

# PROCEEDINGS

OF THE

## Nova Scotian Institute of Science

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SESSION OF 1927-28  
(Vol. xvii, Part 2)

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66TH ANNUAL BUSINESS MEETING.

*Dalhousie Medical Science Building, Halifax,  
12th October, 1927.*

THE PRESIDENT, DR. J. H. L. JOHNSTONE, in the chair.

Other members present: DR. D. McINTOSH, D. J. MATHESON, PROF. D. S. McINTOSH, DR. A. H. MacKAY, PROF. H. S. KING, DR. E. G. YOUNG, PROF. J. N. GOWAN-LOCH, REV. BRO. CORNELIA, DR. H. L. BRONSON, DR. J. CAMERON, G. SANDOZ, PROF. G. E. BURBIDGE, and H. PEERS.

The President delivered the opening address as follows:—

*Gentlemen:—*

It is a privilege of your president to briefly review the events of the sixty-fifth annual session of the Institute.

I am glad that one of the duties which is laid down by our regulations, viz. to give a brief sketch of the life and scientific work of members who have died during the year, does not have to be performed.

In accordance with custom we will receive reports on our library and finances. It is my duty to review the happenings of the session. The year 1926-27 is a noteworthy one in our history for two reasons—First, a science exhibition open to the public, was held by the Institute in cooperation with the science departments of Dalhousie University; Second, the

government grant of \$500 was restored to the provincial science library after a lapse of twenty years.

The primary object in offering the exhibition was to stimulate a more widespread interest in pure science and its possibilities. To awaken in even a few an appreciation of the value of science is to make them better citizens and so make our Province a better place to live in. From the many expressions of opinion from individuals and the press, from the fact that the attendance was nearly 5,000, there is little doubt that the exhibition was one of the most successful educational features of recent years. The committee in charge received enthusiastic support and cooperation from the Science teaching staffs and students of Dalhousie University, the faculty and students of the Maritime College of Pharmacy, the electrical department of the Nova Scotia Technical College, the Atlantic Experiment Fisheries Station and radio-station CHNS. I take this opportunity, on behalf of the Institute, of thanking them for their generous assistance.

During the past year 19 contributions were presented, of which 10 might be classed as biological, 5 chemical and 4 in physics. The average length of paper was 5.6 pages. A comparison with previous years is of interest. The number of papers presented this year has never been exceeded and only on one occasion equalled, viz. in 1925-26.

<i>Years</i>	<i>Average no. of Papers</i>
1890—1906	10
1906—1916	8.8
1916—1919	4

The council feels that there is no reason why the present high mark should not be kept up, provided a concerted effort is made to secure and publish the results of all scientific work done by investigators in this province, even if only as an abstract. From the increased number of papers presented in the past two years we must not too hastily infer that real progress has been made, nevertheless it is an encouraging sign. It is gratifying to note that 7 papers were presented by student members, and in one case the paper received the high praise of Sir E. Rutherford, and it was chiefly responsible for the author's

appointment to an 1851 Exhibition Science Research Scholarship.

You will hear from Mr. Piers the annual report of the Science Library. May I point out that altho the library is controlled by the government, it was founded by the Institute of Science and a large part of it belongs to us, being merely held in trust by the government. For these reasons the Institute is naturally interested in the success of the library, and we all should feel grateful at the restoration of the annual grant from the government. The library has grown rapidly, chiefly in pamphlets and periodicals received from all parts of the world, in exchange for our Transactions. In the past, because of lack of funds, it was impossible to have any binding done, consequently many of these pamphlets have been not readily accessible. The librarian has allotted a generous amount for binding purposes and during the past summer a number of the more valuable periodicals were bound. A small library committee has been appointed by your council to consult with Mr. Piers.

Owing to unforeseen delays caused by the printer, the Transactions of the year 1920-1926 are still in press, but it is expected that they will be ready for mailing in a short time. As a result of the initiative and energy of our editor Dr. A. H. MacKay and a welcome change in printer, The Proceedings and Transactions for 1926-27 are now completed and ready for distribution.

