PROCEEDINGS

AT THE

ANNUAL MEETING

Natural History Society

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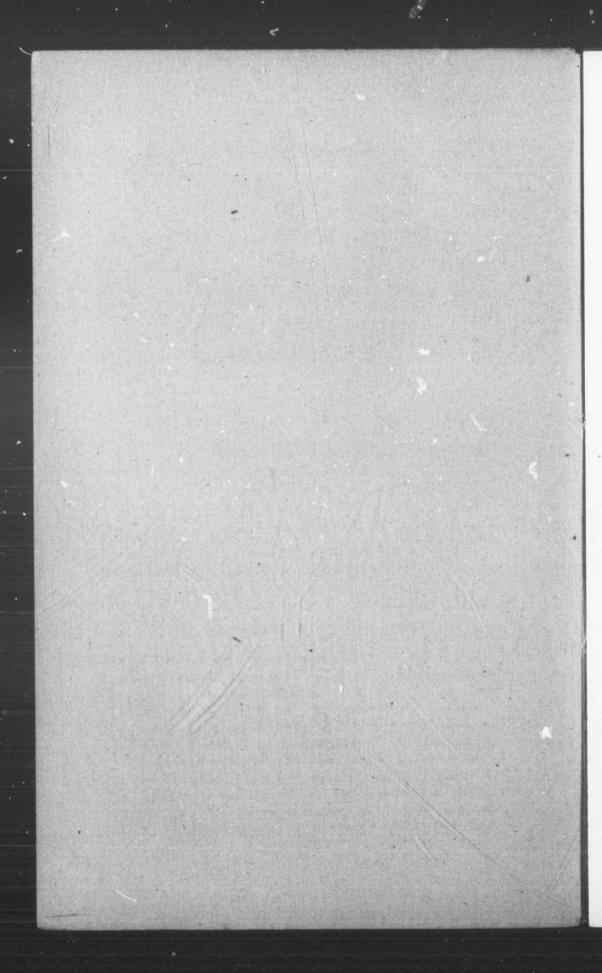
OF MONTREAL,

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 series-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 doubt that 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.
- 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 all. 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 journal 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, Canada 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 tocome 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 eling 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 re_. port as follows:

That the monthly meetings of the Society have not been verynumerously attended—a fact greatly to be regretted and dueperhaps to their having been called by postal cards, issued at thebeginning of the year and containing a list of the meetings, withtheir dates. Your Council had hoped that this system wouldhave attained its object, but it has apparently been unsuccessful.

Your Council suggest that for the ensuing year, arrangementsbe 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 Before leaving the city, as the Society had St. Lawrence. 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 namerous 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 ten more 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 separatebottles 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, inwhich these and other alcoholic preparations can be exhibited tothe 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 tothe 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 to consult 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 my 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 gene-Yet how lamentably small has been the support or aid rally. 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 commercial 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.

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., Treasurer. Cr.	RECAPITULATION. RECAPITULATION. annual Government Grant	\$2285.72	JAMES FERRIER, JR.
DR. THE NATURAL HISTORY SOCIETY in Account with JAMES FERRIER, JR., Treasurer.	1872-73. RECAPITULATION. By Cash rec'd. annual Government Grant\$750.00 u\$750.00 u		Errors and omissions excepted. (Signed) Montreal, May 16th, 1873.
	1872-73.RECAPITULATION.1872-73.RECAPITULATION.To Balance due the Treasurer, May 1, 1872\$33.57To Cash paid J. F. Whiteaves, salaryTo Cash paid J. F. Whiteaves, salarya. S. W. Passmore, "a. Mr. Pell, commissiona. Interesta. for Coal and Wooda. das.a. das	May 1.—To balance in Treasurer's hands	Royal Institution \$1000.00 Dawson Bros. \$36.00 Petty Accounts. \$28.69 \$1564.69

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.

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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.

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