PROCEEDINGS

OF THE

Nova Scotian Institute of Science

SESSIONS OF 1925-1926

VOL. XVI, PART 4

64TH ANNUAL BUSINESS MEETING

Physiological Lecture Room, Dalhousie University, Halifax, 14th October, 1925

THE PRESIDENT, DR. STEPHEN G. RITCHIE, in the chair.

Other members present: Dr. J. H. L. Johnstone, Dr. A. G. Nicholls, D. J. Matheson, Prof. D. .S McIntosh, Dr. A. H. MacKay, Prof. H. S. King, Prof. D. McIntosh, Prof. C. B. Nickerson, Dr. G. H. Henderson, Prof. W. P. Copp, Mr. Scammell, Prof. E. G. Young, Prof. O. S. Gibbs, and H. Piers.

The Presidential Address was delivered by DR. STEPHEN G. RITCHIE, which will be found in full at the end of the Proceedings, page XXVII

The Treasurer's report was presented by D. J. MATHESON, showing that the receipts for the year ended 14th Oct., 1925, were $1,328.40; the expenditures $25.50; balance in hand (in current amount), $1302.90; and balance at credit of reserve fund, $165.92. The report was received and adopted. It was pointed out that there was chargeable against the balance, the cost of three parts of the Transactions which are in the printer's hands.

The Librarian's report was presented by MR. PIERS, showing that 1,485 books and pamphlets had been received

through the exchange list during the year 1924; and 1,142 have been received during the nine months, January to September, 1925. The total number of books and pamphlets received by the entire Provincial Science Library (with which that of the Institute is incorporated) during the year 1924, was 1,642. The total number in the Science Library on 31st December, 1924, was 70,234. Of these, 52,329 (about 75 per cent.) belong to the Institute and 17,905 to the Science Library proper. 108 books were borrowed in 1924, besides those consulted in the library. No binding or purchasing has been done, there being no grant at its disposal since 1907. The report was received and adopted.

DR. NICHOLLS reported from the Popular Lectures Committee. It suggested two alternatives: (1) a series of four lectures, or (2) an exhibit which would interest the public in the development of science. The committee was instructed to ascertain if it would be possible to have two or three popular lectures on biological subjects, with the addition of the exhibition referred to.

Reference was made to the loss the society had sustained through the death, during the past year, of three members, PROF. L. W. BAILEY, PH. D., of Fredericton; DR. E. N. PAYZANT, of Wolfville, and SIR CHARLES FREDERICK FRASER, of Halifax.

It was announced that REV. BROTHER WILLIAM B. CORNELIA, of St. Mary's College, Halifax, had been elected an ordinary member on 1st October.

Officers for the ensuing year (1925-6) were elected as follows:

President—STEPHEN GALWAY RITCHIE, B. A., D. M. D., *ex officio* F. R. M. S.

First Vice-President—PROF. JOHN HAMILTON LANE JOHNSTONE, Ph.D., M. B. E.

Second Vice-President—PROF. ALBERT G. NICHOLLS, M. D., D. Sc., F. R. S. C.

Treasurer—DONALD J. MATHESON, B. Sc.

Corresponding Secretary—PROF. DONALD S. MCINTOSH, M. Sc.

Recording Secretary and Librarian—HARRY PIERS.

Councillors without office—ALEXANDER H. MACKAY, LL. D., F. R. S. C.; PROF. HAROLD S. KING; PROF. DOUGLAS MCINTOSH, Ph. D.; PROF. CARLETON B. NICKERSON, M. A.; PROF. GEORGE H. HENDERSON, Ph. D.; PROF. O. S. GIBBS, and PROF. E. GORDON YOUNG.

Auditors—PARKER R. COLPITT and PROF. W. P. COPP.

FIRST ORDINARY MEETING

Physiological Lecture Room, Dalhousie University, Halifax, 16th November, 1925

THE PRESIDENT, DR. S. G. RITCHIE, in the chair.

