " H. Passmore, " | 100.00 | |
| " " J. E. Pell, Commissions on Collections.. | 29.20 | |
| " " Interest | 120.00 | |
| " " Coal | 56.06 | |
| " " Gas Bills | 56.03 | |
| " " Water Tax | 32.75 | |
| " " City Tax | 46.40 | |
| " " Insurance | 39.00 | |
| " " Repairs and Petty Expenses..... | 530.80 | |
| " " Books, Printing and Advertising..... | 125.50 | |
| 1871, May 1. | | |
| To Balance in Treasurer's hands | 917.33 | |
| | <u>\$2553.07</u> | |

STATEMENT OF LIABILITIES OF THE SOCIETY,

May 1, 1871.

| | |
|---|------------------|
| Mortgage on Society's Buildings, favour Royal Institution | \$2000.00 |
| Dawson Bros. account | 390.92 |
| Craig & Castle, balance account | 64.24 |
| | <u>\$2455.16</u> |

| | |
|--|----------|
| 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 | 172.06 |
| " " Subscription to "Naturalist" | 2.00 |
| " " Interest from Treasurer 1 year on \$886.15 | 62.03 |

\$2553.07

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.

Council.—G. L. Marler; D. A. P. Watt; D. R. McCord, M.A., B.C.L.; Prof. R. Bell, F.G.S.; E. E. Shelton; J. B. Edwards, Ph. D., LL.D., &c.; A. T. Drummond, B.A., LL.B.; E. Murphy; J. H. Joseph.

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.

Alex
F
W. D

Prin
&c

A. J
En

Smith
Wa

Major
F.R

A. E. Bu

DONATIONS TO THE MUSEUM.

Session 1870-71.

| DONORS' NAMES. | DONATIONS. |
|---|--|
| Alex. Fuller Brown, Esq., Flint, Michigan. W. Devereux B. Scott, Esq. | Two young specimens of the Gar Pike, <i>Lepidosteus osseus</i> ? Two Eider Ducks. One Red Breasted Meganser. One Great Black Backed Gull. |
| Principal Dawson, F.R.S., &c. | Cast of <i>Cephalaspis Dawsoni</i> , Lankester, and 23 species of fossils from the Uni- ted States. |
| A. Jowitt, Esq., Sheffield, England. | 17 skins of English game birds, as fol- lows: one black cock and a pair each of the pheasant, common and red-leg- ged partridge, red grouse, ptarmigan, snipe, jack-snipe, and land rail. |
| " " " Smithsonian Institute, Washington, D.C. | 22 skins of the smaller English birds. A large series of North American birds' eggs, and a specimen of the Snowy Heron. |
| Major G. E. Bulger, F.L.S., F.R.G.S., &c. | 7 rare East Indian and African birds, as follows:— <i>Halycon Coromandelianus</i> . Ruddy King- fisher. From the Teesta River, Sikkim, Eastern Himalayas. |
| | <i>Chrysococcyx Hodgsoni</i> . Emerald Cuc- koo. From the foot of Mount Ten- dong, Sikkim. |
| | <i>Pericrocotus brevirostris</i> . Short-billed Mi- nivet. From the Valley of the Little Rungeet River, Sikkim. |
| | <i>Sphenocercus apicaudus</i> . Pin-tailed Green Pigeon. Valley of Little Rungeet River, Sikkim. |
| | <i>Chalcophaps Indica</i> . Bronze-winged Dove. Valley of Great Rungeet River, Sikkim. |
| | <i>Coturnix dactylisonans</i> . Quail. Windvo- gelberg, S. Africa. |
| | <i>Alcedo cristata</i> . 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. |
| A. E. Bulger, Esq. | Burmese box, made of bamboo. Burmese M.S.S. on the prepared leaf of the Palmyra Palm, <i>Borassus flabellifor- mis</i> , Linné. Piece of stem of the American Aloe, <i>Ag- ave Americana</i> , Linné. Burmese Canoe. |

DONATIONS TO THE MUSEUM.—(Continued.)

