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# ROYAL SOCIETY OF CANADA.

## PROCEEDINGS FOR 1887.

SIXTH GENERAL MEETING, MAY, 1887.

SESSION I. (May 25th.)

The Royal Society of Canada held its sixth general meeting in the City Hall, Ottawa, on Wednesday, May 25th. The President, Monsignor Hamel, took the chair at 11 o'clock a.m., and formally called the meeting to order.

The minutes of the fifth general meeting, May, 1886, as printed in the fourth volume of the Transactions, were read and approved.

The Honorary Secretary then read the following

### REPORT OF COUNCIL.

The Council have the honour to submit their Annual Report.

In the month of May last, the Council appointed the following gentlemen to act as members of the Printing Committee viz., Mr. T. S. Hunt, Sir W. Dawson, Mr. Thos. Macfarlane, Monsignor Hamel, Hon. P. J. O. Chauveau and Prof. Johnson, of whom three should constitute a quorum. We are happy to be able to state, that the fourth volume, which contains nearly 500 pages, was printed with more despatch than in previous years, and one fourth of the edition is already in course of being distributed among the members, libraries, associations, members of Parliament and others to whom the Society is accustomed to send them. The new rules with respect to the handing in of manuscripts and the correction of proofs by the authors have on the whole facilitated the work of printing and editing.

The experience gained from year to year, however, proves that greater facilities might yet be given by the authors of papers, especially in having them submitted in a more complete shape at the annual meetings, so as to avoid the delay in subsequent correction. As a rule, every paper should be in a suitable form for printing when read before a Section. From the abstract of the accounts of Messrs Dawson, which are herewith submitted, it will be seen that the cost of printing the fourth volume has been much less than that of any of the previous volumes :

MONTREAL, May 19th, 1887.

*The Royal Society of Canada.*

To Dawson Brothers, Dr.

For Balance from last account.....	\$ 1,125 16
Stationery.....	27 95
Expenses of Committees.....	143 00
Postages, Proofs, &c.....	30 97
Paper.....	1,156 00
Illustrations.....	445 00
Account of editing.....	596 75
Cases, packing, shipping expenses.....	100 35
Foreign and domestic freight, express (charges on deliveries).....	424 44
Binding.....	506 40
Do extra copies.....	110 50
Composition.....	876 30
Press work.....	204 00
Alterations from copy.....	220 25
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	\$5,967 07
By Cash.....	\$ 500 00
" ".....	500 00
" ".....	1,500 00
" ".....	110 00
" ".....	500 00
" ".....	1,400 00
" ".....	12 50
	<hr/>
	4,522 50
	<hr/>
	\$ 1,444 57

The Council had an interview with the Premier of Canada, the Rt. Hon. Sir John A. Macdonald, in the course of April last, with respect to a continuance of the grant of \$5,000 which has been for some years generously contributed towards the publication of the Transactions of the Society by the Government of the Dominion. At his suggestion, a memorial on the subject was, as heretofore, submitted to the Governor-General in Council, and the Council of the Society hope that their request will receive favourable consideration. A refusal to renew the grant at this juncture would be very injurious to the interests of science and literature in Canada. Were the Society unable to print their elaborate Transactions, the effect would be unfortunate in Europe and America, where the volumes are attracting considerable interest. Not a week passes without some evidence being furnished of the attention that the papers are receiving in cultivated circles abroad, and requests for the volumes are constantly at hand from various centres of intelligence to which they have not hitherto been sent. Only a fortnight ago, for instance, the Honorary Secretary received some very interesting volumes from the Imperial University of Japan, at Tokio, with an expression of the wish that the Transactions should be regularly sent to that institution.

The exchanges that are regularly received from Societies in Canada and other countries, direct our attention naturally to the necessity that exists for establishing a Library of our own, or of using the annual accumulated stores of scientific and literary information in some useful and practical way. At present, a large number of volumes are stored away, and cannot be made valuable to the members or others interested in scientific pursuits. Last autumn, a large collection of books and maps was sent to the Society by the officers of the Geological Survey of the State of Pennsylvania,

but like all other publications daily received, they are practically inaccessible to those who would find them of use. It is a question whether, in the absence of suitable accommodation of our own, we should not make an arrangement with some large library by which we could lend them the collection upon the understanding that it be returned when the Royal Society is in a position to use it.

The question of accommodation is one which must press itself with great force upon the Society ere much more time elapses. At present the office of the Honorary Secretary is the headquarters of the Society, and it necessarily follows, that the members, and others interested in the work of the Society have no central point where they can meet at fixed times, discuss various questions, and carry on the work in which they are engaged. If the Government of Canada were in a position to build a National Museum of Science commensurate with the importance of the Dominion, the Society might there find the accommodation of which they are so sadly in want.

In England, the Government give similar facilities to the Royal Society, the Society of Antiquaries, and to other institutions of world-wide repute, in Burlington House. Of late years, some of the rich men of Canada have shewn a desire to follow the example of the wealthy citizens of the United States, and connect their names with seats of learning, public libraries, and scientific institutions. It may be that, in the course of time, we too shall have a Smithsonian Institution to commemorate the growth of science and culture in this Dominion.

A circular was issued some months ago by the Council, directing attention to the meagre attendance of members for the past two years. In a Society of limited membership, it is very desirable that every member should endeavour to attend the annual meeting. The average attendance of the years 1885 and 1886 did not exceed thirty-five, and at no time has it gone up to fifty, since the commencement of our Society. It is true that many cogent reasons exist for the absence of some of the members. Most of them are engaged in universities or colleges, in the Geological Survey, or in other departments of the public service, and it has more than once happened that the time of the annual meeting has been inopportune for the attendance of many of the members whose presence is especially important. The work of the Geological Survey, and the Colonial Exhibition, has for two years seriously interfered with the meetings of the Society. It is a matter of congratulation that the services of so many of the members of the Royal Society are found useful by the Government and public institutions. When we find them called away to distant parts of Canada or to England for public purposes, we must see that the Society is composed of not a few men whose lives are of practical utility to their country.

But at the same time we cannot fail to notice that there are a number of men on the list of members who are apparently indifferent to the work of the Society, and who, neither by their presence nor by their contributions to the Transactions, do anything in the way of promoting the work that most of us have at heart.

Under these circumstances we consider it necessary to call attention once more to the rule which sets forth that, "Any members failing to attend three years in succession, without presenting a paper, or assigning reasons in writing, satisfactory to the Society, shall be considered to have resigned."

It is well known that were this rule strictly enforced, a number of places would now be vacant in the several Sections. As the time has evidently come for taking this matter into serious consideration, the Council would recommend that a Special Committee be at once formed to search the minutes and report forthwith at the present meeting on the attendance of members, with a view to enforcing this rule in the future.

A few days hence, the Empire to which the Canadians are proud to belong will celebrate the fiftieth anniversary of the memorable day when her Majesty ascended the throne. The year 1837 was one of gloom in Canada, but, it was not long before the people had reason to congratulate themselves on the commencement of a new era in their history. Year by year, under the benign and liberal influences of the reign, the political liberties of the Canadians were enlarged, and the material and social development of the country naturally followed this political expansion. The educational

facilities which Canada now enjoys are not among the least noteworthy results of the Victorian Era in this Dominion. At the same time that intellectual culture has been fostered, wealth and comfort have increased, and the progress of sound constitutional government has advanced among the people. It is therefore the duty of the members of the Royal Society, in common with all classes of people in Canada, to send across the water their heartfelt congratulations to Her Majesty. An address embodying such sentiments as are natural on this auspicious occasion, will be immediately submitted for your approval.

We would also recommend that a telegram be sent by Atlantic cable, through the founder of the Society, the Marquis of Lorne, asking him to convey to Her Majesty our congratulations, as some time must elapse before the formal address can reach the throne.

We are happy to be able to state that the list of papers proposed to be read at this meeting before the respective Sections, is larger than it has been for years, and opens up a prospect of extremely profitable discussion. The rule providing for the publication of titles and abstracts, some time previous to the general meeting, has been carried out as far as practicable by the Honorary Secretary. The value of this publication is obvious to every one. It enables every member to approach the discussion of every question with intelligence. The sheet containing these abstracts has been circulating for some days among the Fellows, the members of the Senate, House of Commons, the Press, and among all those in this community who take an immediate interest in the work of the Society.

It is interesting to notice that several papers of scientific and literary interest are to be brought before the Society by gentlemen who are not among its members. Though in the ordinary nature of things, the Society can always find abundant material for publication in its own ranks, it is important that it should encourage by all the means in its power, the scientific work of all those engaged in studies and investigations peculiarly interesting to Canada. By bringing together the products of the best minds, and discussing them as fully as possible, the Royal Society will enlarge its sphere of usefulness and shew that it has none of that exclusive character which some persons would attribute to its organisation.

We are glad to be able to announce that a number of delegates have been appointed as usual by the principal scientific, historical and literary associations of Canada, affiliated with this Society. The Honorary Secretary has received the following list of delegates:—

1. United States Department of Agriculture.—*Dr. C. Hart Merriam.*
2. Natural History Society of Montreal.—*Joseph Bemrose.*
3. Literary and Historical Society of Quebec.—*W. A. Ashe.*
4. Ottawa Literary and Scientific Society.—*R. Armstrong.*
5. Ottawa Field Naturalists Club.—*R. B. Whyte.*
6. Natural History Society of New Brunswick.—*W. F. Best.*
7. Institut Canadien, Ottawa.—*F. R. E. Campeau.*
8. Cercle de l'A B C d'Ottawa.—*A. Lusignan.*
9. Canadian Institute, Toronto.—*Dr. Ellis.*
10. Institut Canadien, Québec.—*J. Frémont.*
11. Geographical Society of Quebec.—*Col. Rhodes.*
12. Nova Scotia Institute of Natural Science.—*Maynard Bowman.*
13. Murchison Scientific Society of Belleville.—*Dr. G. S. Wright.*
14. Society for Historical Studies, Montreal.—*W. J. White.*
15. Numismatic and Antiquarian Society of Montreal.—*W. D. Lighthall.*
16. La Société Historique de Montréal.—*Abbé Verreau.*
17. Historical Society of Nova Scotia.—*W. L. Lawson.*
18. Entomological Society of Ontario.—*W. D. Harrington.*
19. Hamilton Association.—*Adam Brown, M. P.*
20. Manitoba Historical and Scientific Society.—*J. G. Bourinot.*

We cannot perform a more useful work than in encouraging all kindred societies in Canada to present themselves once a year with a synopsis of the work they are performing in their respective centres of activity. Their reports of four years past are exceedingly interesting reading for all those who wish to follow the progress of scientific and historic investigation in the country.

Several societies, under difficult circumstances, are doing important work in preserving and publishing the local histories of the communities in which they are interested. But a great deal remains to be done in the same line of historic investigation. Every encouragement should be given by the Provincial Governments to these struggling associations, which are attempting to preserve the record of the past, before they are entirely lost. Among the old families of Canada—the sons and grandchildren of the pioneers—can be gathered many historic documents and much valuable information. We hope then to see in every county of Canada the formation of historic associations, whose work will be most useful to the histories of the future, and the essential element of whose labors will be the creation of that national sentiment so important in a country like ours.

We regret that the engagements of the members of the *Athenée Louisianais*, to whom the usual invitation was sent in the beginning of the year, have prevented them sending one or more delegates to this meeting. We have received a very sympathetic letter in response to the invitation signed by the Honorary Secretary and the Secretary of Section I, and cordially unite with the members of the southern society in the expression of the hope that the next general meeting will welcome the literary union of representatives of French Canada and French Louisiana—of that race which once promised to be as influential in the south as it has become in the north, under the benign influences of British institutions.

It will be seen that among the names of gentlemen who have promised to be present at this meeting is that of Dr. Hart Merriam, who comes accredited by the Department of Agriculture at Washington, whose chief, the Hon. Norman J. Coleman, expresses the belief that “a conference with the members of the Association will promote the investigations that Dr. Merriam is conducting.” It is interesting to note in this connection that several papers are promised by gentlemen in the same field of enquiry in which the American delegate has distinguished himself. We have also much pleasure in announcing that we have the benefit of the presence of Dr. Franz Boas, the distinguished Arctic explorer, and one of the editors of *Science*, who will contribute papers that will no doubt evoke the interest of the Society.

Two vacancies will have to be filled by the Society, one caused by the resignation of Mr. Sangster in Section II, and the other by the sudden death of Dr. Bain in Section III. Few men in the Royal Society, a few months ago, appeared to have a brighter or more useful career before him than the gentleman last mentioned. Still young in years, he had won for himself a high reputation in that branch of study to which he was specially devoting himself. In the nature of things, had Death spared him, he would have probably achieved a most enviable position in the ranks of those Canadians who have already made science respected at home and abroad.

We regret to find that the Government of the Dominion has not yet found itself in a position to recommend to Parliament a grant for the establishment of a regular system of observations of tides and currents in the waters of the Dominion. We advise, however, that the Royal Society should not cease its exertions in this direction; but that it should, as soon as convenient, send another delegation to the Government to press the necessity of these observations on its attention. Unless something is done ere long, it is probable that the British Association for the Advancement of Science will cease to take an interest in the matter so far as we are concerned. The subject is one of such great practical utility to Canada, as a commercial and shipping community, that we cannot suppose that it will be overlooked for any length of time by a Government alive to the interests of the whole Dominion.

In the course of the winter, the Council received a copy of the following letter addressed by Sir W. Dawson to Prof. Stokes, President of the Royal Society, on the subject of a “scientific federation” of the Empire, under the auspices of that Society.

[ Copy. ]

MCGILL UNIVERSITY, MONTREAL,  
Feb. 17th, 1887.

DEAR PROF. STOKES,

Referring to your recent presidential address, and to that of last year by Prof. Huxley, and to the proposed action of the Council of the Royal Society on the subject of a scientific federation of the empire under the auspices of that Society, I beg leave respectfully to invite your attention and that of the Council to the aspect of the matter with reference to geological science, which in some important respects will lend itself to such union more readily than most other departments of scientific work. I had the honour to refer to this subject in my presidential address at the meeting of the British Association in September last, and also in a paper previously read before the Geological Section of the Royal Society of Canada, and trust therefore that you will not consider it out of place on my part to address this communication to you.

It is, I think, evident from the report of the last meeting of the International Congress of Geologists, that great, if not insuperable, difficulties lie in the way of any general agreement as to geological classification, nomenclature and mapping. These difficulties, however, depend so largely on difference of language and of habits of thought, that they would not affect a union for scientific purposes on the part of the geologists of the British Empire, and ultimately of all English-speaking countries. It therefore appears that such a more limited union might with advantage be undertaken in the first instance, and with the view not of obstructing but of aiding the wider movement.

The British Empire also possesses exceptional facilities for taking the lead of other nations, in so far as geology and physical geography are concerned. The British Islands, as is well known, are remarkable for the great variety of their formations and the excellence of their exposures, and much of the present classification and methods of representation in geology has originated in Great Britain, and has been adopted with slight variation in all English-speaking countries, and to a considerable extent in other countries as well. In Canada we have the larger half of North America, and much of this very satisfactorily explored. We have also the advantages of the best exposures of the older crystalline rocks, of a development of the Palæozoic series in the Eastern Provinces, more closely allied to that of Europe than to that of the interior American plateau, and of Pleistocene deposits so extensive and complete that they must ultimately decide many of those questions of glacial geology which have been so much agitated. In India, Australasia and South Africa, with the western districts of Canada and various smaller dependencies, we hold a controlling influence in the geology of the great Pacific and Indian Ocean areas. Arctic and Antarctic geology and modern oceanic deposits have been worked principally by English observers, and English-speaking geologists have been and are exploring in many countries not under the British flag. More especially the large amount of geological work done in the United States is based on English methods, and is published and discussed in the English language, and the most intimate and friendly relations subsist between the geologists of the United States and those of Great Britain and the colonies.

In these circumstances, it would seem that a union of British and English-speaking geologists might overcome the difficulties which appear so formidable as between the different European nations, and might lay a broad foundation of geological fact, classification, nomenclature and representation which would ultimately be adopted by other countries as far as local diversities and differences of language might permit. Such a geological union would naturally be accompanied or followed by similar coöperation in other departments of investigation in natural science.

It seems probable that the Geological Survey of Great Britain and the Geological Surveys of the Colonies and of India, with the British Association and the geological societies and geological sections of societies in all parts of the empire, would be willing to coöperate in such a movement under the auspices of the Royal Society, and that the Council might usefully invite communications on the



subject from public departments and societies, beginning with those of the mother country and its colonies and dependencies, but looking ultimately to union with those of the United States also.

In the meantime, I propose to mention the subject to the Council of the British Association, to the English and American committees of the International Congress of Geologists, and to the Council of the Royal Society of Canada, and shall be glad to have your permission to regard this communication as an open letter to be used in any way likely to promote the object in view.