PROF. DONALD S. MCINTOSH presented a paper entitled "Notes on an Esker in the Interior of Digby County, N. S."

SECOND ORDINARY MEETING

Dental Lecture Room, Dalhousie University, Halifax, 14th December, 1925

THE PRESIDENT, DR. S. G. RITCHIE, in the chair.

It was reported that the following had been elected members on 3rd December: E. A. SMITH, E. E. , PH. D., F. P. S., Secaucus, New Jersey, U. S. A. (Associate); WILLIAM W. PAGE, Halifax (Ordinary), and GEORGE C. LAWRENCE, B. Sc., Dalhousie College, Halifax (Ordinary).

A paper was read by MISS MARGARET F. MCCURDY, M. Sc., entitled "Notes on the Reduction of Potassium Platinic Chloride." The subject was discussed by DR. D. MCINTOSH, DR. H. R. CHIPMAN, PROF. KING, DR. JOHNSTONE and MR. TODD.

H. RITCHIE CHIPMAN, PH. D., read a paper entitled "Notes on the Devitrification of an Old Glass." The subject was discussed by DR. YOUNG, DR. E. WHYTE, PROF. D. S. MCINTOSH, PROF. NICKERSON, DR. D. MCINTOSH, DR. HENDERSON, PROF. KING, DR. JOHNSTONE and the PRESIDENT.

E. W. TODD, B. A., Dalhousie University, read a paper on "Some Qualitative Tests for Methyl Alcohol." The subject was discussed by DR. D. MCINTOSH, PROF. NICKERSON, DR. MACKAY, DR. CHIPMAN, PROF. KING and DR. YOUNG.

THIRD ORDINARY MEETING

Dental Lecture Room, Dalhousie University, Halifax,
18th January, 1926

THE PRESIDENT, DR. S. G. RITCHIE, in the chair.

It was announced that DR. J. D. FORBES, Atlantic Experiment Station for Fisheries, Halifax, had been elected an ordinary member on the 12th inst.

The PRESIDENT stated that the members of the Institute had on the 7th inst., presented a piece of plate to Mr. and Mrs. Harry Piers on the occasion of the twenty-fifth anniversary of their marriage, and he read a letter from Mrs. Piers expressing, on the part of herself and Mr. Piers, their very deep appreciation of the kindness of the society in making the presentation and of the accompanying good wishes. Mr. Piers also personally expressed his thanks to the meeting.

On motion of MR. PIERS and DR. MACKAY, it was resolved that the Institute learns with deep regret of the death at Montreal on the 9th of January, 1926, of its former President, MARTIN MURPHY, C. E., D. Sc., D. S. O., and desires to express its sympathy to the bereaved family.

A discussion took place regarding a new policy for the Institute; and it was resolved that the matter be left to the council,

in order that it might draft a notice to the members, requesting them to bring before the society the results of all scientific work they might be engaged upon, to be published in abstract or in some cases in full.

The following papers were read:

(1) Hydrogen in Cathode Zinc.—By W. Roy Elliot, B. A., Dalhousie Univ. The subject was discussed by Dr. Johnstone.

(2) Negative Geotropy of the Periwinkle.—By F. Ronald Hayes, Dalhousie Univ. The subject was discussed by Dr. MacKay, Mr. Piers and Prof. Gowanloch.

(3) On the Radium Content of Some Nova Scotian Minerals.—By Carl C. Kenty, M. Sc., Dalhousie Univ. The paper was discussed by Mr. Piers and Dr. Henderson.

Fourth Ordinary Meeting

Dental Lecture Room, Dalhousie University, Halifax, 25th February, 1926

The President, Dr. Ritchie, in the chair.

The committee on popular lectures reported that it was trying to arrange for an exhibition of interesting scientific material to be held, if possible, in April.

Prof. Harold S. King presented a paper entitled "Note on a Simple Still for the Preparation of Pure Water." The subject was discussed by Dr. Bronson, Dr. MacKay amd Mr. Piers.