| DONORS' NAMES. | DONATIONS. |
|-----------------------|--|
| A. E. Bulger, Esq. | <p>Quills of Indian Porcupine, (<i>Hystrix leucurus</i>, Sykes) from the Nilgherry Hills.</p> <p>Piece of Sandal Wood (<i>Santalum album</i>) and of the heart wood of the "lign aloes" or eagle wood tree, (<i>Aquilaria agallocha</i>) also another wood of which the name of the species is not known: all from British India.</p> <p>Seed pod of the Moreton Bay Chestnut Tree, <i>Castanospermum Australe</i>, Cunn., and of the "Frangipanni" flower, <i>Plumieria alba</i>, from India.</p> <p>Tusk of Wild Boar, from India.</p> <p>Seeds of Tea Tree, <i>Thea Chinensis</i>, from China.</p> <p>" " Indian Shot, <i>Canna Indica</i>, from India.</p> <p>" " Red Wood Tree, <i>Adenanthera pavonina</i>, from India.</p> <p>" " Wild Liquorice, <i>Abrus precatorius</i>, from India.</p> |
| Master E. A. Kittson. | Bonduc Nuts. <i>Guilandina Bonduc</i> . |
| J. F. Whiteaves, Esq. | Grugru Nuts. Seed-vessels of a palm, <i>Acrocomia sclerocarpa</i> , Mast., from the West Indies. |
| Hon. T. Ryan. | Seeds of <i>Eleocarpus oblongus</i> , Gaertner; from the Nilgherries. |
| S. W. Passmore. | Seeds of the Great Elephant Creeper, <i>Entada pusætha</i> , Decandolle. From the Sikkim Terai, Eastern Himalayas. |
| H. G. Vennor, Esq. | Fossil wood, from the petrified forest near Cairo, Egypt, and several other miscellaneous objects. |
| By purchase. | Egg of the Red-Shouldered Hawk, <i>Buteo lineatus</i> , from Sorel. |
| Donor unknown. | Specimen of the Glass Rope Sponge, <i>Hyalonema Sieboldii</i> , 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, <i>Hypotriorchis columbarius</i> . |
| | Common Grey Parrot. |

DONATIONS TO THE LIBRARY.

Session 1870-71.

| DONORS' NAMES. | DONATIONS. |
|---|---|
| Major G. E. Bulger, F.L.S., F. R. G. S., F. Z. S. | Himalayan Journals. By Sir J. D. Hooker, M.D., R.N., F.R.S. 2 vols. 8vo., half calf. A Monograph of the Odontophorinæ, or Partridges of America. By John Gould, F.R.S. With 32 coloured plates. Catalogue of Fishes. Vol. 8, 8vo. cloth. |
| The Trustees of the British Museum. | Nederlandsch Meteorologisch Jaarboek voor 1869. Utrecht. |
| Directors of the Observa- tory of the Netherlands. | Statutes of Canada, 33 Vict., 1870. In French and English. |
| The Dominion Govern- ment. | Alaska and its resources. By W. H. Dall. |
| John Patton, Esq., (per Champion Brown, Esq.) | Geology of Iowa. 1870. 2 vols. By Dr. C. A. White, State Geologist. |
| The Author. | Report of the Fruit Growers' Association of Ontario, for the year 1870. |
| The Legislative Assembly of Ontario. | Bulletin of the Museum of Comparative Zoology at Cambridge, Mass., vol. 2, pt. 2 |
| The Director. | Distribution des Cephalopodes dans les Contrées Siluriennes. Par Joachim Barrande. |
| The Author. | Seventh biennial Report of the board of Curators of the Iowa State Historical Society, for the Biennial Period ending December 1st, 1869. |
| The Curators. | Exercises at the opening of Walker Hall, Amherst College, Mass. |
| The Librarian. | Geology of Canada, 1863. |
| A. R. C. Selwyn, Esq. | Report of Progress of the Geological Survey, from 1866 to 1869. With Geo- logical and Typographical Maps. |
| " " " " " | |

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CANADA, Etc.