I have the honour to be, with all kind regards,

Yours sincerely,

(Signed), J. WM. DAWSON.

The Council, fully appreciating the importance of the subject, at once appointed a Committee composed of Sir W. Dawson, Prof. Laflamme, and Dr. Selwyn, to take the matter into consideration, and to report thereon to the Society at the present meeting.

In accordance with the rule adopted at the last general meeting, Section II has submitted to the Council the name of John Charles Dent as that of a suitable person to fill the vacancy caused by the resignation of Mr. Charles Sangster. It will be for the Society to take action on this nomination.

In accordance with the resolution passed last May, a Committee has considered the rule with reference to the filling of vacancies in a Section, and the Council now submit for your consideration the following draft of a new regulation which they hope will meet all the difficulties of the case and ensure that full deliberation which is so necessary in selecting members of the Society:—

*To the Council of the Royal Society of Canada.*

GENTLEMEN,—The undersigned, members of the Committee appointed at your last meeting, May 1886, to draft a regulation concerning the election of members, beg to recommend the following:—

“Nominations to fill vacancies may be made at any time in writing, by any three members of a Section, and the nomination papers shall be lodged with the Honorary Secretary, who shall make a record of them. When a vacancy occurs, the Honorary Secretary shall notify the members of the Section in which it has taken place, and shall transmit to each a printed list of the candidates nominated, at least four months before the annual meeting of the Society. Each member may then place a mark (X) opposite the name of the candidate for whom he votes, and return the voting paper to the Honorary Secretary, who shall then report to the Council, at a meeting to be held at least two months before the Annual Meeting, the number of votes obtained by each candidate. Should any of these have obtained two-thirds of the votes of the whole Section, the Council shall consider such candidate elected, and so report to the Society. Should this result not be attained, then the Council may select one or more of the candidates obtaining the highest number of votes of the Section, and cause the members of the Society to be advised of the names of the candidates so selected, at least one month previous to the date of the annual meeting, when the election shall take place by vote of the members present.”

(Signed) T. STERRY HUNT,  
THOS. MACFARLANE,  
J. WM. DAWSON.

MONTREAL, December 29th 1886.

## LIST OF MEMBERS PRESENT.

The Honorary Secretary called over the roll of members, and the following gentlemen responded to their names :—

Abbé Bégin, Dr. Chauveau, P. De Cazes, A. D. DeCelles, Faucher de Saint-Maurice, P. Lemay, A. Lusignan, B. Sulte, Abbé Tanguay, Abbé Verreau, Dr. Bourinot, Rev. Dr. Æneas Dawson, J. Lesperance, Very Rev. Dr. Grant, Rev. Dr. Murray, John Read, Dr. Stewart, Dr. Daniel Wilson, Evan McColl, C. H. Carpmael, E. Deville, Dr. Fortin, Prof. Girdwood, Dr. J. A. Grant, Sir J. W. Dawson, F. N. Gisborne, Monsignor Hamel, Prof. Harrington, G. C. Hoffmann, Dr. Johnson, T. Macfarlane, Prof. Bailey, Dr. Bell, J. Fletcher, Prof. Laflamme, Prof. Lawson, G. F. Matthew, Prof. Penhallow, W. Saunders, Dr. Selwyn, J. F. Whiteaves, C. Baillargé, Abbé Casgrain.

The Report of Council, and the recommendations contained therein, were then taken into consideration.

## ADDRESS TO THE QUEEN.

The Honorary Secretary read the following draft of an Address to Her Majesty the Queen :—

*To the Queen's Most Excellent Majesty.*

MOST GRACIOUS SOVEREIGN,—

We, Your Majesty's most dutiful and loyal subjects, the Fellows of the Royal Society of Canada, in annual meeting assembled in the city of Ottawa, this twenty-fifth day of May, eighteen hundred and eighty-seven, beg leave to express our most hearty congratulations on the happy advent of the fiftieth year of Your Majesty's Accession to the Throne of the United Kingdom.

The Royal Society of Canada, which owes its origin to the efforts of His Excellency our late Governor-General, the most noble Marquis of Lorne, was established to promote investigation and discovery in every department of Science, and to encourage the cultivation of sound literature both in the English and French Languages in our Dominion. In both of these objects the Royal Society believes it has not proved undeserving of the honourable title so graciously given to it by Your Majesty.

In this literary union of the English and French communities that inhabit Canada, Your Majesty has additional evidence of the desire that exists among them to coöperate in all matters that may affect the intellectual, as well as the material development of the young confederation which has grown into existence during Your Majesty's happy reign.

The Royal Society feels itself specially called upon, in common with all classes of the people, to express its gratitude to Almighty God for the many years of peace, prosperity and happiness which Canada has enjoyed under your Majesty's long and glorious reign, during which our country, from small and weak beginnings, has grown into a great and powerful Dominion.

It is with pride that we review the marvellous extension of your empire, the settlement and civilisation of vast territories, the spread of Christianity, the rapid advance of the sciences and the discovery of new improvements in mechanics and the general diffusion of literature and education among all classes of your people ;—these great achievements will forever make your Majesty's reign memorable in the history of the world.

Our gratitude and loyal devotion to your Majesty, under whom, by God's favouring providence, such great things have come to pass, causes us most heartily to join in the general joy of our fellow-subjects all over this empire on this Jubilee of your Majesty's long and auspicious reign.

And we devoutly pray that length of days, and health, and prosperity, may still attend your Majesty, and that you may long continue to rule over a free, happy and united empire.

On the motion of Dr. Selwyn, seconded by Dr. Chauveau, the foregoing draft of an address to Her Majesty was adopted, and ordered to be transmitted through His Excellency the Governor-General.

On the motion of Dr. Wilson, seconded by Dr. Geo. Stewart, a telegram was ordered to be sent through the Noble Founder of the Society, the Marquis of Lorne, conveying to Her Majesty the congratulations of the Society.

On the motion of Prof. Johnson, seconded by Prof. Lawson, it was

“Resolved, that a committee be formed, in accordance with the recommendation contained in the Report of the Council, for the purpose of inquiring into the compliance of members with Rule 6, (paragraph 3), and to report thereon at the present meeting; and that said committee be composed of Messrs. Lusignan, Whiteaves, De Cazes, Hoffmann and Stewart.”

#### MISCELLANEOUS BUSINESS.

Dr. Stewart moved, seconded by Mr. Lusignan, that the action of Section II, with respect to the nomination of John Charles Dent to fill vacancy in said section, be confirmed.

Very Rev. Dr. Grant moved, seconded by Mr. Macfarlane, that the matter be referred back to the Section for further consideration; and the question being put on the amendment, it was agreed to on the following division: Yeas, 19; nays, 2.

The main motion was accordingly so amended.

The consideration of the draft of the amendment proposed to be made to Rule 6, with respect to the filling of vacancies, was postponed until the following day, in order that it might be printed together with an amendment thereto submitted by Mr. Lusignan.

The Honorary Secretary read a letter which he had received from Captain Streatfield, the Governor-General's secretary, expressing His Excellency's regret that, on account of his unavoidable absence at Toronto, he could not be present at the opening of the general meeting.

The President also submitted a letter which he had just received from His Worship the Mayor of Ottawa, inviting the Fellows of the Society and the Delegates to a garden party at his residence on the following Friday.

The President having announced that Dr. Hart Merriam of Washington and Dr. Franz Boas of New York were present as delegates, they were cordially welcomed by the members of the Royal Society and invited to take part in the reading and discussion of the papers.

#### REPORTS FROM AFFILIATED SOCIETIES.

The Honorary Secretary then again read the list of Delegates, and the following reports were submitted from affiliated societies:—

I. From *The Literary and Historical Society of Quebec*, through Mr. W. A. ASHE.

On behalf of the Literary and Historical Society of Quebec, I have the honor to report, that during the past season there have been no marked features of change either in the objects or aims of the Society or in the manner of attaining them; that, with a slight increase in active membership and a corresponding increase in our means, we have been enabled, if not to make any marked advance, at least to maintain our position of usefulness. A principal means toward that end has been a continuance of our “Winter Course of Lectures,” which, if we may judge by the attendances, have been fully appreciated. The following papers comprised this course:—

1. Whittier, the New England Poet, by George Stewart, jun.
2. An Elementary Discussion of the Nebular Hypothesis, by W. A. Ashe.

3. The Ice of the St. Lawrence as compared with that of the Arctic Ocean, by Lieut.-Col. Rhodes.
4. Imperial Federation, by R. R. Dobell.
5. Vers le Passé, by Faucher de Saint Maurice.

Owing to the indefatigable exertions of our President, the Provincial Government, in acknowledging the value of the work done by the Society in the past, has promised an annual grant of \$500 to be devoted to the publication of the valuable historical and other documents in our possession; so that there is before the Society the prospect of continued and extended usefulness.

The following are the officers for the ensuing year:—

President.....	Geo. Stewart, jun.
Vice-Presidents . . . . .	{ W. Hossack. C. Tessier. J. M. Harper.
Treasurer.....	Edwin Pope.
Librarian .....	Fred. C. Wurtele.
Recording Secretary.....	J. Elton Prower.
Corresponding Secretary.....	W. A. Ashe.
Council Secretary .....	A. Robertson.
Curator of Museum .....	P. B. Casgrain.
Curator of Apparatus.....	W. C. H. Wood.
Additional members of Council.....	{ J. M. LeMoine. P. Johnson. H. M. Price. W. Clint.

II. From *The Nova Scotia Historical Society*, through Prof. LAWSON:—

During the past year, twenty-three new members were added to the roll. The following papers were read before the Society:—

1. The Expulsion of the Acadians, by Hon. Sir A. Archibald.
2. Centennial Memories, by Rev. Dr. Burns.
3. Vinland, by Hon. L. G. Power.
4. Early Reminiscences of Halifax, by P. Lynch.
5. Acadian Boundary Disputes and the Ashburton Treaty, by Judge Weatherbe.
6. Colonist Plants of Nova Scotia, by Prof. G. Lawson.

Prof. Lawson was appointed to represent the Society at the meeting of the Royal Society of Canada.

III.—From *Le Cercle de l'A B C d'Ottawa*, through Mr. A. T. GENEST:—

Le Cercle de l'A B C, dont je suis le délégué, m'a chargé de vous exprimer les sentiments de gratitude et d'orgueil qu'il a éprouvés, dans la personne de chacun de ses membres, en recevant l'honneur d'une invitation à se faire représenter aux séances de votre société.

Cette approbation, cette aide bienveillante nous encourage à marcher vers un but plus élevé que celui que nous nous étions proposé, et peut-être fera-t-elle qu'un jour sortira de notre sein quelque littérateur distingué. Aujourd'hui nous piochons la grammaire, demain nous pourrions piocher la littérature. Merci pour nous avoir tendu la main.

Voici la substance de nos règlements:

“Le Cercle de l'A B C d'Ottawa” a pour but d'apprendre à parler et écrire correctement le français. Il ne se compose que de douze membres titulaires, mais le nombre de ses membres honoraires

n'aura pas de limites. Nous nous réunissons une fois par semaine, de sept heures et demie à minuit. Nous ne parlons que de grammaire et de langue. Le président à chaque séance assigne à cinq membres un sujet à traiter le mardi suivant. Ces membres écrivent ou non leur travail, mais consultent les autorités, et nous font part du fruit de leurs recherches. Va sans dire qu'il s'ensuit toujours quelque discussion.

Nous n'avons d'autres officiers qu'un président d'honneur, lequel ne fait pas partie des douze, puis un secrétaire qui tient compte de nos travaux, et un trésorier qui recueille la contribution mensuelle et se charge de notre existence matérielle.

Fondé le 30 novembre 1886, notre cercle a siégé régulièrement une fois la semaine, jusqu'à mardi le 17 du courant, date de la clôture de nos séances. En ce court espace de temps, nous avons étudié et discuté à fond cinquante-sept questions de langue; nous avons sous la main les meilleures autorités; nous pouvons nous vanter d'avoir beaucoup appris.

Nous n'avons encore qu'un commencement de bibliothèque, laquelle s'enrichit tous les jours d'un nouveau volume dérobé ci et là à la bienveillance de nos amis. Notre cercle rêve d'avoir un organe à lui; celui-là alimentera celui-ci, et ce dernier, de sa sève puissante, fera vivre l'autre. Cet organe s'appellera l'A B C et sera une revue mensuelle que nous donnerons pour une modique somme, le but de l'entreprise n'étant pas de faire de l'argent.

Dans cette revue, alimentée par nos bons écrivains, seront impitoyablement dénoncés tous les barbarismes, solécismes et idiotismes dont notre langue est enlaidie, qu'on les découvre chez nous-mêmes, chez nos collaborateurs ou chez nos confrères de la grande presse.

Il ne me reste plus, messieurs, qu'à prendre congé de votre gracieuse hospitalité après vous avoir nommé les fondateurs du Cercle de l'A B C.

Ce sont MM. :

Bélanger, Victor

Bolduc, Archélas

Champagne, Napoléon

Dupuis, Edouard

Gélinas, Sévère

Genest, Arthur T.

Labelle, Léonce

Lemieux, Edmond E.

Nolin, Joseph

Prendergast, Jérémie

Roy, Elzébert F. E.

Rathey, Joseph N.

Et l'âme de notre cercle, je le dis avec orgueil, c'est notre brave et digne président d'honneur, M. Alphonse Lusignan, votre collègue.

IV.—From *L'Institut Canadien-français d'Ottawa*, through Mr. F. R. E. CAMPEAU, C. St. S. :—

L'année dernière, à pareille époque, j'avais l'honneur de présenter à la Société Royale du Canada un rapport sur les opérations de l'Institut Canadien-français d'Ottawa, par lequel il était facile de constater les progrès que nous avons faits et de se convaincre de la légitimité de nos espérances.

S'il est vrai de dire: "Tempora mutantur," cet axiome ne saurait mieux s'appliquer que pour décrire la position actuelle de notre société.

Encouragés par nos succès passés et confiants dans l'avenir, nous inaugurâmes, en décembre dernier, notre série ordinaire de conférences publiques, par une lecture faite par l'honorable Pierre Boucher de la Bruère, président du Conseil Législatif de la province de Québec, sur l'économie politique appliquée à la classe ouvrière.

Le Révérend Père Fillâtre, O.M.I., du collège d'Ottawa, nous donna à son tour une conférence intitulée: "Un corsaire célèbre ou Jean Bart."

La troisième conférence fut donnée par M. P. J. U. Baudry, greffier-adjoint du Conseil Privé, et eut pour titre: "Les derniers jours de la France au Canada."

Le concours de plusieurs autres conférenciers que nous nous étions assuré nous permettait d'espérer

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un succès considérable pour notre cours des familles, et les habitués de ces séances se flattaient d'avance de passer bien des soirées agréables et instructives, quand, tout à coup, l'incendie du 18 janvier dernier vint mettre fin à tous nos beaux rêves, en réduisant en cendres le seul temple de la littérature que possédaient les Canadiens-français dans Ontario.

On comprendra facilement que ce dernier désastre, nous faisant perdre d'un coup tout le fruit de plus de trente années de travail, était bien de nature à nous décourager. Aussi, n'avons-nous pas encore décidé s'il est opportun ou non de nous remettre à l'œuvre pour reconstruire; tout dépendra de la sympathie que nous recevrons de ceux de qui nous avons le plus lieu d'en attendre, c'est-à-dire de ceux qui s'intéressent à la littérature.

En attendant, notre chambre de lecture, que nous avons temporairement installée ailleurs, est ouverte tous les jours à nos membres, dont le nombre qui n'a fait que diminuer depuis le commencement de nos malheurs s'accroîtra, nous osons l'espérer, dès que l'on comprendra l'importance qu'il y a pour nous de maintenir, même au prix des plus grands sacrifices, cette institution qui a déjà fait tant de bien.

Comme preuve de cet avancé, je ne citerai que le fait que lors de l'exposition coloniale, tenue à Londres, l'an dernier, huit des élèves de notre école de dessin ont obtenu chacun un diplôme et une médaille commémorative pour les échantillons de leurs travaux que l'Institut avait envoyés.

Les relations établies avec les nombreuses sociétés littéraires et scientifiques de toutes les parties du globe, ont été très avantageuses pour nous, et les publications que nous recevons périodiquement de ces sociétés ont considérablement augmenté la valeur de notre bibliothèque, qui, je suis heureux de le constater, a été presque totalement sauvée de l'incendie.

Le gouvernement d'Ontario continue à nous accorder son allocation annuelle de trois cents piastres, à l'aide de laquelle il nous sera toujours permis de subsister quand même.

En terminant ce rapport bien imparfait, je ne saurais omettre de mentionner que pendant le cours de l'année qui vient de s'écouler nous avons eu la visite de deux personnages marquants: Son Eminence le cardinal Taschereau et le commandant Bonaparte-Wyse, qui tous deux ont bien voulu, en acceptant le titre de membres honoraires, nous accorder leur distingué patronage et nous promettre leur appui.