K. L. Dawson, A. M. E. I. C., of the N. S. Tramways and Power Co., Halifax, read a paper on "The Removal of Carbon Disulphide from Coal Gas in Halifax: a Study in Vapour Pressure." The paper was discussed by Dr. MacKay, Prof. Gowanloch, Prof. D. S. McIntosh and Mr. Piers. A vote of thanks was presented to Mr. Dawson for his communication.

Fifth Ordinary Meeting

Dental Lecture Room, Dalhousie University, Halifax, 29th March, 1926

The First Vice-President, Dr. Johnstone, in the chair.

Robert C. Robb, Dalhousie University, read a paper entitled "A Study of Huntington's Chorea as a Mendelian Character." It was discussed by Dr. Babkin, Prof. Dreyer, Dr. Young and Prof. Nickerson.

Prof. N. B. Dreyer, M. A., M. R. C. S., Dalhousie University, read a paper on "An Experimental Study of Saline Cathartics." Among those who took part in the discussion were Dr. Johnstone, Dr. Young, Dr. Babkin, Dr. D. McIntosh, Prof. King and Prof. Nickerson.

Sixth Ordinary Meeting

Dental Lecture Room, Dalhousie University, Halifax, 19th April, 1926

The President, Dr. Ritchie, in the chair.

The following papers were presented:—

(1) The Ratio of the Electric Units of Charge.—By George C. Laurence, B. Sc., Dalhousie University. The subject was discussed by Dr. Johnstone, Dr. Bronson, Dr. Ritchie and Dr. Henderson.

(2) Liquid Hydrogen Sulphide as an Ionizing Solven.—By H. Ritchie Chipman, Ph. D. The subject was discussed by Dr. E. Whyte, Dr. Johnstone and Dr. D. McIntosh.

(3) The Augmented Secretion of the Salivary Glands.—By Prof. B. Babkin, D. Sc. and P. D. McLarren, M. D. Discussed by Prof. E. G. Young.

(4) The Digestibility of the White of Egg.—By I. G. Macdonald and Prof. E. G. Young, Ph. D. Discussed by Prof. Nickerson and Dr. Babkin.

Seventh Ordinary Meeting

Dental Lecture Room, Dalhousie University, Halifax,
17th May, 1926

The President, Dr. Ritchie, in the chair.

The following papers were presented:—

(1) Boundary Problems for a Self-Adjoint System of Partial Differential Equations.—By Prof.F. H. Murray, Ph. D., King's College.

(2) Solubilities and Molecular Weight Determinations in Liquid Chlorine.—By Keith H. Butler, B. A., Dalhousie University.

(3) A Study of Early Development in *Cumingia*, with special reference to Cytology.—By Miss Margaret E. MacKay, M. A., Dalhousie University. Discussed by Dr. Ritchie and Dr. Bean.

(4) Effects of Various Treatments on the Tensile Strength of Fish Muscle.—By J. C. Forbes, Ph. D., Atlantic Experimental Station for Fisheries.

Harry Piers,
Recording Secretary.

Presidential Address 1924-5

S. G. Ritchie, B. A., D. M. D., Professor of Dental Anatomy and Comparative Dental Anatomy and Prosthetic Dentistry, University of Dalhousie, Halifax, N. S.

(*Read* 14 *Oct.* 1925)

The 63rd year of existence of the Nova Scotian Institute of Science has passed into history and it may be of interest to the present members to give a brief historical sketch of the Institution so that by comparison with the past we may the better realize what progress is being made in the present. In making this retrospect I find I have been anticipated by Mr. Harry Piers who at the 50th anniversary of the Institute in 1912 presented a very interesting and complete history of its membership and activities up to that year. It is to this monograph that I am indebted for most of the information herein.