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| University College | - - - | Toronto. |
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| Board of Arts | - - - | Toronto. |
| Queen's University | - - - | Kingston. |
| McGill University | - - - | Montreal. |
| Laval University | - - - | Quebec. |
| Literary and Historical Society | - - - | Quebec. |
| Le Naturaliste Canadien | - - - | Quebec. |
| Natural History Society | - - - | Ottawa. |
| Natural History Society | - - - | St. John's, N. B. |
| Nova Scotia Institute of Nat. Science | - - - | Halifax, N. S. |
| Royal Society of Victoria | - - - | Melbourne. |

UNITED STATES.

| | | |
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| Natural History Society | - - - | Portland, Maine. |
| Harvard College | - - - | Cambridge, Mass. |
| Amherst College | - - - | Amherst, Mass. |
| Natural History Society | - - - | Boston, Mass. |
| Essex Institute | - - - | Salem, Mass. |
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| American Philosophical Society | - - - | Philadelphia, Penn. |
| Smithsonian Institution | - - - | Washington, D.C. |
| Yale College | - - - | New Haven, Conn. |
| Silliman's Journal | - - - | New Haven, Conn. |
| Academy of Sciences | - - - | Chicago, Illinois. |
| Maryland Academy of Sciences | - - - | Baltimore, Md. |
| Academy of Sciences | - - - | St. Louis, Mo. |

| | | |
|--------------------------------|-------|----------------|
| American Entomologist | - - - | Kirkwood, Mo. |
| Mining and Scientific Press | - - - | San Francisco. |
| California Academy of Sciences | - - - | San Francisco. |

GREAT BRITAIN.

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| Geological Society | - - - | London. |
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| Royal Society | - - - | London. |
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| Geological Survey of Great Britain | - - - | London. |
| Quarterly Journal of Science | - - - | London. |
| Nature | - - - | London. |
| Popular Science Review | - - - | London. |
| Science Gossip | - - - | London. |
| The Student | - - - | London. |
| Naturalists' Field Club | - - - | Newcastle-upon-Tyne. |
| Bodleian Library | - - - | Oxford. |
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CONTINENT OF EUROPE.

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| Société Géologique de France | - - - | Paris, France. |
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| Imper. Geological Institute | - - - | Vienna, Austria. |
| Deutsches. Geolog. Gesellschaft | - - - | Berlin, Prussia. |
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| Société Impériale des Naturalistes | - - - | Moscow, Russia. |
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| Academy of Sciences | - - - | Stockholm, Sweden. |

| | | |
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| Christiania University | - . . | - Christiania, Norway. |
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| Bibliothèque Imperiale | - - - | - St. Petersburg, Russia |
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| Royal Bavarian Society | - - - | - Regensburg. |
| Royal Hungarian Acad. of Sciences | - | - Pesth. |
| Nederlandisch Metereol. Jahrboeck | - | - Utrecht. |
| Journal of Natural and of Economic Science | - - - - | - Palermo. |
| Royal Society | - - - - | - Leipzig. |
| Academiae Cesareae-Leopoldina-Carolinæ Germanicæ naturæ curiosorum | - | - Dresden. |
| The Isis | - - - - | - Dresden. |
| Abhandlungen herausgegeben vom natur- wissenschaftlichen Vereine zu | - | - Bremen. |

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| DAY, J. J. | McLAREN, J. C. |
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DATE OF ELECTION.

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| May | 29, '50 | A. M. McWhinnie..... | London, England. |
| Nov. | 29, '52 | General G. Lefroy, F. R. S..... | Royal Arsenal, Woolwich, England. |
| | | Aimé Bouchard, M. C..... | Academie des Sciences, Paris. |
| | | Milne Edwards, M. D..... | " " " " |
| Feb. | 28, '53 | Professor Joseph Henry, Secretary of the Smithsonian Institute..... | Washington. |
| March | 28, '53 | Dr. Rae | |
| Jan. | 5, '54 | O'Bryan Bellingham, M. D..... | Dublin. |
| May | 19, '56 | C. Smallwood, M.D., LL.D., D.C.L..... | Montreal. |
| Sept. | 29, '56 | Professor James Hall..... | Albany, N. Y. |
| | | Professor Dunglison..... | Philadelphia, |
| Oct. | 26, '56 | Professor Agassiz | Cambridge, Mass. |

CORRESPONDING MEMBERS.