Les messieurs suivants ont été élus officiers et directeurs de l'Institut pour l'année courante, et ce sont eux qui forment le bureau de direction au nom duquel j'ai l'honneur de remettre ce rapport:

Président.....	F. R. E. Campeau, C. St. S.
Vice-présidents.....	{ Charles Desjardins. J. L. Olivier.
Secrétaire .....	Napoléon Champagne.
Assistant-secrétaire .....	Sévère Gélinas.
Trésorier.....	J. A. Roy.
Bibliothécaire .....	A. Blais.
Curateur du musée.....	J. Auger.
	{ A. Champagne. L. J. Béland. P. H. Chabot. Nap. Boulet. A. A. Adam. J. B. Pigeon.
Conseillers.....	

IMPERIAL UNION OF GEOLOGICAL SURVEYS AND UNIONS.

SIR W. DAWSON then submitted the report of the Committee appointed by the Council to consider the question of a scientific federation of the empire:—

Your Committee have had under consideration the proposals contained in a letter of Sir William Dawson, LL.D., F.R.S., President of the British Association for the Advancement of Science, addressed to Prof. George Gabriel Stokes, M.A., D.C.L., etc., President of the Royal Society of London, and a copy of which was submitted to the Council of the Royal Society at its meeting on March 31st last. Your Committee begs leave to report:—

- (1.) That the objects referred to seem of the greatest importance to the advancement of geological science, and deserve the consideration of this Society, and more especially of its Geological Section.
- (2.) That the present year, when all the subjects of the British Empire are united in a common desire to celebrate the fiftieth year of the reign of Her Most Gracious Majesty, when the public mind is impressed with the recent gathering of the resources of the empire in the Colonial and Indian Exhibition, when plans for Imperial Federation are before the public, and when a conference of delegates from the colonies, for the purpose of promoting a more intimate connection, is being held in London, appears eminently favourable to the realization of the idea of an Imperial Geological Union.
- (3.) It would appear that the first steps toward such union should be taken by scientific bodies of London, and that the Royal Society of London should be requested to begin the movement by inviting in the first instance to a conference, representatives of the Geological Survey of Great Britain and of the various societies and associations in Great Britain and Ireland, prosecuting geological work, with representatives from similar bodies in the colonies. Such a conference might define the objects to be attained, and might prepare a constitution and arrange for subsequent meetings and for Reports to be sent in on important questions.
- (4.) It appears to your Committee that when thus organized, the work of the "Imperial Geological Union" might be carried on by local and general conferences and conventions; by regular reports from local branches for publication annually by the officers or council of the union; by correspondence and conference with geological bodies abroad, and probably by other methods which would develop themselves.
- (5.) In so far as Canada is concerned, this work might be aided by the Geological Survey of the Dominion, by this Society and the societies affiliated with it, and possibly also by the universities.
- (6.) The Director of the Geological Survey of the Dominion has intimated his willingness to cooperate in sending representatives of the survey to any conference or convention, and also by furnishing information as to the work and method of the survey.
- (7.) It appears to your Committee that this Society might cooperate by empowering the Council to continue its committee and to select delegates to represent the Society in event of a preliminary conference being called in London, and by inviting all the affiliated societies which prosecute geological work in the Dominion to take similar action.

Your Committee would therefore recommend that this report, with the letter appended, be printed and circulated to the different local societies connected with this Society, and to such other bodies as may be interested in the matter, and that their aid and countenance be solicited in carrying out the scheme, and that the Society empower the council, or a committee appointed for the purpose, to represent the views of the Society by correspondence, or by attending any conference on the subject which may be summoned. It will, however, be understood that no expense shall be incurred without the consent of the Council of the Society.

It appears to your Committee that while the usual language of the Union would necessarily be English, communications should be received in any language used within the Empire, and that in this Dominion the English and the French languages would be recognized as in this Society.

(Signed) J. WM. DAWSON,  
ALF. R. C. SELWYN,  
J. C. K. LAFLAMME.

On motion of Sir W. Dawson, seconded by Dr. Stewart, the foregoing report was adopted and the necessary powers given to the Council to act thereon.

The meeting then adjourned for the purpose of giving an opportunity to members to meet in their respective Sections. The President announced that a public meeting would be held in the City Hall at 8 o'clock that evening, when the presidential and other addresses would be delivered, and that the Society would meet the following day at 10 o'clock a.m., for the purpose of transacting general business.

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SESSION II. (*Public Meeting.*)

In pursuance of notice, a public meeting was held in the council chambers, City Hall, on the evening of the 25th, at 8 o'clock.

The President, Monsignor Hamel, on taking the chair, read the following telegrams:—

*The MARQUIS OF LOBNE, Kensington Palace, London:—*

OTTAWA, May 25th, 1887.

The Royal Society of Canada, in annual meeting, desires you, as its Founder, to convey its heartfelt congratulations to Her Majesty, and its wishes that she may continue to reign for many years as sovereign of a united empire.

(Signed) HAMEL, *President.*

*To President HAMEL, Royal Society of Canada, Ottawa:—*

BALMORAL, May 25th, 1887.

The Queen thanks Royal Society of Canada for their kind and loyal telegram of congratulations.

(Signed) EDWARDS.

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ADDRESSES OF THE PRESIDENT AND VICE-PRESIDENT.

The President, the Very Rev. T. E. HAMEL, then delivered the following address:—

MESSIEURS:—Nous inaugurons aujourd'hui le cinquième anniversaire de la fondation de la Société Royale. Si courte qu'ait été l'existence de notre société, celle-ci peut cependant être fière des fruits qu'elle a produits; et le quatrième volume de ses mémoires, qui vient d'être distribué, n'est, à aucun point de vue, indigne de ses devanciers. Ces quatre volumes prouvent que la Société Royale s'est mise sérieusement à l'œuvre, et qu'en dépit des conditions peu favorables qui lui sont presque nécessairement faites, elle a cependant parfaitement compris le rôle élevé que son illustre fondateur avait en vue.

En cette année jubilaire, où nous avons le bonheur si rare de pouvoir féliciter notre auguste Souveraine d'un règne extraordinaire de cinquante ans, avec l'espérance de voir ce règne se prolonger encore de nombreuses années, nos quatre volumes sont le seul cadeau que nous puissions, comme société, présenter à Son Impériale Majesté; mais si nous ne pouvons nous faire plus vieux que nous ne sommes, nous n'avons pas à rougir d'une oisive jeunesse, et les premiers volumes de nos annales peuvent être présentés, non seulement comme preuve que nous avons tenu à honneur de nous rendre dignes de la haute protection de notre gracieuse Souveraine, mais aussi comme gage d'un vigoureux avenir.

Il n'y a donc aucune présomption mal fondée à espérer que cette sixième année dans laquelle nous entrons sera, comme ses aînées, féconde en travaux utiles et en résultats propres à faire apprécier

de plus en plus l'avantage que l'Etat peut retirer de cette réunion de gens d'élite pris dans toute la Confédération.

Notre société a pour objet principal d'encourager les travaux de l'intelligence cultivée, et, l'année dernière, j'ai eu occasion d'appeler l'attention sur l'immensité du champ ouvert à nos recherches. Mais ce n'est pas tout que de connaître l'étendue de la tâche. Si l'on ne veut pas courir le risque de perdre son temps et ses forces en stériles efforts, il est de la plus grande importance de profiter de l'expérience du passé pour s'éviter d'inutiles tâtonnements. Je voudrais donc, dans ce discours que m'imposent mes fonctions de Président, venir en aide aux jeunes travailleurs, en plantant sur leur route, si je puis m'exprimer ainsi, quelques jalons qui puissent leur indiquer, d'un côté les écueils d'une fausse science, de l'autre certaines exigences de la vraie science. En effet, de même que dans les transactions commerciales la contrefaçon cherche à prendre les apparences des articles de bon aloi, de même tout ce qui se couvre du beau nom de la science n'est pas toujours le produit de la vraie science; et il importe de ne pas s'y tromper.

Le dix-neuvième siècle a été caractérisé par une tendance de l'esprit à s'affranchir de toute dépendance. Dans l'ordre social, cette tendance des uns a dû venir se heurter contre la résistance que produisait la même tendance chez les autres. Mais dans l'ordre intellectuel, la raison est le seul obstacle qui puisse s'opposer au dévergondage de l'esprit. Or on sait avec quelle facilité on se fait illusion à ce sujet, et combien aisément l'on trouve des prétextes pour s'affranchir du joug de la raison tout en se persuadant qu'on a la raison pour soi! De là cette facilité avec laquelle, se laissant guider par les intérêts du moment, on se fabrique les théories les plus invraisemblables, quelquefois même les plus grotesques, tant on est sûr que la communauté d'intérêts momentanés fera trouver des partisans.

Dans le siècle dernier, l'esprit d'indépendance s'attaquait surtout aux théories religieuses admises jusqu'alors en Europe sur l'histoire du monde et de l'homme. N'ayant pas encore de données suffisantes pour essayer d'établir une thèse scientifique, le dix-huitième siècle s'élança résolument dans le champ de l'hypothèse, afin de battre en brèche les idées religieuses reçues. Le procédé employé au nom de ce qu'on appelait la science philosophique était l'affirmation sans preuve, allant quelquefois jusqu'aux explications les plus ridicules, telles que, par exemple, l'hypothèse d'un poisson qui, en se frappant accidentellement la queue sur un rocher, se la fendit, et donna ainsi origine à ce qui devait devenir plus tard les jambes de l'homme! C'était le prélude du transformisme; seulement alors on ne se préoccupait pas de ménager la vraisemblance.

Le siècle actuel, fier de ses découvertes dans toutes les parties du monde physique, a cherché à se débarrasser de la préoccupation des idées religieuses passées. Ce n'est, pour ainsi dire, qu'à son insu qu'il les combat, et uniquement parce qu'il ne peut oublier que le passé a apporté un certain contingent d'idées dont il voudrait faire complète abstraction, afin de reconstruire à neuf, mais dont le cauchemar le poursuit instinctivement.

Je n'ai, Messieurs, aucunement l'intention de faire ici de la discussion religieuse: dans ce que je viens de dire, je n'ai fait que de l'histoire. Je veux rester rigoureusement sur le terrain scientifique. Or c'est un fait qu'une des tendances de ce qu'on appelle la science moderne est de se débarrasser de toute métaphysique, et même de la psychologie en tant que science d'un principe immatériel; on voudrait restreindre *la science* aux seules conclusions déduites de l'observation et de l'expérience appliquées au monde visible.

S'il ne s'agissait ici que d'hommes médiocres, n'ayant aucune influence sur la génération qui s'avance, on pourrait ne pas se préoccuper de ces idées. Mais celles-ci sont patronnées par des savants de premier ordre, par des maîtres de la science, à qui la science doit d'incontestables progrès. Il est donc impossible de ne pas tenir compte de leurs travaux et de la direction qu'ils peuvent leur donner, de même qu'il est important de distinguer ce qui, dans leurs travaux, est basé sur la vraie science, d'avec ce qui n'est que le résultat de conceptions purement idéales: la première partie seule appartient à la science; la seconde n'est que le reflet d'une imagination plus ou moins inventive.

Quels sont donc les vrais caractères de la science? Ce sont ceux qui donnent la certitude ou absolue ou morale. La certitude morale est la seule qui puisse s'obtenir dans les sciences physiques, parce que le monde physique pourrait avoir été créé autrement qu'il ne l'est, et que son état actuel est le résultat de la volonté libre du Créateur, qui n'était nullement obligé de lui donner les lois qui le régissent actuellement. Pour connaître les lois physiques, il est donc impossible de procéder à *priori*. On ne peut les déduire que de l'observation des faits et de leur juste interprétation. Dans l'établissement des lois physiques, on ne peut donc raisonner que du particulier au général, ce qui empêche d'aller au delà de la certitude morale. Cette certitude est plus ou moins grande, suivant que des faits plus ou moins nombreux s'accordent à la corroborer, sans qu'aucun vienne la contredire. D'ailleurs il est clair que, pour contribuer à la certitude morale, un fait doit être attribuable à ce que l'on assigne comme sa cause, et ne doit pas être simplement un rapprochement dû à une rencontre fortuite, sans rien qui rappelle la conséquence de cause à effet.

Mais si l'observation du monde physique, visible, sensible, ne peut donner lieu qu'à une certitude morale, quand donc se produira la certitude absolue? Eh bien! Messieurs, le fait est que, pour trouver la certitude absolue, il faut recourir à la métaphysique; et c'est précisément ce qui fait que la prétention d'éliminer la métaphysique du champ d'étude de la science n'est pas la conséquence d'un procédé scientifique.

En effet, il y a deux ordres de connaissances qui peuvent faire l'objet de la science: 1<sup>o</sup> les connaissances tellement fondées sur un ordre essentiel de choses, qu'elles ne sauraient être autrement qu'elles ne sont; et 2<sup>o</sup> les connaissances résultant de l'observation d'un ordre de choses qui existe sans doute, mais d'une manière contingente, c'est-à-dire non nécessairement, et qu'on conçoit comme pouvant avoir été créé autrement.

Au premier ordre appartiennent les mathématiques pures. Ainsi il est et sera toujours vrai que deux fois deux font quatre, et cela quelles que soient les circonstances. Cet ordre de vérités est tellement absolu que la supposition du contraire révolte l'esprit et s'appelle absurde. Pour arriver à la conviction, dans cet ordre de connaissances, l'on n'a pas besoin d'en appeler à l'observation ou à l'expérience. C'est une constatation qui se fait tout entière dans l'esprit et par le raisonnement. Ainsi quelqu'un qui prétendrait qu'en cherchant bien on pourra peut-être arriver à constater, par l'expérience, que 2 et 2 font 5, donnerait lieu de croire que son cerveau est dérangé. Il y a donc au moins un ordre de vérités pour la constatation duquel on ne recourt pas à l'expérience ou à l'observation, mais simplement au raisonnement; et ce sont ces vérités qui sont les plus certaines. Elles appartiennent à la métaphysique.

Or les vérités mathématiques ne sont pas les seules de cette espèce. Au même ordre de constatation appartiennent aussi d'autres vérités métaphysiques, telles que les relations de causalité et de finalité. Ainsi les axiomes suivants sont de toute rigueur, et l'on ne saurait les contester sans aller contre la raison:—

Il faut *exister* avant de pouvoir *agir*.

Ce qui *existe* est possible.

Une chose ne peut pas *être* et *n'être pas* en même temps.

Tout *effet* a une *cause* et ne saurait exister *sans cause*.

Tout être a un *but*, et ce but est en rapport avec la nature de l'être.

Un être *raisonnable* ne saurait agir consciemment sans une intention et une fin.

Chose remarquable! ceux qui nient ces principes sont les premiers à les invoquer lorsque l'intérêt de leur cause le demande. Ainsi, dans la question si actuelle de l'antiquité de l'homme sur la terre, sur quoi s'appuient ceux qui, voulant battre en brèche la théorie de la descendance adamique de l'homme, prétendent faire remonter son existence sur la terre jusqu'à l'époque tertiaire? Sur la découverte d'un silex qu'on suppose avoir été taillé de main d'homme. Et sur quoi s'appuie cette

supposition ? Sur le fait que ce silex porte des empreintes qu'on prétend ne pouvoir avoir été produites qu'avec intention, en vue d'un but, ce dont un être doué de raison est reconnu seul capable. Je répète donc ce que je disais tout à l'heure : en présence de toute cette importante classe de connaissances, c'est un procédé anti-scientifique que de vouloir éliminer du champ des études sérieuses ce que l'on appelle les spéculations métaphysiques.

Sans doute, dans le domaine des sciences dites métaphysiques, tout ce qui s'y présente comme objet d'étude ne porte pas avec soi le caractère de la certitude absolue, puisqu'on a rattaché la psychologie à cette classe de sciences, et que celle-ci présente une foule de questions relatives à des faits contingents et dont, par suite, la solution dépend uniquement de ce que peut faire connaître l'observation. Effectivement le principe de la vie et de l'intelligence en nous est un être contingent, dont les propriétés par conséquent auraient pu, par la volonté du Créateur, être autres qu'elles ne sont, et ne sauraient être connues et étudiées que par l'observation et l'expérience. Mais du moins faut-il traiter cette branche de la métaphysique avec le même respect que les faits du monde visible, et ne pas se hâter de conclure à la non-existence de l'âme, sous prétexte qu'elle ne tombe pas sous les sens et n'est ni visible, ni tangible. L'âme, quoique invisible, se reconnaît par ses conséquences, pour le moins, autant que l'électricité, dont on reconnaît si parfaitement les lois et les énergies sans être encore capable de dire son mode d'existence intime.

Fort bien, me diront certains adeptes de la science matérialiste. Si nous ne pouvons nous passer de vos entités invisibles, intangibles, non calculables, nous consentons à en admettre l'existence ; mais de quel droit voudriez-vous nous les imposer, si nous pouvons trouver dans la nature physique seule l'explication de tous les phénomènes connus, même l'origine de la vie à tous les degrés ?