Our membership, 70 ordinary and 12 associate, compares very favorably with past years, e. g. in 1890 the ordinary and associates numbered 76. Five new ordinary members were proposed and elected during the year. It should be our aim to have on the membership list the name of every man in the province who has the ability to make contributions to science and all the others who are willing to encourage others by their interest and annual fees. With the cooperation of each member it should be possible to increase the ordinary membership to at least 300. I would suggest that the incoming council concern itself with this important matter.

May I take this opportunity of expressing to the members my appreciation of the honor in electing me to the presidency of the Institute and of thanking the council for its cooperation thruout the past year.

The Treasurer's report was presented by D. J. MATHE-  
SON, showing that the receipts for the year were \$2,547.77;  
the expenditures, \$471.06; balance in hand (in current  
account), \$2,076.71; and the balance at credit of reserve  
fund, \$175.97; while the permanent endowment fund is  
\$1,500.00.—The report was received and adopted.

The Librarian's report was presented by MR. PIERS,  
showing that 1,170 books and pamphlets had been received  
through the exchange-list in 1926; and 1,005 during the  
nine months, Jan. to Sept., 1927. The total number of  
books and pamphlets received by the entire Provincial  
Science Library (with which that of the Institute is in-  
corporated) during 1926, was 1,424. The total number in  
the Science Library on 31st. Dec. 1926, was 73,310. Of  
these, 55,004 (about 75 per cent.) belong to the Institute,  
and 18,306 to the Science Library proper. 92 books were  
borrowed in 1926, besides those consulted in the library.  
The Library had been without a grant for the purchase  
of books since 1907. Owing, however, to the representa-  
tions of the Institute, the sum of \$500 was placed to its  
credit in the governmental estimates for this year. With  
this some volumes of the Proceedings of the Royal Society  
of England have been bound, and the remainder of the  
money has been expended on the purchase of much needed  
books on pure and applied science. The purchasing power  
of this grant has been greatly lessened from what it was  
in former years, owing to the increased cost of publishing.—  
The report was received and adopted.

Officers for the ensuing year, 1927-28, were elected  
as follows:

*President*,—PROF. JOHN HAMILTON LANE JOHNSTONE, PH.D.,  
M.B.E., *ex officio* F.R.M.S.

*First Vice-President*,—PROF. DOUGLAS McINTOSH, PH.D.,  
F. R. S. C.

*Second Vice-President*,—PROF. E. GORDON YOUNG, PH.D.  
*Treasurer*,—DONALD J. MATHESON, B.Sc.

*Corresponding Secretary*,—PROF. DONALD SUTHERLAND MCINTOSH, M.Sc.

*Recording Secretary and Librarian*,—HARRY PIERS.

*Councillors without office*,—A. H. MACKAY, LL.D., F.R.S.C.,  
 PROF. J. N. GOWANLOCH, REV. BRO. W. B.  
 CORNELIA, S. G. RITCHIE, D.M.D., A. G.  
 HUNTSMAN, B. A., M. B., F. R. S. C., and  
 PROF. G. A. BURBIDGE.

*Auditors*,—P. R. COLPITT and PROF. W. P. COPP.

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FIRST ORDINARY MEETING.

*Medical Science Building, Halifax,*  
*21st. November, 1927.*

THE PRESIDENT, DR. JOHNSTONE, in the chair. Attendance, 24.

It was reported that the following had been elected members on 9th Nov.: PROF. JOHN GEOFFREY ADSHEAD, B.A., King's College; DOUGLAS DEB. P. COOPER, B.Sc.; WILFRED J. JACKSON, PH.D., Dalhousie University; GEORGE O. LANGSTROTH, B.A., Dalhousie University; WILLIAM G. MORAN, B.Sc., Dalhousie University; FORREST F. MUSGRAVE; PROF. RALPH SMITH, M.D., Dalhousie University; DR. A. H. LEIM, Atlantic Experimental Station for Fishes; ERNEST HESS, M.A., Atlantic Experimental Station for Fisheries, all of Halifax; C. CAISSON, Dept. of Education; Harvard University, Cambridge, Mass., U. S. A.; and GORDON A. GRANT, B.Sc., Halifax.