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| Aug. | 26, '37 | Dr. Sabourin..... | United States. |
| Sept. | 29, '44 | Major Kendall | |
| June | 26, '46 | Dr. W. Newcomb..... | Troy, N. Y. |
| June | 25, '47 | J. W. Leayercraft..... | Quebec. |
| Nov. | 20, '47 | Henry Holmes Croft, Professor of Chemistry, University College..... | Toronto. |
| April | 24, '48 | Major Lachlan | Cincinnati. |
| June | 25, '49 | Dr. John Hillier Blount | Birmingham, England. |
| July | 30, '49 | Jean Charles Taché..... | Quebec. |
| | | Charles Payn, M.D..... | United States. |
| May | 20, '50 | T. McDonald..... | Jamaica. |
| Jan. | 27, '51 | Cecil Percival Stone..... | |
| April | 25, '52 | Samuel Kneeland, M.D..... | Boston, Mass. |
| Aug. | 30, '52 | Dr. Robert M. Huston..... | Philadelphia, Penn. |
| | | William Rogerson..... | Royal Observatory, Green- wich. |
| | | J. Adolphus Thurberg..... | Louisiana. |
| Sept. | 8, '52 | M. C. Brodie..... | Beauharnois. |
| | | E. A. H. Allen | Troy, N. Y. |
| Oct. | 25, '52 | Wm. Goodenough Wheeler, M.D.... | Chelsea, Mass. |
| | | Rev. William Scott..... | Sherbrooke, C. E. |
| Nov. | 29, '52 | B. P. Johnson, Secretary Agricultural Society | New York. |
| | | Samuel Walker | Roxbury, Mass. |
| | | Sir John P. Boileau, Bart., F.R.S.... | London. |
| | | John L. LeConte, M.D..... | Philadelphia. |
| | | J. Eliot Cabot, Cor. Sec. of the Boston Society of Natural History..... | Boston, Mass. |
| | | John Gundlach, M.D..... | Cardenas, Cuba. |
| | | Prof. W. Buckland..... | Toronto. |
| Feb. | 28, '53 | Dr. Charles Hugué Latour..... | St. Rémi. |
| | | Dr. J. W. Salisbury..... | Albany. |
| | | George Webber Breton..... | Paris. |
| | | George Gephson Rumley | Dublin. |
| | | Archibald Cameron | Pointe du Chêne. |

DATE
March

April

July

Nov. 2

Nov. 2

April 2

June 30

Oct. 30

Jan. 29

June 25

Oct. 29

March 31

April 28

May 19

Jan. 28

Dec. 29

Feb. 25

April 27, '6

July 27, '6

April 27, '6

May -, '6

July -, '6

| DATE OF ELECTION. | |
|-------------------|---|
| March 28, '53 | Hon. Jos. Cauchon, M.P.P. Quebec. Benjamin Franklin Niles..... Washington, D. C. Francis Markoe, jr..... Washington, D. C. Samuel Dutton..... Guernsey. H. Thieleke Quebec. Chas. Laberge, Esq..... St. Johns, P. Q. Rev. F. Pilote, College of Ste. Anne de la Pocatière..... Dr. Theop. Hugué Latour Boucherville. |
| April 27, '53 | Vertue Edwards London, England. Thomas Wakley, jr London. William Bell..... London. Philip Claiborne Gooch, M.D..... Richmond, Va. 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 Boucherville..... St. Hyacinthe. Msgr. J. Langevin..... Rimouski. Albert Baker, M.D..... Stancross, Devon, England. John Gilson..... Rome, Italy. |
| Nov. 28, '53 | Cassimir Dessaulles..... St. Hyacinthe. Hamilton D. Jessup, M.D..... Prescott. |
| Nov. 29, '53 | M. Turcot, M.D. St. Hyacinthe. Rev. M. Lavallée..... St. Vincent de Paul. |
| April 24, '54 | Rev. Michael Ashton..... Adelaide, Australia. |
| June 30, '54 | Rev. M. A. Trudeau..... Buffalo, N. Y. Edward Crisp, M.D..... London. Edward L. Ormerod, M.B..... Brighton. James Spence Pointe Claire. |
| Oct. 30, '54 | Rev. Louis Ed. Bois..... Maskinongé. Dr. Amédée Wellbrain..... Tournay, Belgium. |
| Jan. 29, '55 | Sir James Ed. Alexander..... |
| June 25, '55 | General Rowan..... Dr. Litchfield..... Kingston. |
| Oct. 29, '55 | William Couper..... Montreal. |
| March 31, '56 | Sir G. E. Cartier, Bart. M.P..... Montreal. A. Brunel Toronto. Rev. W. Brethour, M.A..... Ormstown. |
| April 28, '56 | Hon. Judge Sicotte..... St. Hyacinthe. |
| May 19, '56 | Asst. Com. Gen. Ibbotson..... |
| Jan. 28, '56 | P. L. McDougall, Advocate..... Toronto. J. C. Lee, M.D..... London, C. W. Prof. P. J. Heyfelder..... Finland. |
| Dec. 29, '56 | H. P. Gosselin..... Clarendon. Alex. Copeland..... Hinchinbrooke. |
| Feb. 25, '57 | Prof. O. P. Hubbard, M.D., Dart- mouth College..... Hanover, N. H. Rev. A. J. Tellier, President St. John's College, N.Y. Fordham. R. L. Pell New York. |
| April 27, '57 | Jules Flavien Gingras..... Quebec. |
| July 27, '57 | Count Motschulsky..... St. Petersburg. |
| April 27, '57 | Rev. M. Curtis, D.D..... Hillsborough, U. S. W. S. Sullivan Columbus, Ohio. S. Durkee, M.D..... Boston, Mass. |
| May —, '60 | Rev. Louis Wurtele..... Actonvale. |
| July —, '60 | M. J. Mitcheson..... Philadelphia. |