Fort bien, dirai-je à mon tour : qu'on nous démontre tout cela par des procédés vraiment scientifiques, et je suis prêt à devenir partisan, non seulement du système de l'évolution et du transformisme de Darwin, mais même de la génération spontanée. A part l'homme, pour qui je réclame une création spéciale, mes convictions religieuses, qui sont pourtant probablement les plus intolérantes, ne me défendent point de croire à la transformation des espèces, ni à l'origine purement chimique et physique de la vie organique, soit végétale, soit animale. Aussi, je suis bien aise de le répéter, ce n'est pas au nom de mes convictions religieuses que je combats le transformisme et la génération dite spontanée. Ma foi me laisse libre à cet égard ; c'est au nom de la science seule que j'y fais objection ; c'est au nom de la science que je soutiens que ces deux théories ne sont pas scientifiques.

Un procédé vraiment scientifique doit être de nature à produire la certitude au moins morale. Or pour cela, lorsqu'on ne peut s'appuyer à *priori* sur l'essence absolue des choses, et c'est le cas pour le monde matériel qui est essentiellement contingent, il faut s'appuyer sur les faits constatés. L'imagination et un certain arrangement empirique plus ou moins ingénieux ne suffisent pas.

Or que nous présentent les deux théories à l'aide desquelles on cherche à se passer d'un principe vital distinct de la matière ?

D'abord, pour la génération dite spontanée, a-t-on réussi à constater l'existence d'un seul animal, d'une seule plante, d'un seul germe, je dirai plus, d'une seule cellule organique, qui ne fût pas le produit d'un être organique vivant antérieur ? Evidemment, si la nature a pu produire ce phénomène dans le passé, elle semble être dans des conditions encore meilleures aujourd'hui pour le reproduire. Eh bien ! que dit la vraie science, la science fondée sur l'observation et l'expérience, en réponse à cette question ? Elle répond par la négation la plus formelle, la plus générale. Elle ne dit pas que la génération spontanée n'est pas possible absolument ; elle ne dit pas qu'elle n'aurait pas pu exister naturellement dans un autre ordre de création ; mais elle dit que, dans l'état actuel de la science, en dépit de toutes les recherches et de toutes les expériences, la génération spontanée est une pure hypothèse d'imagination et n'est pas une théorie scientifique.

De même pour la théorie de la transformation des espèces, à laquelle Darwin a donné son nom, bien que Lamarck l'ait mise au jour cinquante ans avant le célèbre naturaliste anglais. En dépit des charmes que le maître a su donner à son hypothèse ; en dépit des analogies dont il a voulu l'étayer ; en

dépit du zèle déployé par les disciples pour donner au darwinisme une démonstration qui devait servir à appuyer une thèse radicalement anti-religieuse ; en dépit, dis-je, de tous ces efforts si intéressés au triomphe d'une thèse chérie, — que répond la vraie science, la science des faits, la science de l'observation et de l'expérience ?

La science ici, comme dans le cas de la génération spontanée, répond encore dans la négative. Tous les efforts de l'expérience, réunissant les conditions les plus favorables, ont bien pu produire des variétés de roses, des variétés de pommes, des variétés de chiens, des variétés de chevaux ;..... mais ils n'ont jamais été capables d'amener une seule rose à se rapprocher de l'œillet ou de la tulipe par quelque signe caractéristique ; ils n'ont pas même réussi à transformer un cheval en âne, ni un âne en cheval, en dépit des produits hybrides d'un premier croisement.

Ce que l'on n'a pas pu constater dans le monde vivant, — le seul qui se prêtât à une expérience donnant lieu d'espérer quelque conclusion légitime, — on a essayé de le faire avec le monde des fossiles, en groupant ceux-ci par espèces voisines et les rangeant de manière qu'elles vinssent, ce semble, à ne former qu'une seule chaîne, dont chaque chaînon ne différât de ses voisins que par de faibles modifications. A ce procédé, si habilement combiné, si scientifique en apparence, si propre à faire voir que la nature n'avait eu besoin que d'influences climatériques, de sélection naturelle, de phénomènes d'hérédité favorisés par le temps, pour arriver, par degrés presque insensibles, à produire à la longue les différences spécifiques les plus considérables, à ce procédé, dis-je, il n'a manqué qu'une seule chose : d'être appuyé sur les faits. Plus on a, en effet, étudié les faunes et les flores fossiles, plus on a constaté la fixité des espèces, même de celles qui, comme pour les trilobites, ont duré pendant une excessivement longue période. De plus, un bon nombre de ces chaînons, se suivant en apparence dans la théorie et dans les musées avec tant de régularité, se sont trouvés dispersés à des distances telles, soit en temps, soit en espaces dans la nature, qu'il est impossible de leur trouver le moindre lien de parenté, soit avec ceux d'où ils auraient dû procéder, soit avec ceux qui auraient dû les suivre.

La science donc, encore ici, sans dire que l'évolution ou la transformation des espèces est absolument impossible, affirme que cette théorie n'est qu'une opinion plus ou moins ingénieuse, mais uniquement d'imagination ; et que, dans l'état actuel de la science, la seule opinion vraiment scientifique, en tant qu'appuyée sur les faits et sur l'expérience, est celle de la fixité des espèces. Le darwinisme ne saurait donc être classé que parmi les théories anti-scientifiques.

Cela ne veut pas dire que, dans cette nomenclature presque interminable d'espèces qu'ont enfantées et qu'enfantent encore Messieurs les naturalistes, il n'y aura pas de nombreuses réductions ; mais ces réductions mêmes n'auront pour effet que de mieux faire connaître les caractères vraiment spécifiques et de les distinguer de caractères purement accidentels.

Quelle conclusion tirer de là ? J'en signale deux : 1<sup>o</sup> Ces célèbres théories, qui ont fait et qui font encore tant de bruit, ne sauraient servir de fondement à aucun travail scientifique, puisqu'elles mêmes pèchent par la base, et n'ont aucune réalité scientifique. 2<sup>o</sup> Quand une semblable théorie se fait jour, le premier travail à faire évidemment est de l'examiner et de la comparer avec les faits sur lesquels elle est censée s'appuyer. Elle n'a droit de cité, au point de vue scientifique, qu'autant qu'elle est une conséquence légitime des faits.

Il ne faut pas cependant confondre ces théories purement idéales avec celles par lesquelles on essaie de rendre compte de toute une classe de phénomènes découlant d'une même cause, inconnue il est vrai, mais dont les lois ont été nettement déterminées.

Ainsi quelle est la cause de la gravitation universelle, dont le grand Newton a trouvé les lois ? Pendant longtemps on a cru que c'était une attraction s'exerçant à distance entre les corps matériels. Mais il répugne à plusieurs d'admettre cette attraction à distance, et l'on commence à essayer d'une autre théorie, en cherchant à expliquer cette gravitation par la pression de l'éther. Pour ma part, je ne vois pas bien ce que l'on y gagne au point de vue philosophique. Mais pratiquement nous sommes en face de deux théories qui n'ont chacune pour les recommander que le fait de rendre compte des phénomènes. Peut-on les appeler théories scientifiques ? Oui, car 1<sup>o</sup>, en attendant une démonstra-

tion par des preuves irréfragables, on ne les donne que comme des hypothèses à vérifier; 2<sup>o</sup> elles sont tenues, sous peine d'être rejetées, de rendre compte de tous les faits jusque dans les moindres détails. Dans tous les cas, elles servent à grouper des faits qui, sans cela, se trouveraient sans liaison; puis elles sont une source féconde de recherches tendant à éclairer la question et à amener un choix définitif.

C'est ainsi que pendant deux siècles on a eu deux systèmes simultanés pour expliquer les phénomènes lumineux: l'un, dit de l'émission, immortalisé par les travaux de Newton, supposait que la lumière est produite par de petits corpuscules que lancent les corps lumineux; l'autre, dit système des ondulations, préconisé par le célèbre Huyghens, explique les phénomènes lumineux par les vibrations de l'éther. Pendant longtemps les savants se sont partagés entre ces deux systèmes, qui rendaient également compte des phénomènes connus. Mais, dans le cours de ce siècle, la découverte de la polarisation, de la diffraction et de l'interférence des rayons lumineux, ainsi que la mesure de la différence de vitesse de la lumière dans des milieux différents, ont fait définitivement pencher la balance en faveur du système des ondulations.

De semblables théories ne sont pas le fruit de simples spéculations de l'imagination. On sait que tout phénomène a une cause, surtout quand il s'agit de tout un ensemble de faits similaires, comme la gravitation universelle, les phénomènes lumineux, la chaleur, l'électricité. Puisque cette cause existe nécessairement, il est naturel de la chercher. On la cherche dans ce qui se présente de plus plausible. Toute cause, capable de rendre compte de l'ensemble des phénomènes, surtout si elle permet d'en prévoir qu'on n'avait pas remarqués auparavant et que l'expérience vérifie, mérite d'être acceptée avec respect, jusqu'à ce qu'arrive quelque preuve irrécusable qui oblige soit à la rejeter, soit à la faire prévaloir sur ses concurrentes.

Ces théories ne sauraient donc être confondues avec celles dont j'ai parlé en commençant, et qui n'expliquent rien puisque les faits les contredisent et qu'elles ne sont que le résultat d'une imagination féconde. Les autres, au contraire, s'imposent à la science, parce qu'elles servent à grouper les faits et sont la source avantageuse de nombreuses découvertes.

Mais la jeunesse instruite de notre pays est-elle bien en état de prendre part à ces travaux sérieux, et à faire avancer la science, prise, non pas comme œuvre d'imagination, mais comme étude approfondie des faits, pour en tirer des conséquences rigoureuses? Hélas! je vois bien des obstacles sur son chemin. Qu'on me permette d'en signaler trois, que je comparerais volontiers aux plaies d'Égypte, au moins pour ce qui concerne le Canada français. Ce sont le journalisme, le service civil et la politique. — Je me hâte de m'expliquer.

Loin de moi la pensée que ces trois carrières soient par elles-mêmes opposées au développement de l'intelligence; mais je veux dire que, dans notre pays, vu les conditions dans lesquelles elles s'exercent, ces carrières sont des espèces de tombeaux où vont s'étioler et périr les forces vives de notre jeunesse instruite. Il y a de nobles exceptions sans doute, mais quelle est la règle générale qui n'en admette pas? Du reste ici les exceptions mêmes sont une preuve de ce que je suis obligé de soutenir; car ce qui est l'exception devrait être la règle générale. Mais je comprends que je dois quelques explications.

Notre jeunesse instruite, en général, est pauvre; et cependant non seulement il faut vivre, mais il faut se créer une position qui permette de soutenir une famille. Or la jeunesse instruite s'est fait un préjugé dans lequel elle s'entretient: elle méprise le travail manuel et, sitôt qu'elle est censée avoir atteint un certain degré d'instruction, elle croit au-dessous d'elle de se livrer aux travaux de l'agriculture ou de se noircir les mains dans une usine, à moins que l'on ne puisse y devenir chef tout d'un coup et sans avoir passé par l'apprentissage. En conséquence, notre jeunesse instruite ne veut vivre que de ce qui est réputé travail de l'intelligence. De là l'encombrement des professions dites libérales, dont un bon nombre de membres doivent trouver d'autres moyens additionnels de subsistance. Or, en dehors de ces professions, il ne reste guère, conformément au préjugé commun, que le journalisme, les places du gouvernement et la politique.

Il n'est pas difficile de démontrer que le journalisme, dans ce pays, n'est pas une carrière qui permette de faire des études sérieuses. La nécessité de produire à bon marché ne permet guère d'employer un personnel suffisant et oblige de jeter sur un petit nombre un travail journalier considérable et absorbant. D'ailleurs notre journalisme est peu exigeant : il n'est pas difficile au sujet de la grammaire, et il demande fort peu en fait de connaissances acquises. Une certaine facilité naturelle à écrire rapidement une colonne ou deux sur un sujet quelconque, pour soutenir une thèse quelconque, sans même l'avoir étudiée, et quelquefois contrairement à ses convictions, voilà tout ce qui est exigé pour satisfaire aux besoins toujours urgents du moment. Sans doute on est bien aise de rencontrer la science en sus ; mais évidemment celle-ci n'est pas de rigueur, et l'expérience de tous les jours nous montre qu'avec des colonnes remplies comme je viens de le dire on sait fort bien mettre la science à sa place si elle vient malencontreusement contredire une thèse dont on a besoin. — On conçoit donc que le journalisme dans ces conditions soit peu favorable aux études approfondies de la vraie science. Il suppose la science acquise, mais laisse peu de ressources pour l'acquérir.

Si maintenant nous passons au service civil, là encore nous constaterons quel obstacle celui-ci présente aux travaux sérieux.

Pendant longtemps la pensée d'obtenir pour leurs enfants des *places* du gouvernement a été la grande préoccupation de parents incapables d'assurer par leurs propres ressources l'avenir de leur famille. Aussi les gouvernants à tous les degrés savent quel embarras leur cause cette course au clocher, dans laquelle les concurrents sont bien plus nombreux que les places à donner ! Dans ces dernières années, on a cru diminuer le nombre des demandes en élevant le niveau des qualifications intellectuelles requises. Mais la sévérité des examens exigés, en forçant les candidats à des études préliminaires plus grandes, ne semble pas avoir beaucoup diminué le nombre de ceux qui désirent se faire une carrière du service civil. Evidemment c'est le besoin qui en est la cause.

Les heureux qui, à force de patience, ou par protection, réussissent à se caser, limitent le plus souvent leur ambition à satisfaire leurs supérieurs, pour mériter une promotion un peu plus lucrative dans un avenir quelconque après lequel ils soupirent avec résignation, faute de mieux. En attendant, après les heures de bureau, toujours plus ou moins fatigantes, il faut pourvoir aux nécessités quotidiennes de la famille et souvent suppléer par un autre travail à un salaire insuffisant. Puis on sent le besoin de jouir du bonheur bien légitime du foyer domestique, si l'on a une famille. Si l'on n'a pas de famille, on résiste bien difficilement à l'attrait que présentent ces associations dans lesquelles on passe ses soirées en y perdant trop souvent autre chose qu'un temps précieux. Lorsque, à force d'attendre, on est parvenu à avoir un salaire qui mette complètement au-dessus du besoin, et par conséquent donne des loisirs, on a trop souvent perdu la facilité et quelquefois le goût d'études qui demandent qu'on se soit entretenu la main pour être entreprises et soutenues avec le zèle et l'aptitude qu'elles exigent.

J'ai souvent entendu demander : " Mais, le jeune un tel, qui avait tant de talents et qui a tant brillé au collège, qu'est-il donc devenu ? On n'entend plus parler de lui ! " Il a fallu répondre dans bien des cas : Hélas ! ce jeune homme, qui donnait tant d'espérances, il s'est enseveli dans le tombeau du service civil ; et, à moins d'un miracle, il n'en ressuscitera pas.

Remarquez, Messieurs, que je ne jette aucun blâme sur un état de choses qui s'impose, quelque déplorable qu'il soit. Je respecte la carrière du service civil, qui est aussi honorable que toute autre. Mais, par elle-même, elle est si peu favorable à un effort intellectuel soutenu et quelque peu pénible, en dehors du travail obligatoire, qu'on ne saurait l'exiger d'une manière générale, et que c'est un immense mérite à ceux qui se l'imposent. Aussi est-ce la gloire et le légitime orgueil de ces honorables exceptions dont notre Société Royale est si fière de bénéficier. Mais sûrement on ne me fera pas un crime de regretter que tous nos jeunes gens de talents que renferme le service civil ne puissent pas être rangés avec ces nobles exceptions-là.

Ce que je voudrais pour le service civil, c'est que ce ne fût pas une carrière à laquelle on bornât toute son ambition, mais plutôt un moyen de se débarrasser des préoccupations de la vie, afin de

pouvoir se livrer sans inquiétude à des travaux importants qu'on ne pourrait entreprendre sans cela. Honneur aux gouvernements qui le comprennent et qui encouragent les travailleurs consciencieux en leur donnant ainsi le moyen de poursuivre leurs laborieuses études. Ou bien encore je voudrais que le service civil fût une ressource pour l'infortuné, rendu par le malheur incapable de continuer une carrière antérieurement embrassée et qu'il est forcé d'abandonner.

Passons à la politique. Oh ! la politique ! qu'il me soit permis de la détester, au point de vue de notre jeunesse instruite. Le journalisme et le service civil sont peu de chose en comparaison de la politique, comme engins destructeurs de l'avenir intellectuel de notre jeunesse.