Mr. Piers tells us that the study of Natural Science in Nova Scotia was well under way by individual workers as early as the year 1800, when Titus Smith, known as the Dutch Village Philosopher, was a botanist and naturalist of note. Other early workers were the Rev. Thomas MacCullouch, D. D., ornithologist, first principal of Pictou Academy 1816-1837 and principal of Dalhousie College, 1837. Abraham Gesner, M. D., F. G. S. geologist and mineralogist, author of "Remarks on the Geology and Mineralogy of Nova Scotia," a rather rare book at this time. There were others, too, William Bennett Webster, M. D., M. P. P. mineralogist; Richard Brown, geologist and mining engineer, and Sir William Dawson whose fame is international.

In 1813 a Mechanics' Institute was formed in Halifax. This was a literary and scientific organization meeting once a week during the sessions. It became very popular, but in the 50's interest began to wane, and about 1860 it became more or less dormant, and then defunct. In 1868 the collection of specimens

belonging to the Institute was handed over to the Provincial Museum by the trustees which action finally closed the history of the society.

In 1859 the Nova Scotia Literary and Scientific Society was in evidence; but due, apparently, to conflicting interests the scientific men shortly afterwards proposed the formation of a separate organization. They held several preliminary meetings and, after a roster of prospective members had been made out, on the 31 Dec., 1862, in the hall of the Medical Society at Halifax, there was organized the Nova Scotian Institute of Natural Science. There were twenty-four charter members. Bylaws were passed and adopted, meetings being scheduled for the first Monday of every month during the session. The first ordinary meeting was held at Dalhousie College, 19th, Jan., 1863. Dr. J. B. Gilpin had the honor of reading the first paper on "The Common Herring of Nova Scotia," which was followed by one from Capt. Hardy, R. A., on the "Nocturnal Life of Animals in the Forest." At the February meeting the patron, the Earl of Mulgrave, was present and spoke at length.

In April 1864, the place of meeting was changed to the Province Building Institute Room. This was used until May 1871, after which for sixteen years meetings were held in the Provincial Museum and thereafter in the Legislature Council Chamber and Assembly Room. Later a shift was made in 1909 to the Technical College and finally another back again to Dalhousie College.

During its early years the Institute held nine field-days; but owing to lack of interest these were discontinued.

The first volume of the Transactions representing four years of work was published in 1867. The earlier volumes were edited by the Secretary and President Wm. Gossip;

from 1887-89—by Dr. Honeyman;

from 189-1901—by Dr. MacGregor;

from 1901-1908—by Mr. Harry Piers;

from 1908—for several years—by Dr. Creighton and

Dr. Alex. H. MacKay. After Dr. Creighton's retirement, by Dr. MacKay who still performs that duty in a very able manner.

In 1868, through the strenuous efforts of some of the porminent members of the Institute, the Provincial Museum was founded, and all specimens collected by the Institute were deposited there.

About 1867 the Institute received its first grant of $200.00 from the Legislature. In 1890 the grant was raised from $400.00 to $500.00 to meet the cost of printing 1300 copies of the Transactions. The grant has been continued at this figure up to the present time.

On the 1st March, 1878, through the efforts of the Institute of Science, a Technological Institute for instruction in technical subjects was established. After three sessions it passed out of existence, May 1880, for lack of funds. It was the unsuccessful forerunner of the present Technical College; "and yet," Mr. Piers states, "I never heard its name mentioned during all the agitation leading up to the foundation of the latter institution."

Much to my surprise I find that on the 2nd April the Institute of Science was honoured by having its then and subsequent presidents made ex-office Fellows of the Royal Microscopical Society, a distinction which our presiding officer still enjoys.

The session of '88-89 was an epoch, making one in the annals of the Institute. Dr. James Gordon MacGregor was elected president and held office until Nov. 1891. It was a period of awakening and regeneration. His resistless energy placed the organization on a higher plane. One result of his activities was the phenomenal growth of the library. In 1890 he increased the edition of the Transactions to 1300 copies, which were sent in exchange to learned institutions and libraries throughout the whole world. This resulted in two things—an increased notoriety for our research workers whose papers were printed therein, and in the building up of the library through the larger number of exchanges. Another result of his ideas was the broadening of scope through the dropping in

1890 of the word Natural from the title of the organization. Many papers in physics and chemistry were thus admitted although the change met with considerable opposition. The Institute was incorporated the same year.