DATE OF ELECTION.

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| Oct. | —, '60—Henry Poole..... | Halifax, N. S. |
| | Rev. D. Honeyman, F.G.S..... | Antigonish, N. S. |
| | Ed. Bowen, M.D. | Brantford. |
| Nov. | —, '60—Barnard R. Ross..... | Ft. Simpson, Rupert's Land. |
| Jan. | —, '62—Thos. Macfarlane..... | Actonvale. |
| June | 3, '62—Professor Baird..... | Smithson'n Inst., Wash'gton. |
| | W. Stimpson, M.D..... | “ “ “ |
| | Rev. A. Forrester, D.D..... | Principal of Normal Schools, Truro, Nova Scotia. |
| Sept. | 29, '62—Dr. Lowe, F.R.S..... | Brighton, England. |
| Nov. | 24, '62—S. H. Parkes..... | Birmingham, England. |
| March | 30, '63—Hugh E. Montgomerie..... | London, England. |
| | N. W. Bethune..... | Ottawa, C. W. |
| Oct. | 26, '63—W. Saunders..... | London, C. W. |
| | A. S. Packard..... | Brunswick, Me. |
| | H. Rose..... | Granby, C. E. |
| | G. F. Matthew..... | St. John, N. B. |
| | Professor How..... | Nova Scotia. |
| Nov. | 29, '63—John Brown..... | Hamilton, C. W. |
| Oct. | 24, '63—Rev. R. McDonald..... | |
| | Professor H. Y. Hind..... | Windsor, N. S. |
| Nov. | 28, '64—Captain Rooke, S. F..... | |
| 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, '66—Alexander Agassiz..... | Cambridge, Mass. |
| March | 26, '66—Rev. T. Robinson..... | Abbotsford. |
| Feb. | 25, '67—H. Woodward, Esq..... | British Museum. |
| | Bryce M. Wright, Esq..... | London, England. |
| | Thos. J. Moore, Esq..... | Liverpool, England. |
| Nov. | 25, '67—Sanford Fleming, Esq..... | Halifax, N. S. |
| Feb. | 24, '68—John Macoun, Esq..... | Belleville, Ont. |
| Oct. | 26, '68—Bt. Maj. G. E. Bulger, F.L.S., &c..... | India. |
| March | 29, '69—Cyril Graham, Esq..... | London, England. |
| Jan. | 31, '70—Prof. J. W. Marsh..... | Pacific Coll., Forest Grove, Oregon. |
| April | 25, '70—Alfred Bell..... | London, England. |
| Feb. | 27, '71—Prof. J. Wajeika..... | St. Petersburg, Russia. |