Malheur au jeune homme qui, au sortir de son cours d'études collégiales, se distingue, pendant sa cléricature, par une certaine facilité de parole et par le talent de l'improvisation ! Il lui faudra une grande dose d'énergie et de conviction, une fois reçu avocat, ou notaire, ou médecin, pour résister à la pression qui va s'exercer sur lui. Les divers partis politiques vont essayer de l'accaparer : on lui aura bientôt démontré que son concours est absolument nécessaire ; que le parti, et partant le pays, lui devra un triomphe certain, etc.

Et si le malheureux se laisse entraîner, qu'arrivera-t-il ? — Il me semble que je les vois encore ces jeunes gens, que j'ai connus, que j'ai essayé de gagner, par tous les arguments que m'inspirait mon amitié sincère pour eux, à ne faire de politique active qu'après dix années au moins données à la pratique de leur profession, et à l'étude sérieuse des questions sociales... il me semble, dis-je, que je les vois, dans l'ardeur de ces luttes acharnées que présentent les élections chaudement contestées et où par conséquent l'on avait plus besoin de leur concours. Dans une surexcitation continuelle, courant d'une paroisse à l'autre, jour et nuit occupés à faire la lutte, obligés pour se maintenir en haleine, de masquer la défaillance de leurs forces par des stimulants factices... ces jeunes gens contractaient l'habitude d'une vie toute d'action extérieure, devenaient passionnés pour ce genre de vie dont ils se faisaient un besoin, et y mettaient de fait beaucoup plus de zèle que n'en montraient ceux mêmes qui utilisaient leurs services.

Bien que je l'aie entendu dire, je ne voudrais pas aller jusqu'à affirmer que, de la part des chefs politiques, c'est un calcul conscient et froidement ménagé ; car il serait vraiment trop odieux de supposer que des hommes, placés à la tête des affaires par la confiance de leurs concitoyens, cherchent à abuser de leur situation jusqu'à négliger sur l'inexpérience et la générosité instinctive de la jeunesse instruite, en utilisant ses services à leur avantage et faisant servir en même temps l'acte dont ils profitent à épuiser physiquement et à étioiler intellectuellement une jeunesse dont ils redoutent la concurrence pour plus tard ! — Non, reconnaissons que tel n'est pas le but anti-patriotique et anti-chrétien des chefs ; mais malheureusement tel est le résultat pratique. Que l'on fasse la statistique du nombre de ces jeunes gens que l'on enlève ainsi à la pratique de leurs professions respectives, et à l'étude qu'ils pourraient faire des questions sociales constamment soulevées par le conflit des intérêts, et que l'on compte ceux qui réussissent à surnager et à atteindre un port quelconque. Hélas ! ils sont en bien petit nombre, *rari nantes*, par comparaison avec ceux qui périssent, victimes des habitudes contractées dans cette vie de surexcitation, ou qui, continuant à vivre, ne peuvent que végéter dans les rangs inférieurs, lorsque tout annonçait en eux une sève vigoureuse, capable de produire les plus beaux fruits.

Et ceux mêmes qui font exception, si, sans avoir à peine eu le temps d'étudier, ils ont pu, à force de vigueur intellectuelle, arriver aux premiers rangs, que n'eussent-ils pas fait, s'ils avaient pu mettre au profit de leur belle intelligence tout un splendide arsenal de connaissances sérieusement méditées !

Un autre effet, paralysant pour la science acquise, de notre système politique actuel, c'est la pression produite sur les gouvernants dans l'exercice du patronage. Il en résulte trop souvent qu'au lieu de patronner le mérite, la science et l'aptitude, l'on n'en tient aucun compte ; et que des places, responsables pourtant, à tous les degrés de l'échelle sociale, sont accordées, au détriment du service public, sous la pression d'une influence déraisonnable. Que d'exemples je pourrais citer, sans sortir de ma connaissance personnelle !

Je comprends que, à mérite à peu près égal, un partisan politique soit favorisé ; mais, que l'on se

serve d'une influence en dehors de tout principe et que l'on fasse tort au public en forçant la nomination de l'incapacité ou de l'infériorité évidente de préférence à la capacité réelle, cela peut être politique... pour le moment présent; mais cela me paraît d'une politique dangereuse, même pour celui qui y a recours, et, dans tous les cas, dangereuse pour le pays, anti-patriotique, et d'une morale fort équivoque.

Je puis parler de ce procédé si regrettable avec d'autant plus de liberté que tous les partis politiques, si acharnés les uns contre les autres à d'autres points de vue, sont malheureusement d'accord sur celui-ci.

Or il ne faudrait pas oublier que c'est enlever à l'effort fait pour l'étude tout son stimulant, si celui qui étudie peut s'attendre à ce que la peine qu'il se sera donnée afin d'acquérir la science, puisse être mise de côté par l'influence de quelque politicien en faveur d'un pétitionnaire même notoirement incapable.

Il ne faut pourtant pas se décourager en présence de tous ces obstacles, qui peuvent trouver leur remède à la longue dans l'opinion publique. A nous de travailler, dans la mesure de nos moyens d'action, à donner à cette opinion publique une bonne direction.

En présence du vaste champ d'études qui est ouvert devant nous, tâchons d'obtenir de la jeunesse instruite qu'elle s'y lance avec ardeur, dans la direction de la vraie science, pour ne pas s'épuiser en vains efforts, et qu'elle y persévère un temps raisonnable. Elle peut avoir la confiance qu'elle finira par triompher de tous les obstacles et par être dignement récompensée.

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The President was succeeded by the Vice-President, Prof. G. LAWSON, of Dalhousie University :—

MONSIEUR LE PRÉSIDENT ET MESSEIGNEURS, MADAMES ET MESSIEURS :—On an occasion like this, when the members of the several Sections are assembled together, we withdraw for the time from business matters of detail, and from the special topics in literary and scientific discussion in which we may have been engaged, and give our thoughts to subjects of a more general character, pertaining to the Society's welfare as a whole, and in which all the members may be more or less deeply interested. To this category belong questions regarding the constitution of our organisation, the relations of one Society to other scientific and literary bodies, its working methods, its functions in research, and the means that may be employed for making the results obtained serviceable for general utility, as in promoting education and culture, and rendering available for common use information bearing upon the multifarious purposes of life. The occasion invites us to look back upon the past, that we may perchance discern how far our plan and methods have accomplished the objects aimed at, and what lessons the results so far attained now read to us as guidance into profitable lines of work for the future. Such considerations have been brought before us, more or less fully, in the annual addresses of presiding officers to which we have listened in former years. And these, with the exhaustive address of our president, Monsgr. Hamel, just closed, might well be allowed to stand as a presentation of our position. But I am reminded that a rule, unwritten but as yet unbroken in our short history, requires some sign also from the Vice-President on these occasions. If, in deference to it, I offer a few supplementary remarks, they must be brief.

Five years ago the Royal Society of Canada was organised, under the wise counsel of its founder, the Marquis of Lorne, who sought, by its means, to concentrate the labours of those engaged in scientific and literary work in the Dominion, whilst it might also form a nucleus around which active local societies could gather, and receive and render mutual assistance and encouragement. Such a means of coöperation, it was thought, would give an impetus to original research, and lead to increase of knowledge. But, in view of the work of this kind that was already being done, and of the increase to be expected, it was felt that provision should be made for the publication of the results in the form of original papers, so far at least as they had bearing upon the history and literature of Canada, its natural phenomena, products and institutions. Such means of publication appeared to be not a mere

want, that might or might not be supplied, but an absolute necessity for the successful prosecution of our work, if it were to be of national use, and essential for the purpose of making its results available to the people, in a country of material resources and industrial and commercial capabilities so vast, and in which so many other requirements of civilisation were being rapidly supplied.

On the occasion of our assembling together at the formation of the Society, our first president, Sir William Dawson, enumerated the several objects set before us, and, in view of our circumstances and surroundings, discussed the possibilities and probabilities of their attainment. The extent to which we might hope for success, and the directions in which it was to be looked for, were then so clearly set forth as to give at once an impulse to willing laborers and indicate promising fields for exertion. At our second meeting, the thoughtful paper read by Dr. Todd, on the Relations of the Royal Society to the State, opened out, other functions of public utility, which, as in case of the Royal societies of London and New South Wales, our own might be called to perform when occasion required.

We have so far worked very much upon the lines originally laid down, and, in successive years, it has been possible readily to gauge our progress and fix our position. Our retrospect for the past year is not less gratifying than that of its predecessors. The general business requiring consideration of the Council, as well as that of special character pertaining to Sections, has not been less in amount or of less consequence than heretofore, while the programme of literary and scientific papers continues to increase, in one or two Sections, indeed, to an extent that may be somewhat trying to the Publication Committee.

Our newly printed volume of Transactions (Vol. IV) embraces twenty-three memoirs and literary productions, accepted for publication from the papers read at our last year's meeting. Five of these are furnished by the Section of French Literature, the same number by the Section of English Literature, whilst ten are provided by the Mathematical, Chemical and Physical Sciences' Section, and thirteen by that for the Geological and Biological Sciences. The preponderance in the two Scientific Sections is not unlooked for, in view of the rapid expansion of late years of old fields of enquiry, the opening up of others entirely new, the yearly increase in the number of workers, and the rapidity with which facilities are now being afforded at intellectual centres for carrying out investigations. Working laboratories of physics, chemistry, biology; museums, reference libraries, and other appliances, such as were formerly scarcely known within the borders of Canada, and were not even thought of as within the reach of struggling colleges, have now been established in several of the leading universities, and are being rapidly created in others as necessary educational equipment to enable them to maintain their standing and perform their work. Thus the teachers in our higher institutions have now facilities more fully than before for carrying out researches themselves, and for shewing methods to their students, who are taught to rely less upon book-knowledge, and more upon the actual observation by their own senses of facts and phenomena, and the results of experiments arranged by their own hands. Thus a great, if somewhat silent, change has been brought about in recent years in the character of our higher education, so far as it relates to subjects coming within range of the physical, chemical and natural sciences, inasmuch as pupils are now subjected to actual training in observation and experimentation and reasoning upon facts observed, instead of being merely furnished with book knowledge of such facts, and exercised in figures, formulæ and phrases. This change has given a new zest to such studies, and has led, in many cases, to their being prolonged by college students in honor or post-graduate courses, beyond the mere prescribed requirements for a degree. Thus willing hands are secured for working out unsolved problems, and otherwise contributing to the general stock of knowledge, and the physical sciences, instead of being regarded as merely useful for certain kinds of professional training, have acquired high educational value, and science itself, as a profession, has come within reach of our youth.

It is to be borne in mind also, that in the several departments included under geological and biological sciences, enquiries have been started that have arrested general attention, inviting at once

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the speculations of the philosopher, the reasoning of the scientist, and the minute and patient observation of facts that are within the reach of all. In our wide stretch of country, from the Atlantic shores to the Pacific, and from the great lakes to the frozen seas, with its geological phenomena on so grand a scale, its physical features so varied, its floras and faunas of sea and land, lake, prairie and mountain, so pregnant with questions of origin, variation, and migration, that are exercising the minds of the best naturalists of our time, need it be said that there is abundant, yea, overwhelming material, inviting all whose avocations bring them into contact with nature, or whose tastes so incline their leisure hours, to make needed contributions to science, whether in mere field observation, ~~the~~ the digesting of facts, and logical interpretation of phenomena, or the less ambitious, although often not less useful work of collecting specimens?

Considerations such as these explain to us the cause of the apparent hypertrophy of the two Sections to which reference has been made. They will also tend to reconcile us to a state of things that is the obvious natural outcome of the growth of knowledge. Nor is it to be regretted that the indications of luxuriant growth are in the direction of practical utility. Science is best pursued for its own sake; but every enquiry, however purely scientific it may be, and especially every advance in knowledge of our country or its products, may be expected to be followed sooner or later by some new appliance for the supply of human wants.

Although the work of our present year's meeting is only in progress, yet the printed programme and papers submitted to the Council indicate sufficiently well the progress that is being made. The papers read to-day give earnest of the value of others that have still to come before us. There are ten in the Section of French Literature, several of them relating to important points in our history. Nearly as many are put down for the English Literature Section, some relate to early Canadian history and aboriginal peoples, others are of a literary character. The third Section, of Mathematics, Physics and Chemistry, while it is not without its profound papers in pure science, has also others on subjects having intimate relations to sanitation and agriculture; these will meet with immediate appreciation beyond the range of mere scientific study. The full significance of a comparison of the programmes of the several Sections appears when we are confronted with the Section of Geological and Biological Sciences, in which there are no fewer than thirty-seven papers, with three or four more, subsequently received, raising the total number to upwards of forty. Nearly half of these papers are from gentlemen who are not Fellows of the Society, which, taken in conjunction with the other fact that similar contributions from non-members (including one of the largest papers relating to early history in the English Literature Section) are found in the other Sections, affords gratifying evidence of the fulfilment of one object of the Society already referred to, viz., to form a centre or nucleus of research around which active workers throughout the several Provinces of the Dominion might be attracted.

The large number of papers offered in Section IV, will impose more arduous and responsible duties than heretofore upon the officers of that Section and the printing committee, in making a selection for publication. But we must also look to the activity of the literary Sections to prevent the Society from becoming lop-sided. With an exuberance of papers on subjects having varied relations to the daily life and work of our people, and the development of the country's natural resources, we need also the refinements of literature, accurate records of history, and the philosophical studies that pertain to mental and moral culture.

When we look upon the four portly volumes of Proceedings and Transactions already issued, and reflect upon the amount of information, research and thought which they contain on multifarious subjects of human interest, but all relating more or less directly to the history, literature, products, and the intellectual and material development of this country, there is no cause for discouragement as to the results of our work so far as it has gone. It may be safely affirmed that in the absence of such means of publication, many of the the papers that these volumes contain would not have been produced, whilst others if, written, would have been scattered through the Transactions and Journals

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of two continents, inaccessible for the most part to Canadian students. Moreover, the arrangements made for the distribution of the Society's publications have enabled them to be placed in most of the great public libraries of the world, where they are now available to literary and scientific men, merchants, manufacturers, miners, agriculturists and capitalists who may desire to seek information respecting the Canadian provinces, their geology, minerals, soil, products, climate, or the history, civilisation and institutions of the people. Thus far we feel that substantial and permanent service is rendered. Let us hope that we may be enabled year by year to extend the domain of knowledge, and to bring what becomes known within the range of our people in everything that relates to our country, or is calculated to conduce to its welfare. We all recognise that the Society must continue, as it has begun, to be essentially one of workers, and only to-day have we had under consideration a regulation designed to prevent any lapse in this respect, and to maintain the individual activity of our actual Fellowship.

The extent to which the active literary and scientific societies of the several provinces have shown a desire to affiliate with us, and thus aid in concentration of effort, is indicated by the number and value of their carefully prepared reports published in our Proceedings for the past year; these indicate also, perhaps not to the full extent, the useful work that is being done by local organisations. Seventeen delegates were present, and fourteen official reports were presented from so many active societies in Quebec, Ontario, New Brunswick, Nova Scotia and Manitoba.

The delegations this year are not fewer in number, and we may reasonably hope that the reports to be presented will not be less gratifying. The relation of the affiliated societies to the central institution is not merely formal and official, but of an active character, and must necessarily have a beneficial influence upon them, giving at once an impulse to their local work, and serving to diffuse more widely a knowledge of the strive labours of their members, bringing them into touch with coworkers. We are all apt to strive with increased ardour when we know that our work will be more extensively useful to those who can appreciate it.

But my remarks must not be prolonged, for there is still to be brought before you this evening, by one whose name is a household word wherever science is known, a subject of direct scientific interest, viz., the geological relations of our country to western Europe. Let me in conclusion, then, briefly say to those of the audience who are here as visitors, that it is gratifying to the members of the Royal Society of Canada, in this jubilee year of our gracious sovereign, to be able to look upon the results so far achieved, and to feel that we have, not without difficulty, but, so far, with fair measure of success, carried out the objects contemplated when the Society was formed five years ago. Then we gathered around its originator, the Marquis of Lorne, to assist in giving it form and life. As an earnest and active patron, he cherished the organisation and promoted its objects in many ways, not only during his residence in this country, while he continued to occupy the distinguished position of Governor General of Canada, but subsequently when he could no longer be present at our meetings. We have had substantial assurances that he still regards its progress with unabated interest. The Society has also had the good fortune to enjoy the signal favour and encouragement of His Excellency Lord Lansdowne, our present Honorary President. As men loyal to literature and science, as to queen and country, let us rejoice that this Royal Society of Canada now takes its place as one of the permanent institutions of the Dominion.

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SESSION III. (*May 26th.*)

The members of the Society assembled at 10 o'clock, a.m., and the President called the meeting to order.

REPORTS FROM AFFILIATED SOCIETIES (*Continued.*)

The Societies which had not reported at the previous meeting were then called upon, and the following Reports were accordingly presented:—

V.—From *The Hamilton Association*, through Mr. ADAM BROWN, M.P.