In 1901 Dr. MacGregor accepted the chair of Natural Philosophy in Edinburgh University, the Institute uniting with others in extending a farewell dinner to the man who had done so much for the organization. He died in 1913.

The later years of the Institute have been uneventful.

Interest in science on the whole has been maintained and valuable work put on record. A concerted effort has been made during the past five years to create a wider public interest in science through the medium of free popular lectures during each session.

The results are very promising. From the research standpoint our output is disappointing. MacGregor thought an average of twelve papers a year far too small. At present we do not begin to approach that number. The Institute should give this matter serious consideration. Many papers of interest are being published elsewhere which should undoubtedly be first presented before this Institute.

Now a word or two about our library. It began in 1864 with one book. Additions thereafter were rapid so that eventually it reached such proportions that the Institute could no longer comfortably handle it. In 1899 by letter to the Provincial Secretary, the Institute stated its willingness to intrust its library to the custody of the Government (the right of property remaining with the society) on condition that it should be made the nucleus of a public library to be maintained by the Government in connection with the Provincial Museum, and to be open to all who may wish to use it under such restrictions only as might be necessary for the safe keeping of the books, and also that the Government appoint a competent librarian to take the library in charge. The Government saw the wisdom of this step and in the summer of 1900 it became

the Provincial Science Library of Nova Scotia under the control of the Department of Public Works and Mines, the scientific works of the Legislative Library being added thereto. In 1913 the records show that it contained about 45,000 books and pamplets. At the present time it contains over 70,000 of which 75 per cent belong to the Institute of Science.

The Provincial Museum which Dr. MacKay has called "the ward of the Government but the child of the Institute" now contains 30,000 specimens two thirds of which are Nova Scotian.

This sketch would be incomplete without the mention of at least a few of those who have been prominent in the Institute and in the advancement of science in the Province in the past, all of whom have gone to their reward.

The Hon. Philip Cartaret Hill, D. C., D. C. L., first president and at the time mayor of Halifax.

John Matthew Jones, F. L. S., F. R. C. C., zoologist.

John Somers, M. D., botanist.

John Bernard Gilpin, M. D., M. R. S. C., F. R. S. C., zoologist.

Robert Morrow, comparative anatomist and zoologist.

Prof. George Lawson, botanist and chemist.

Edwin Gilpin, Jr., LL. D., D. S. C., F. R. S. C., economic geologist.

Rev. John Ambrose, M. D., D. C. L., zoologist.

Robert Grant Haliburton, M. A., D. C. L., F. R. C. S., ethnologist (son of Sam Slick).

Col. William. James Myers, meteorologist.

Thomas Belt, geologist and naturalist.

John Robert Willis, conchologist.

Andrew Downs, ornithologist.

Rev. David Honeyman, D. C. L., F. G. S., F. R. G. S., geologist.

Henry Youle Hind, D. C. L., F. R. G. S., geologist and explorer.

Rev. Dr. Geo. Patterson, archeologist.

Hugh Fletcher, B. A., geologist.

Maj. Gen. Campbell Hardy, naturalist.

Dr. L. W. Bailey, geologist and scientist.

An account such as the foregoing must of necessity be brief and sketchy. But brief as it is it is sufficient to show that this Institute of ours through its members must have been a tremendous factor in the scientific, industrial and economic development of this province; and I believe there is every reason to think that it will continue as such.

In conclusion may I be permitted to say, that I have deemed it a great honor to be the executive head of this fine old organization during the past year. It is a source of gratification to me to have this opportunity of extending my sincere thanks to those who contributed papers, to the lecturers whose able efforts were greatly appreciated by the large audiences which attended during the series on radio telephony; and lastly to the members of the Council and the Secretary for their cheerful and able assistance without which the session just closed could not have been a success.