The Hamilton Association of Hamilton has a membership of one hundred and forty-seven. The meetings are held in a commodious and very suitable Hall on the Alexandra Arcade. The following papers have been read during the past year:—

1. Man and Brute, by Rev. Charles Mockridge, D.D.
2. The Alexandrian Museum, its Rise and Fall, by W. Glyndon.
3. Our Cold Climate and the Duties it lays upon us in Relation to the Public Health, by Dr. McDonald.
4. Political Centralisation in France, by W. Childs.
5. The Chinese, our Latest Neighbours, by G. M. Barton.
6. The Half-breeds of the Northwest, by Rev. Geo. Forneret.
7. The Revolution of 1688, by Dr. Hillier.
8. Early History of the Iroquois, by Dr. Dee.
9. The Public Treatment of Crime and Criminals, by W. Milne.
10. Development of Insects, by J. Alston Moffatt.
11. Greek Drama, by Harry B. Witton.
12. The Algonquins, by Dr. Jones.

The Association has contributed to science by a publication of a most valuable work entitled "The Birds of Ontario," by Thomas McIlwraith, besides the Proceedings of the Society, during the past year, spending upon both works the sum of \$547. I am gratified to be able to add that the prospects for more original works next session are most encouraging.

VI.—From *The Entomological Society of Ontario*, through Mr. W. H. HARRINGTON.

The progress of the Entomological Society has been so uniform and constant during recent years that it affords material sufficient for only a very brief report.

A great loss has been sustained by the Society in the removal of Prof. Saunders from London to Ottawa, and his consequent inability to longer undertake the onerous duties of president and editor, which for many years he performed so faithfully and successfully. In his position of Director of the Experimental Farm he will, however, still be able to pursue his researches, and with the necessary assistance of a competent Entomologist, will be able to greatly advance the knowledge of the very important science of entomology.

The publication of the *Canadian Entomologist* is successfully continued; Vol. XVIII contains papers from forty-nine contributors, all well known workers, and many of the articles are of much scientific value. Vol. XIX is now being issued under the editorship of Rev. C. J. S. Bethune, who edited the first five volumes, and who has been continuously a member of the editing committee, so that he is eminently qualified to take up the work laid down by Prof. Saunders.

The Sixteenth Annual Report contained as usual much matter of economic importance, and No. 17 is now ready for distribution.

The annual meeting of the Society was held in the Society's rooms, London, Ontario, on Wednesday, October 20th, 1886, when there was a very satisfactory attendance of members. The retiring President, Prof. Saunders, delivered a very interesting and instructive address, and several reports and valuable papers were presented.

The following resolution was carried unanimously by the meeting:—

"That the Society learns with regret that their esteemed friend, Prof. Saunders, has found it necessary to withdraw from the presidency of their body, and also from the editorship of their organ, the *Canadian Entomologist*; but recognising the importance of the work Prof. Saunders has been

called to superintend, and the wisdom of the choice made in him by the Government, it congratulates the Professor upon this recognition of his abilities and zeal in the public service, and respectfully tenders to him a life membership in the Society."

Officers for the current year were elected as follows :—

President.....	James Fletcher, Ottawa, Ont.
Vice-President.....	Rev. C. J. S. Bethune, Port Hope, Ont.
Sec. Treas.....	E. Baynes Reed, London, Ont.
Council.....	{ W. H. Harrington, Ottawa. Rev. T. W. Fyles, Quebec. J. Alston Moffatt, Hamilton. G. J. Bowles, Montreal. J. M. Denton, London.

VII.—From *The Geographical Society of Quebec*, through COL. RHODES.

I have the honor to report that during the past year the Geographical Society has made a special study of the ice question in its effects upon that part of the St. Lawrence situated between the ports of Quebec and Montreal. The Society on this subject has circulated a good deal of information, based upon well known facts and reliable statements. The general results of these deliberations lead to a conviction that the great water courses of the Dominion are susceptible of vast improvement, almost equal to the remarkable changes in land travel, since the establishment of the railway system.

The great rivers, require to be cleared, so far as it is practicable, of floating substances, so that such obstructions may not jam, sink and prevent their waters from discharging themselves into the lower levels, causing impediments which directly lead to inundations and an immense destruction of river property.

At Quebec, the ferry boats have successfully kept the river in an open and flowing state, thus giving to that port perfectly navigable waters in the month of April, and enabling schooners and market boats to attend the eastern markets.

The Society is of opinion, that the policy of the Dominion with regard to this great question of drainage—instead of being passive and defensive, and treating the subject as a visitation of Providence—ought to be active, vigorous and courageous. There are men of genius who possess enough personal courage to cope with this difficulty, and who are, no doubt, ready to render such a public service; but any surface drainage must be commenced at Quebec, the outfall properly secured, and the advantage thus established carefully followed up the river, until the great water basins are reached, thus allowing a ready and easy flow of the imprisoned waters and affording a climatic gain to the Dominion as a whole.

VIII.—From *The Numismatic and Antiquarian Society of Montreal*, through Mr. W. D. LIGHTHALL.

The Antiquarian Society during the past year has continued the pleasant practice of holding its meetings at the houses of members, and the following papers have been read :—

Jan. 18. An Old Oak Chest, with notes on the family to whom it belonged, by Mr. Roswell Lyman. [This chest, formerly the property of the Stiles family of Connecticut, is now in the possession of Mr. Henry Lyman, of Montreal. It left England in 1635.]

The Opening of the Papineau Road in 1810; and a note on the Jessup family of Jessup's Town, now Prescott, by Major L. A. Huguet-Latour.

- March 15. Two papers: (1) An extract from a letter of 1812, referring to the removal of the Porte des Recollets, an ancient gate of Montreal, to the bridge at the Cascades, where it was bodily set up as an Arch. (2) Notes on the Militia of Canada, by Major L. A. Huguet-Latour.
- April 26. Lambert Closse, the earliest Town-Major of Montreal, by Mr. A. Chaussegros de Léry Macdonald.
- May 17. Some rare MSS. Ordinances from old documents of the Barony of Longueuil, by Judge Baby, the President.

The year has, however, been too full for us of other matters of interest to make papers a prominent element. On one occasion, our chief attention was attracted by the exhibition of a rare sketch in oils of the ancient Château de Longueuil, the finest specimen of a feudal castle in New France. On another, it is an original edition of Champlain's works, or Peter Kalm's. Or we have the discussion of the Société Historique's proposal to have a portrait painted of Jacques Viger, first Mayor of Montreal and founder of Antiquarianism there. Or we discover among our exhibits or donations some new matter of value on the Acadian question.

Our twenty-fifth anniversary occurs this year on December 15th next, on which occasion we are taking steps to issue a medal bearing the head of our esteemed President, and also to bring together an exhibition of historical portraits in the gallery of the Art Association, which will, we trust, be an event of some importance.

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IX.—From *The Society for Historical Studies of Montreal*, through Mr. W. J. WHITE.

As this is the first report which our Society has had the privilege of presenting to the Royal Society, it may be of interest to mention briefly the various steps which have marked our progress from the beginning.

On March 2nd, 1885, Messrs. Thos McDougall, John Reade, J. P. Edwards and W. J. White met to consider the advisability of forming a Society in Montreal exclusively for the study of history and especially Canadian history. Others were then invited to coöperate and meetings for organisation were held on March 8th and April 1st of the same year. The use of a room in the Fraser Institute was secured, and the Society held its first meeting for study on November 18th, 1885, on which occasion Mr. Francis McLennan read a paper upon "The Political History of the Church, down to the Conquest." A constitution and by-laws were adopted, officers elected, and the Society began the year 1886 with fifteen active members. Since then the following meetings have been held, and papers read:—

January 13th, 1886, Mr. Henry Mott read a paper entitled "Meanderings in History," touching particularly upon points in and about Montreal, such as the naming of its streets and squares, with a comparative reference to European street nomenclature.

January 24th, the Society accepted the invitation of Mr. Gerald E. Hart, who read a paper entitled "A Cabinet of Books, a *résumé* of Bibliography" in the Windsor Hotel. In connection with this paper, Mr. Hart exhibited a collection of rare and interesting books and manuscripts.

March 24th, Mr. J. P. Edwards read a paper on "The First Settlements in Acadia."

May 19th, Mr. John Reade contributed a paper on "The Canadian People," dealing with the various immigrations and their effect upon the population.

A paper entitled "Colbertism in Canada," prepared by Mr. Thos. McDougall, was read on November, 3rd dealing with the commercial policy of Colbert and its influence upon the progress of Canada.

December 8th, a paper on "The Northern Boundary of the province of Quebec," was read by Mr. Francis McLennan. Mr. McLennan discussed the various opinions and decisions as to the northern

boundary of the old province of Canada as fixed by act, 1774, and presented the argument in favor of the height of land as the boundary of the present province of Quebec.

At this meeting, it was decided to adopt a more defined and continuous scheme of study and, as a course of preparation, to review during the winter session the whole of the history of Canada. This system was inaugurated on December 22nd, 1886, when Mr. John Lesperance treated the period from 1497 to 1608, and it has since been successfully carried out.

January 12th, 1887, the second period, 1608 to 1642, was treated by Mr. C. S. Campbell, the settlement of Quebec and the foundation of Montreal being the main incidents of the period.

January 26th, Mr. W. D. Lighthall read a paper upon the period from 1642 to 1682, during which the colony grew from 840 to 10,000 souls, and all those institutions and places which constitute our idea of full-fledged New France were established.

February 16th, the fourth period, 1682 to 1699, was handled by Mr. Henry Mott in a rapid review of the interesting personages and events of this time.

February 23rd, Mr. W. J. White's paper on the fifth period, 1699 to 1725, was read, and contained a brief account of the chief events of the period with particular reference to the organisation of the judicial system.

March 9th, the sixth period, 1725 to 1754, was treated by Mr. John Reade. This paper dealt with the strained relations between the ruling powers; with the social condition of the people and their restricted intercourse with the British Colonies; with commerce and industry, including the curious episode of the ginseng trade; with the prosecution of exploration westward and especially the discoveries of the Verandrye family; with the causes of unrest and discontent, internal and international, which were gradually but surely leading up to the "happy calamity of 1759."

The next period was 1754 to 1760. Mr. Gerald E. Hart in this paper treated of the expulsion of the Acadians and the Seven Years War, dwelling particularly on the capture of Quebec. The Expulsion he justified on the political grounds of the military exigences of the period, the Acadians never having loyally accepted British rule, remaining by race, religion, language and sympathy, French subjects, inimical to the English population which was fast settling in Nova Scotia. He furnished many precedents for the act, many of them committed by the French themselves, one of the most striking being that of the expulsion of the English from St. Christopher in 1666, for which event the French Government struck a commemorative medal. He brought forward abundant authorities to prove that the numbers present in the engagement at Quebec were largely in favor of the French, and he impugned the veracity of a large number of historians on this controverted point of Canadian history. This important paper is now in the press.

April 6th, Mr. Chas. M. Holt contributed a paper on the eighth period, 1760 to 1784, treating of the establishment of the Military Regime by Amherst, the Conspiracy of Pontiac, the Treaty of Paris, the Quebec Act, the American Invasion and the grants to the United Empire Loyalists.

April 21st, the ninth period, 1784 to 1812, was dealt with by Mr. W. S. Kerry, who treated the period in two divisions as the events referred particularly to Upper or Lower Canada.

May 11th, Mr. J. P. Edwards read a paper on the period from 1812 to 1815. This paper drew special attention to the comparatively pacific tendency in Great Britain in 1812 towards the United States, as contrasted with the warlike preparations of the latter country for many months previous; to the great numerical inferiority of the British forces to the Americans in almost every land engagement of the war; to the genius and daring of General Brock and the incapacity of Sir George Prevost; to the bibliography of the war and the great number of totally unreliable accounts of it published in the United States.

The two papers which will complete the series are to be read on June 1st by Mr. R. W. Boodle dealing with the period from 1815 to 1837, and by Mr. George Murray, who will contribute the final paper upon the period, 1837 to 1841.

The Society now numbers twenty-six resident members. Through the death of Mr. R. A.

Ramsay in January last, the Society lost one of its most valued members. The meetings of the Society have received additional interest through the number of rare Canadian books and antiquities which have been from time to time exhibited. The nucleus of a library has been formed and we are indebted to several sources for valuable contributions.

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X.—From *The Nova Scotia Institute of Natural Science*, through Mr. MAYNARD BOWMAN.

The Society has been in active operation for a quarter of a century, having been organised in the year 1862. The number of members at the close of the session 1885-86 was about fifty, to which additions have been made during the past year.

The Society has suffered during the year by the death of two members who occupied prominent positions in the province, viz., the late Hibbert Binney, Bishop of Nova Scotia, and Sir William Young, formerly Chief Justice of the province.

A much greater interest is apparently taken in this Institute, if one may judge from the largely increased attendance at its meetings. The liberal support given by the Provincial Government enables it to publish a large edition of its Proceedings and Transactions annually, which is extensively distributed both at home and abroad.

The following papers were read during the session, and will be printed in the Proceedings and Transactions:—

1. The Geology of Aylesford Township, King's County, N.S., by Rev. D. Honeyman.
  2. Glacial Notes, Windsor Road, by the same.
  3. Notes of Observations made by Prof. James Hall on Siberian Collections of the Provincial Museum, by the same.
  4. On a Nautilus of the Brookfield Lower Carboniferous Limestone, *Nautilus Brookfieldi*, by the same.
  5. The Fungi of Nova Scotia, by J. Somers.
  6. On a collection of fishes, etc., from the Indian Ocean, in the Provincial Museum, by Rev. D. Honeyman.
  7. On Temperature and Time, by Prof. J. G. MacGregor.
  8. The Botany of Bermudas, by Prof. G. Lawson.
  9. The Carboniferous Formation of Cape Breton, by Edwin Gilpin.
  10. Geology of Halifax and Colchester Counties, Part II, Gold Fields, by Rev. D. Honeyman.
  11. On the Tides of the Bay of Fundy, by Martin Murphy.
- A copy of the Proceeding and Transactions for the year 1885-86 accompanies this report.

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XI.—From *The Canadian Institute, Toronto*, through Dr. ELLIS.

I have the honour to submit a copy of the Proceedings and Transactions of the Canadian Institute, containing the annual report of the Council, which shews the work done during the past year by the members of the Institute.

I cannot avoid calling special attention to the laborious and masterly researches of Prof. Campbell on the language of Etruria, whose results are embodied in the Proceedings of the Institute.

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XII.—From *The New Brunswick Natural History Society*, through Mr. W. F. BEST.

During the past year the following papers have been read before the Society:—

- Feb. 2. A communication describing Indian remains found near Newcastle, by Dr. A. C. Smith.
- Distribution of Arctic Plants, by Prof. James Fowler.

- Apr. 6. Social Science: Primary Education, by Mr. James A. Estey.  
 May 4. Insect life during Winter, by John V. Ellis, M. P.  
     The Cray Fish in New Brunswick, by W. F. Ganong.  
     The Kames and Terraces of New Brunswick, by R. Chalmers.  
 June 1. Destruction of Birds, by Mr. M. Chamberlain.  
 Oct. 5. Report on Field meeting; also Preliminary notice of a new genus of Silurian fishes, by  
     G. F. Matthew.  
 Nov. 2. Marine Mollusca of New Brunswick, by W. F. Ganong.  
 Dec. 7. Giant Trilobite, found near St. John, by G. F. Matthew.  
     The Botany of St. John City, by G. U. Hay.  
     The Birds and Plants of Peticodiac, by John Brittain.  
 Jan. 11. The Mosses of New Brunswick, by John Moser.  
     The Natural History portion of the Colonial and Indian Exhibition, by W. F. Best.

A number of valuable additions have been made to the Library of our Society during the year, and several important contributions to the Museum have been received.

Among the latter may be mentioned a collection of the marine invertebrates of the Atlantic coast, received from the National Museum at Washington.

The geological collections have been re-arranged during the year, and valuable work has been done by the ornithological committee in observations on the migration of birds.

The collections of the Society are now open to the public on Saturdays, and also on two evenings in the week.

XIII.—From *The Ottawa Field-Naturalists' Club*, through Mr. R. B. WHITE.

It is again my privilege to report to you that the Ottawa Field Naturalist' Club, which I have the honor of representing, still continues to fulfill satisfactorily the objects of its organisation, viz., the fostering of a love for nature, and the working up and taking permanent record of all facts connected with the natural history of the Ottawa district; and this in such a way as to induce all, and particularly those now receiving their education in our local institution, to direct some of their attention to these most interesting and important pursuits. With the latter object in view, special efforts were made by the Council of the Club to arrange for the delivery during the past winter of free elementary lectures in all branches of natural history, not only before the members of the Club, but also whenever opportunity offered in the public schools. It was a great encouragement to find how popular these lectures proved, and how the attendance steadily increased day by day as they became better known.

Some important changes were made in the working of the Club at the beginning of the current year. The most notable of these was the publication of a monthly magazine, instead, as heretofore, of the yearly volume of Transactions. This magazine, *The Ottawa Naturalist* (copies of which have been regularly sent to your Honourable Society as issued), contains the papers and reports of the leaders in the different sections which were read at the soirees held during the preceding winter, and also accounts of all the excursions and sub-excursions held during the month previous to its issue, as well as notices of all matters of interest to the members for the coming month.

The sub-excursions referred to above differ from the general monthly excursions of the whole Club, in being under the direction of one or more of the leaders in the sections, and are in reality working parties or classes devoting their whole attention to their own specialty, under the guidance of a teacher, whose duty it is to shew the best modes of collecting and studying, and who during the present year will deliver a short lecture in the field upon the objects collected during the afternoon. This plan, as far as we are able to judge from the present season, has been eminently successful.

The winter course of meetings consisted of six soirees and nine elementary lectures, as follows :—  
January 13th, President's Inaugural Address, by Prof. Macoun.

January 27th, Our Ottawa Butterflies, by Mr. J. Fletcher ; Reports of Geological and Conchological Branches ; Note on Ottawa Salamanders, by Mr. F. R. Latchford.

February 10th, The Development of the Mines of the Ottawa District, by Mr. John Stewart ; Report of the Entomological Branch ; Note on Flour and Grain Beetles, by Mr. W. H. Harrington.

February 24th, The Great Ice Age and subsequent Formations at Ottawa, by Mr. H. M. Ami. Report of Botanical Branch ; Note on the "Maple Lung" as a Substitute for Yeast, by Mr. John Stewart,

March 3rd, A Chemical View of the Metallic minerals, by Rev. Prof. Marsan ; Note on *Monotropa uniflora*, by Dr. Geo. Baptie.

March 10th, The Puma or Mountain Lion, by Mr. W. P. Lett ; Report of Ornithological Branch, Some New Species from the Trenton Formation, by Mr. W. R. Billings ; Note up on an abnormal specimen of *Calypso borealis*, by Mr. J. Fletcher.

The elementary lectures, arranged to form as far as possible a consecutive course, were held every Monday afternoon from January 17th to March 14th as follows :—

*Local Geology*.—Mr. H. M. Ami.

*Geographical Distribution of our Native Trees*.—Prof. Macoun.

*Insects Destructive to our Native Trees*.—Mr. W. H. Harrington.

*Our Introduced Weeds*.—Prof. Macoun.

*How to Identify Minerals*.—Mr. H. P. Brumell.

*The Forms of Leaves*.—Mr. R. B. Whyte.

*Leaf-eating Insects*.—Mr. J. Fletcher.

*The Forms of Flowers*.—Mr. R. B. Whyte.

*Flower Insects*.—Mr. J. Fletcher.

The library of the Club has been materially increased during the past year by many valuable works received as donations, or in exchange for our Transactions from kindred societies.

At our annual meeting held on March 15th, the following officers were elected for the year 1887-88 :—

President.....	R. B. Whyte.
Vice-Presidents.....	Prof. Macoun and Principal Woods.
Secretary .....	W. H. Harrington.
Treasurer.....	J. Fletcher.
Librarian.....	T. J. McLaughlin.
Committee.....	Dr. Baptie, Dr. Small, H. M. Ami.

The following leaders have been appointed for the present year :—

*Geology*.—H. M. Ami, Rev. Prof. Marsan and J. Stewart.

*Botany*.—J. Fletcher, Dr. Small and Dr. Baptie.

*Conchology*.—F. R. Latchford and H. B. Small.

*Entomology*.—W. H. Harrington, J. Fletcher and T. J. McLaughlin.

*Ornithology*.—G. R. White and Prof. Macoun.

XIV.—From *The Natural History Society of Montreal*, through Mr. J. F. BEMROSE.

As delegate from the Natural History Society of Montreal, I have the honour to lay before you the following report of work done during the session 1886-87.

Besides numerous and valuable additions made to its extensive museum and library, including to the latter over 50 volumes from the Smithsonian Institute, through the kindness of Spencer F. Baird, Esq., Secretary, a re-arrangement of the books has been nearly completed and a useful catalogue prepared by which the exact locality of each book is indicated.

The six free Somerville Lectures, delivered in due course, were arranged so that the subjects formed a connected series, these subjects being, "The Bony System," "The Muscular System," "The Nervous System," "The Circulatory System," "The Special Senses" and "The Digestive System." The respective lecturers were, Drs. F. J. Shepherd, G. E. Armstrong, James Stewart, T. Wesley Mills, Frank Buller and W. H. Hingston. This course proved to be a most attractive one, large audiences attending each evening.

On January 20th, a very successful *conversazione* was held with the assistance of the Montreal Microscopic Club, the members showing various instruments and slides of scientific interest, while Profs. Harrington and Penhallow threw on a screen botanical and rock sections by means of the Wright microscopic lantern. In addition, incandescent lamps of varying resistance, arc lights and vacuum and phosphorescent tubes were exhibited and explained; the address was delivered by Sir William Dawson.

That only four numbers of the *Canadian Record of Science* have been published depends not upon want of matter but of means, for given the latter it could easily be issued as a bi-monthly journal at least; and this is to be regretted since as a source of information concerning the state of science in Canada, the journal is highly appreciated abroad and now numbers on its list no less than 162 exchanges.

At the regular monthly meetings of the Society, several original papers of scientific value were read and discussed. Among these may be mentioned the following:—

1. A Review of Papers read before the Geological Section of the British Association at Birmingham; with photographs of the subjects under review by Sir William Dawson.
2. On a project for a Union of Geological Surveys and Societies throughout the Empire by the same. This proposition, to be brought before the members of the Royal Society of Canada, met with the hearty approval of the members of our Society in Montreal.
3. On a new Pteraspidian Fish in the Silurian Rocks of New Brunswick, by G. F. Matthew.
4. Notes on the Tendrils of the Cucurbitaceæ, by D. P. Penhallow.
5. On the Ainos, by the same.
6. On affinities of the Tendrils of the Virginian Creeper, by A. T. Drummond.
7. The Canadian Rocky Mountains, their Geological formation, and insect and bird life, by Mr. G. M. Dawson.
8. On Jade as occurring in British Columbia, by the same.
9. Chemical notes on Wheat and Flour, by Prof. J. T. Donald.
10. Action of Organic Matter on Iron and a new process for preparing Peat, by the same.
11. Account of a visit to the Bahamas, describing the formation of Coral Reefs, by Prof. T. W. Mills.
12. A Permian Moraine in Prince Edward Island, by F. Bain.
13. On Canadian Orthoptera, giving several new species found on the Island of Montreal, by F. B. Caulfield.

I may close this report of what may be considered a most successful session by stating that a grant of \$200 having been received from the Elizabeth Thompson Science Fund trustees for the work of investigating underground temperature, the necessary instruments are being rapidly prepared by Prof. Penhallow and Mr. Shearer, the Chairman of Council, who, associated with Prof. C. H. McLeod, will carry out the necessary experiments.

XV.—From *The Manitoba Historical and Scientific Society*, through the Honorary Secretary, DR. BOURINOT.

The Historical and Scientific Society of Manitoba respectfully submits to the Royal Society of Canada the following report of its work for the past year, being the eighth year of its existence. The Society has now a membership of 100 active, 128 associate, 21 honorary and 34 corresponding members. Of this number, 27 active, 90 associate, 7 corresponding and 9 honorary members were added during 1886.

The following is a list of the lectures delivered and papers read :—

1. On the Proposed Change of Time-marking to a Decimal System: a plea that the duodecimal system be retained, by R. E. W. Goodridge, honorary treasurer to the Society; on February 25th 1886. (published.)
2. The Celt in the Northwest. Read afterward before the Celtic Society, Montreal, by the Rev. Dr. Bryce, President of the Society; on March 25th, 1886. (Published.)
3. The Chinook Winds, and other Climatic Conditions of the Northwest, by A. Bowermann, Principal Collegiate Department, Winnipeg Public Schools, April 22nd, 1886. (Published.)
4. The Mammals of Manitoba, by Mr. Ernest E. Thompson, formerly of Carberry, Man., and a corresponding member of the Society; May 27th, 1886. (Published.)
5. The Souris River, its Monuments, Fortifications, Mounds and Forts; by Rev. Dr. Bryce, President of the Society, illustrated. (Published.)
6. A Page of History, the French Element in the Canadian Northwest, by the Rev. Louis Drummond, S.J.: November 25th, 1886. (Published.)
7. A Prairie Tragedy, the Fate of Thomas Simpson, the Arctic Explorer, by Alex. McArthur, ex-president; December 23rd, 1886. (Published.)
8. Footsteps of Time on the Red River Valley, with especial reference to Salt Springs and Flowing Wells, by A. McCharles, chairman of Archæological Committee.
9. The Winter Birds of Manitoba, by Alex. McArthur, Ex-President, January 27th, 1887 (Published.)

The library contains upward of eleven thousand volumes, and the reading room has on file, in addition to all the provincial papers and the leading journals of Eastern Canada, a large number of the best English and American magazines and reviews. Substantial additions have been made to the museum during the year, especially in the departments of archæology, geology and botany, Mr. A. McCharles contributing a valuable collection of the economic minerals of the Northwest.

The Officers and Executive Council, for the present year are :—

President.....	Rev. Prof. Hart.
Vice-Presidents... {	A. H. Whitcher.
	Hon. G. McMicker.
Corresponding Secretary.....	D. M. Stewart.
Treasurer.....	R. E. W. Goodridge.
Recording Secretary.....	W. H. Hughan.

Executive Council.—The above officers with the addition of the following :—

Hon. A. A. C. LaRiviere.	Angus McCharles.
A. Bowerman, M.A.	Rev. Dr. Bryce, Ex-Pres.
Alex. McArthur, Ex-Pres.	R. D. Richardson.
Hon. Judge Ardagh.	F. H. Turnock.

The income of the Society for 1886 was \$2,211.14.

XVI.—From *The United States Department of Agriculture*, through DR. C. HART MERRIAM.

Through the courtesy of the Royal Society of Canada, I have the honour to represent the Division of Economic Ornithology and Mammalogy, of the United States Department of Agriculture.

The interrelation of birds and agriculture is not a new theme of discussion by bodies of learned men. Almost from the earliest historic times there have been occasional records of the effects of birds upon certain crops; and of recent years a not insignificant literature has grown up on the subject. And yet it must be acknowledged that most that has been written is the result of individual opinion, conjecture or hasty observation, and that very little in the way of exact knowledge is available.

The Government of the United States, recognising the practical importance of this subject, and wishing to obtain more extended and trustworthy information than now exists in relation to it, has established a Division of Economic Ornithology and Mammalogy in the Department of Agriculture.

The function of this division, as defined by act of Congress, is "the promotion of economic ornithology and mammalogy, an investigation of the food-habits, distribution, and migrations of North American birds and mammals in relation to agriculture, horticulture and forestry." The regular work of the division consists in the collection of facts relating to the above subjects, and in the preparation for distribution, among farmers and others, of special reports and bulletins upon birds and mammals which affect the interests of the farmer, and also upon the migration and distribution of North American species.

A knowledge of the food-habits of our common birds and mammals would benefit every intelligent farmer to the extent of many dollars each year, and occasionally would save him the loss of an entire crop. It would save certain States many thousands of dollars which they now throw away in bounties, and would add millions of dollars to the proceeds derived from our agricultural industries. Hence it becomes the duty of the Division to attempt to educate the farming classes in the truths of economic ornithology and mammalogy.

Among the many subjects now demanding the attention of the Division are:—The depredations of Ricebirds in the South; the status of the so-called English Sparrow in America; the true status of the various birds of prey in relation to agriculture; the depredations of Blackbirds in the grain-growing districts of the Northwest; the destruction of small fruits by birds; the depredations of small mammals, particularly in the west; and the true status of the several species of mammals which prey upon poultry.

It is hardly necessary to add that a knowledge of the economic relations of our birds and mammals is almost as important to the farmers of Canada as it is to those of the United States, and that coöperation is earnestly desired.

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XVII.—From *L'Institut Canadien de Québec*, through M. FRÉMONT.

XVIII.—From *La Société Historique de Montréal*, through ABBÉ VERREAU.

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SESSION IV. (*May 27th.*)

The members of the Society assembled at 10 o'clock, a.m., and the President called the meeting to order.

MISCELLANEOUS BUSINESS.

A committee composed of Prof. Johnson, Sir William Dawson, and such other members of the Royal Society as would be present, was appointed to coöperate with the committee appointed by

the British Association for the Advancement of Science, to press on the Dominion Government the necessity of making tidal observations in the waters of Canada.

DR. STEWART presented the following report from the committee on the subject of attendance of members :—

OTTAWA, 26th May, 1887.

The committee appointed to make enquiry into the attendance of members of the Royal Society of Canada, beg to report that in Section I there is one vacancy created by the resignation of Abbé Bois. Mr. Hector Fabre has neither attended meetings nor sent papers or letters of apology.

In Section II, Charles Lindsey was present once in 1882. He has sent neither papers nor letters. Dr. J. Watson has never been present, nor has he sent letters or papers. Mr. George Murray has been present once, in 1884, but has sent no papers or letters.

In Section III, there are no complaints to make. Members have forwarded, in case of absence, letters of apology, and in most instances, papers.

In Section IV, the absentees since the formation of the Society have been J. M. Jones and D. N. St. Cyr, who have sent neither papers nor letters.

(Signed)

G. C. HOFFMANN, *Secretary Section III.*

A. LUSIGNAN, *Secretary Section I.*

J. F. WHITEAVES, *Secretary Section IV.*

PAUL DE CAZES, *President Section I.*

GEORGE STEWART, JUN., *Secretary Section II.*

After debate the report was referred to the Council for consideration, on the motion of Sir William Dawson, seconded by Dr. Chauveau.

The proposed amended rule on the matter of filling vacancies in Sections was then taken into consideration.

Mr. Lusignan moved, seconded by Mr. De Cazes, that Rule 6 be restored as it existed in 1885, and that the words "at its next general meeting" shall be construed to mean "at its next or one of the ensuing general sittings of the Annual Meeting then held."

And the question being put on the proposed amendment, it was negatived on the following division: Yeas, 6; Nays, 17.

After debate on the proposed amended rule, it was agreed to, and now stands as follows:—

"The number of members in each section shall be limited to twenty. Nominations to fill vacancies in any Section may be made at any time in writing by any three members of that Section, and the nomination papers shall be lodged with the Honorary Secretary, who shall make a record of them. When the vacancy occurs, the Honorary Secretary shall notify the members of the Section in which it has taken place, and transmit to each a printed list of the candidates nominated, together with the reasons in writing for such nomination, at least four months before the annual or any general meeting of the Society. Each member may then place a mark (X) opposite the name of the candidate for whom he votes and return the voting paper to the Honorary Secretary, who shall report to the Council, at a meeting to be held at least two months before the annual meeting, the number of votes obtained by each candidate. Should any of these have obtained two-thirds of the votes of the whole Section, the Council shall so report to the Society. Should this result not be attained, then the Council may select one or more of the candidates obtaining the highest number of votes of the section, and cause the members of the Society to be advised of the names of the candidates so selected, at least one month previous to the date of the annual meeting, when the election may take place by vote of the members present, or the matter be referred back to the section concerned.

On motion of Dr. Johnston, seconded by Mr. Carpmael, it was resolved, "That the foregoing regulation shall not apply to vacancies that have occurred since more than three months before the beginning of the present meeting."

The Honorary Secretary presented on behalf of the Council a report to the effect that they had fully considered the question submitted to them on the previous day with respect to the attendance of members under Rule 7, and now respectfully recommended to the Society that the names of the following gentlemen be removed from the list of members on the ground that they had failed to comply with the regulations of the Society:—In Section II, Mr. Charles Lindsey; in Section III, Mr. J. M. Jones; in Section IV., Mr. St. Cyr.

On motion of Professor Lawson, seconded by Dr. Johnston, the foregoing report was adopted. The Society then adjourned until the following day at 10 o'clock, a.m.

SESSION V. (*May 28th.*)

The Society having duly assembled, and the President having called the meeting to order, the members proceeded to the

ELECTION OF OFFICERS

for the ensuing year, and the following gentlemen were unanimously elected:—

*President.*—G. LAWSON, Ph.D., LL.D.

*Vice-President.*—SANDFORD FLEMING, C.M.G., C.E.

*Honorary Secretary.*—J. G. BOURINOT, LL.D.

*Honorary Treasurer.*—J. A. GRANT, M.D., F.G.S.

REPORT OF SECTIONS.

The Secretaries of the four Sections then in due order presented their reports as follows:—

*Rapport de la Section I.*

Nous avons l'honneur de vous présenter le rapport suivant:—

Dix membres ont assisté aux séances. Si l'on considère que quatre autres sont en Europe et qu'un cinquième a donné sa démission, il n'y a pas lieu de mettre en doute l'intérêt constant que les membres de notre section portent aux affaires de la société.

On a lu quatorze travaux, écrits par onze auteurs. Deux de ces travaux ont été présentés par des étrangers à la société. Nous demandons la permission de publier le tout dans les mémoires.

Nous avons adopté une résolution de félicitations à M. le président général de la société, Mgr. Hamel, à l'occasion de son élévation à la haute dignité de Protonotaire Apostolique par Sa Sainteté le pape Léon XIII.

Nous avons aussi résolu de vous recommander l'élection de M. Alphonse Le Roy, professeur de philosophie à l'Université de Liège et membre de l'Académie Royale de Belgique, comme membre correspondant de la Société Royale du Canada.

Nos élections ont eu le résultat suivant:—

*Président*—M. FAUCHER DE SAINT-MAURICE.

*Vice-président*—M. L. PAMPHILE LEMAY.

*Secrétaire*—M. A. LUSIGNAN.

PAUL DE CAZES, *Président.*

ALPHONSE LUSIGNAN, *Secrétaire.*

*Report of Section II.*

I have the honour to report that Section II, has elected as office-bearers for the ensuing year:—

VERY REV. PRINCIPAL G. M. GRANT, *President.*

JOHN READE, *Vice-President.*

GEORGE STEWART, JUN., *Secretary.*

The committee on publications is composed of Drs. Daniel Wilson, Very Rev. Principal Grant, J. G. Bourinot and Geo. Stewart, Jun.

The committee appointed to consider the question of publishing monographs on old books relating to Canadian history, travel, etc., under the auspices of the Royal Society, was reappointed. The committee is composed of John George Bourinot, *Chairman*; John Reade, John Lesperance and George Stewart, Jun.

The following papers were read:—

- I. First Siege of Louisbourg in 1745. By SIR ADAMS G. ARCHIBALD. Submitted by PROF. LAWSON.
- II. The Analytical Study of Canadian History. By J. LESPERANCE.
- III. Fort Pontchartrain at Chambly, Province of Quebec. By ERNEST M. TAYLOR. Submitted by REV. DR. WITHROW.
- IV. Sonnet on the Jubilee of Her Majesty's Reign, June 20th, 1887. By W. KIRBY.
- V. Jacques Cartier's First Voyage. By W. F. GANONG, M.A. Submitted by DR. G. STEWART.
- VI. Retribution. A Poem. By REV. DR. DAWSON.
- VII. Canadian Sources of Raw Material for the Manufacturers of the Stone Period. By DR. DANIEL WILSON.
- VIII. Notes and Observations on the Kwakiol People of the Northern Part of Vancouver Island. By DR. GEORGE M. DAWSON.
- IX. Traditions of the Eskimos of Baffin Land. By DR. FRANZ BOAS. Submitted by DR. ROBT. BELL.
- X. Aboriginal American Poetry: a Chapter in Comparative Literature. By JOHN READE.
- XI. Wabanaki Love Songs. By JOHN READE.

Mr. John Chas. Dent, the author of "The Last Forty Years: Canada since the Union of 1841," and other literary works, was elected a Fellow of this section, to fill the vacancy caused by the resignation of Mr. Chas. Sangster.

GEORGE STEWART, JUN., *Secretary*.

*Report of Section III.*

The number of members in attendance was ten. The absent members were Profs. Chapman, Cherriman, Dupuis, Haanel, McGregor and Loudon, Drs. Hunt, Fortin and Sanford Fleming.

The following papers were read, in full or in abstract, before the Section:—

- I. Sur une méthode rationnelle relative à l'exposition des premiers principes de l'algèbre et de ses applications. By DR. J. DUVAL. Presented by VERY REV. T. E. HAMEL.
- II. On Milk Analysis. By DR. ELLIS.
- III. Notes on the Analysis of Coffee. By A. MCGILL. Communicated by T. MACFARLANE.
- IV. Analysis of Some Canadian Waters. By A. MCGILL. Communicated by T. MACFARLANE.
- V. On the Digestibility of Certain Varieties of Bread. By DR. R. F. RUTTAN. Communicated by T. MACFARLANE.
- VI. Remarks on the Asbestos Method of Analysing Milk. By T. MACFARLANE.
- VII. On Rock Classification. By T. MACFARLANE.
- VIII. On Stelliform Snow Crystals, in relation to Stellate Crystallization generally. By PROF. E. J. CHAPMAN.
- IX. On the Indirect Analysis of Phosphate Samples, as a Check on Commercial Analyses. By PROF. E. J. CHAPMAN.
- X. Extension of the Use of Coördinates in Geometry of Three Dimensions. By DR. A. JOHNSON.

- XI. Investigation as to Maximum Bending Moments at the Points of Support of Continuous Girders of  $n$  spans. By PROF. BOVEY. Communicated by DR. A. JOHNSON.
- XII. On a Specimen of Canadian Native Platinum from British Columbia. By G. C. HOFFMANN.
- XIII. A Practical Solution of the Great Social and Humanitarian Problem, Escape from Buildings in Case of Fire. By C. BAILLARGÉ.
- XIV. Microscopic Petrography of the Drift of Central Ontario. By DR. A. P. COLEMAN. Communicated by PROF. E. HAANEL.
- XV. On the Sap of the Ash-leaved Maple. By PROF. B. J. HARRINGTON.

The Honorary Secretary of the Society having reported to the Secretary of this Section, a vacancy in said Section, caused by the death of Dr. H. A. Bayne, one of its former members, it was moved by Dr. G. P. Girdwood, seconded by Dr. B. J. Harrington, and carried unanimously, "that the nomination to fill the vacancy caused by the death of Dr. Bayne, submitted by Dr. A. Johnson, Mr. C. Carpmael, and Mr. G. C. Hoffmann, be carried by this Section, and that with the concurrence of the proposers, the Society be requested to allow the proposition to be considered under the new regulation."

The officers elected for the ensuing year were:—

DR. T. STERRY HUNT, *President.*  
 E. DEVILLE, *Vice-President.*  
 G. C. HOFFMANN, *Secretary.*

E. DEVILLE, *Chairman.*  
 G. C. HOFFMANN, *Secretary.*

*Report of Section IV.*

The number of members of the Section who attended the meeting was twelve, but Mr. E. Gilpin, who was not able to be present, sent a paper to be read, and Prof. E. J. Chapman, who also was not able to be present, sent the title of a paper which he hoped to be able to prepare.

The following is a list of papers which were read, either in full or by title:—

- I. Discours présidentiel. Contribution à l'histoire des sciences naturelles au Canada; Dr. M. Sarrazin. By ABBÉ LAFLAMME.
- II. The Petroleum Field of Ontario. By DR. R. BELL.
- III. On the Flora of Hudson Strait, with Remarks on the General Distribution of Plants on the Northern Shores of America. By PROF. GEORGE LAWSON.
- IV. On the Canadian Species of Picea. By PROF. GEORGE LAWSON.
- V. On the Correlation of the Geological Structure of the Maritime Provinces of Canada with that of Western Europe. By SIR WILLIAM DAWSON.
- VI. Notes on Fossil Woods and other Plant Remains from the Cretaceous and Laramie Formations of the Western Territories of Canada. By SIR WILLIAM DAWSON.
- VII. Notes on the Physiography and Geography of Aroostock County, Maine. By PROF. L. W. BAILEY.
- VIII. Illustrations of the Fauna of the St. John Group.—No. 4. By G. F. MATTHEW.
- IX. Illustrations of the Fauna of the St. John Group.—No. 5. By G. F. MATTHEW.
- X. The Faults and Foldings of the Pictou Coal Field. By E. GILPIN, JUN.
- XI. A Review of Canadian Botany from the First Settlement of New France to the Year 1880. By PROF. D. P. PENHALLOW.
- XII. Do any Canadian Bats migrate? Evidence in the Affirmative. By DR. C. HART MERRIAM.

- XIII. The Geography and Geology of Baffin Land. By DR. FRANZ BOAS.
- XIV. The Physical and Zoological Features of the Ungava District. By LUCIEN M. TURNER.
- XV. Notes on the Erosive Power of Glaciers as seen in Norway and on the Theory of Glacier Motion. By DR. J. W. SPENCER. Communicated by DR. BELL.
- XVI. Squirrels: their Habits and Intelligence, with Special Reference to Feigning. By Prof. J. WESLEY MILLS. With an Appendix by DR. BELL. Communicated by DR. BELL.
- XVII. Arctic Plants occurring in New Brunswick, with notes on their Distribution. By REV. PROF. JAMES FOWLER. Communicated by DR. BELL.
- XVIII. Marine Algæ of New Brunswick. By G. U. HAY. Communicated by G. F. MATTHEW.
- XIX. Notes on the English Song Sparrow, *Passer domesticus*. By ERNEST E. THOMPSON. Communicated by DR. BELL.
- XX. The Song Birds of Eastern Canada. By MONTAGUE CHAMBERLAIN. Communicated by G. F. MATTHEW.
- XXI. The Correlation of the Animikie and Huronian Rocks of Lake Superior. By PETER MCKELLAR. Communicated by DR. BELL.
- XXII. On the Birds and Mammals of Nova Scotia. By ANDREW DOWNS. Communicated by PROF. G. LAWSON.
- XXIII. The Mammalia of Canada, exclusive of the Cetacea. By J. B. TYRRELL. Communicated by J. F. WHITEAVES.
- XXIV. The Utica Formation in Canada. By H. M. AMI. Communicated by J. F. WHITEAVES.
- XXV. Some Recent Developments in Archæan Geology. By A. G. LAWSON. Communicated by DR. BELL.
- XXVI. On the Gold-bearing Rocks of British Columbia. By AMOS BOWMAN. Communicated by DR. SELWYN.

It was moved by Sir William Dawson, seconded by Sir James A. Grant, and resolved, "That this Section desires to express its concurrence in the report on an Imperial Geological Union adopted by this Society, and expresses its willingness to aid in any measures taken toward that object."

The election of officers of the Section for the ensuing session resulted as follows:—

DR. R. BELL, *President*.

PROF. L. W. BAILEY, *Vice-President*.

J. F. WHITEAVES, *Secretary*.

J. F. WHITEAVES, *Secretary*.

The following resolutions were adopted:—

1. "That the thanks of the Society be communicated by the Honorary Secretary to His Worship the Mayor of Ottawa for the courtesies extended to the members during the present meeting."
2. "Que M. Alphonse Le Roy, professeur de philosophie à l'université de Liège et membre de l'Académie Royale de Belgique soit élu membre correspondant de la Société Royale du Canada."
3. "That John Charles Dent be elected a member of the Society, in accordance with the recommendation of Section II."
4. "That the resolution passed at the previous meeting, that the amended Rule 6 'shall not apply to vacancies that have occurred more than three months before the beginning of the present meeting,' be rescinded."

Dr. Bell moved, seconded by Mr. Macfarlane, "That no action be taken as regards the report presented at the meeting by Sir William Dawson, with respect to a Geological Congress, until the report of the Council upon the subject be presented next year."

After debate, the foregoing motion was negatived on the following division: Yeas, 7; Nays, 16.

The thanks of the Society having been unanimously voted to the retiring President, the meeting adjourned.

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# THE ROYAL SOCIETY OF CANADA.

FOUNDER: THE RIGHT HONOURABLE THE MARQUIS OF LORNE.

## OFFICERS FOR 1887-88.

HONORARY PRESIDENT AND PATRON:

HIS EXCELLENCY THE MOST HONOURABLE THE MARQUIS OF LANSDOWNE, G.C.M.G.  
GOVERNOR-GENERAL OF CANADA.

PRESIDENT - - - - G. LAWSON, PH.D., LL.D.  
VICE-PRESIDENT - - - SANDFORD FLEMING, C.M.G.

### EX-PRESIDENTS.

T. STERRY HUNT, LL.D., F.R.S.  
DANIEL WILSON, LL.D., F.R.S.E.  
MONSIGNOR HAMEL, M.A.

### OFFICERS OF SECTIONS.

#### *SEC. I.—French Literature, History, and Allied Subjects.*

PRESIDENT - - - - FAUCHER DE ST. MAURICE.  
VICE-PRESIDENT - - - PAMPHILE LEMAY.  
SECRETARY - - - - A. LUSIGNAN.

#### *SEC. II.—English Literature, History, and Allied Subjects.*

PRESIDENT - - - - VERY REV. G. M. GRANT, DD.  
VICE-PRESIDENT - - - JOHN READE.  
SECRETARY - - - - GEO. STEWART, JUN., D.C.L.

#### *SEC. III.—Mathematical, Physical, and Chemical Sciences.*

PRESIDENT - - - - T. STERRY HUNT, LL.D., F.R.S.  
VICE-PRESIDENT - - - E. DEVILLE.  
SECRETARY - - - - G. C. HOFFMANN, F. Inst. Chem.

#### *SEC. IV.—Geological and Biological Sciences.*

PRESIDENT - - - - R. BELL, M.D., F.G.S.  
VICE-PRESIDENT - - - L. W. BAILEY, PH. D.  
SECRETARY - - - - J. F. WHITEAVES, F.G.S.  
HONORARY SECRETARY - - - - J. G. BOURINOT, LL.D.  
HONORARY TREASURER - - - - SIR J. A. GRANT, K.C.M.G., M.D., F.G.S.

The Council for 1887-88 comprises the President and Vice-President of the Society, the Presidents, Vice-Presidents and Secretaries of Sections, the Honorary Secretary, and the Honorary Treasurer, besides ex-Presidents of the Society (Rule 7) during three years from the date of their retirement.

# THE ROYAL SOCIETY OF CANADA.

## LIST OF MEMBERS, 1887-88.

### I.—LITTÉRATURE FRANÇAISE, HISTOIRE, ARCHÉOLOGIE, ETC.

BÉGIN, L'ABBÉ L. N., S.T.D. université Laval, Québec.	LEMAY, PAMPHILE, Québec.
CASGRAIN, L'ABBÉ H. R., LL.D., Québec.	LEMOINE, J. M., Québec.
CHAUVEAU, P. J. O., LL.D., L.D., Montréal (ex-Président)	LUSIGNAN, A., Ottawa.
DE CAZES, PAUL, Québec.	MARCHAND, F.-G., Saint-Jean, Q.
DE CELLES, A. D., Ottawa.	MARMETTE, JOSEPH, Ottawa.
FABRE, HECTOR, Paris, France.	ROUTHIER, A. B., LL.D., Québec.
FAUCHER DE SAINT-MAURICE, N., Québec.	SULTE, BENJAMIN, Ottawa.
FRÉCHETTE, LOUIS, LL.D., Nicolet.	TANGUAY, L'ABBÉ CYPRIEN, L.D., Ottawa.
LEGENDRE, NAPOLÉON, Québec.	TASSÉ, JOSEPH, Montréal.
	VERREAU, L'ABBÉ HOSPICE, LL.D., Montréal.

### II.—ENGLISH LITERATURE, HISTORY, ARCHÆOLOGY, ETC.

BOURINOT, JOHN GEORGE, LL.D., M.A., F.S.S., Ottawa.	MURRAY, REV. J. CLARK, LL.D., McGill University, Montreal.
BUCKE, R. MAURICE, M.D., London, O.	MCCOLL, EVAN, Kingston.
DAWSON, REV. ÆNEAS MACDONELL, LL.D., Ottawa.	READE, JOHN, Montreal.
DENISON, Lt-COL. G. T., B.C.L., Toronto.	SMITH, GOLDWIN, D.C.L., Toronto.
DENT, J. C., Toronto.	STEWART, GEORGE, JUN., D.C.L., Québec.
GRANT, VERY REV. G. M., D.D., Principal of Queen's University, Kingston.	WATSON, J., M.A., LL.D., Queen's University, Kingston.
KIRBY, WILLIAM, Niagara.	WILSON, DANIEL, LL.D., F.R.S.E., President of University of Toronto, Toronto (ex-President).
LESPERANCE, JOHN, Montreal.	WITHROW, REV. W. H., D.D., Toronto.
LYALL, REV. W., LL.D., Dalhousie University, Halifax.	YOUNG, G. PAXTON, M.A., University of Toronto, Toronto.
MURRAY, GEORGE, B.A., High School, Montreal.	

III.—MATHEMATICAL, PHYSICAL AND CHEMICAL SCIENCES.

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|--|---|
| BAILLARGÉ, C., C.E., <i>Quebec.</i>  | HAANEL, E., Ph.D., Victoria University. <i>Cobourg.</i>                                 |
| CARPMAN, C., M.A., Superintendent of Meteorological Service, <i>Toronto.</i> | HAMEL, VERY REV. T. E., M.A., Rector of Laval University, <i>Quebec</i> (ex-President). |
| CHAPMAN, E. J., Ph.D., LL.D., University of Toronto, <i>Toronto.</i>         | HARRINGTON, B. J., B.A., Ph.D., McGill University, <i>Montreal.</i>                     |
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