The following papers were presented:

(1) An Electric Perfusion Pump with special reference to its use in Blood-flow.—By PROF. O. S. GIBBS, M.B., CH.B. (See Trans., p 1.)

(2) Addition Compound of Hydrogen Chloride with Ether and Acetone.—By PROF. DOUGLAS MCINTOSH, PH.D., F. R. S. C. (See Trans., p 4).

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SECOND ORDINARY MEETING.

*Medical Science Building, Halifax,*  
*12th December, 1927.*

THE PRESIDENT, DR. JOHNSTONE, in the chair. Attendance, 13.

It was announced that W. S. ALLAN, St. John, N. B., and C. R. K. ALLEN, Halifax, had been elected members on 5th Dec.

MR. PIERS presented a list of the books which had been purchased for the Provincial Science Library during the year, with the money voted by the Nova Scotian Government. He also described the principle followed in selecting new books, so that the additions might cover, as far as possible, the subjects within the scope of the library.

PROF. O. S. GIBBS, M.B., CH.B., presented a paper "On the Distribution of Quinine in Blood." (See Trans., page 6).

PROF. HUGH P. BELL, PH.D., presented a paper entitled, "A Comparative Study of the Algal Distribution of the Maritime Coast Line."

It was resolved that the Council appoint a committee to have charge of a science exhibition in 1928, if it sees fit.

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#### THIRD ORDINARY MEETING.

*Medical Science Building, Halifax,  
9th January, 1928.*

THE PRESIDENT, DR. JOHNSTONE, in the chair. Attendance, 21.

It was reported that GEORGE EADIE, M.B., PH.D., and MISS MARJORIE F. ELLIS, of Halifax, had been elected members on the 3rd. inst.

It was announced that at the last Council meeting it had been decided that no popular lectures would be held this session, but that a science exhibition would be arranged for during the present year.

E. W. TODD, B.A., presented a paper on "The Removal of Sulphur from Illuminating Gas by Activated Carbon." (See Trans., p. 12).

PROF. DOUGLAS McINTOSH, PH.D., presented a paper entitled "Notes on Isomorphism in Oxonium Compounds". (See Trans., p 8).

## FOURTH ORDINARY MEETING.

*Physics Lecture Room, Science Building, Studley, Halifax,  
6th February, 1928.*

THE PRESIDENT, DR. JOHNSTONE, in the chair. Attendance, 26.

It was announced that JOHN McLEOD MORTON, Halifax, had been elected a member on 30th Jan.

MISS MARJORIE F. ELLIS, B.Sc., read a paper entitled, "A Case of Vermiform Appendix in the Domestic Cat." (See Trans., p. 26).

PROF. JOHN CAMERON, M.D., D.Sc., F.R.S.E., presented a paper entitled, "Recent Researches on the Skull."

DR. MACKAY laid on the table the Proceedings and Transactions, vol. 16, parts 1-4, for sessions 1922-3 to 1925-6, which had just been received from the printer.

On motion a vote of thanks was presented to DR. MACKAY for his services as editor.

PROF. W. J. JACKSON, PH.D., gave a Demonstration of the Photo-electric Cell.

## FIFTH ORDINARY MEETING

*Medical Science Building, Halifax,  
19th March, 1928.*

THE PRESIDENT, DR. JOHNSTONE, in the chair. Attendance, 26.

PROF. O. S. GIBBS, M.B., CH.B., presented a paper on "A New Method of Measuring Blood-flow". (See Trans., p. 10).

D. LEB. COOPER, B.A., presented a paper, "Notes on the Action of Oxygen on Acetaldehyde." (See Trans., p. 32.)

PROF. D. S. McINTOSH, M.Sc., presented a paper, "Notes on Glaciation in Cape Breton Island."

*Abstract.*—The opinion is advanced that the Northern Tableland, the Mabou highlands, and probably some other less high, flat areas of Northern Cape Breton were not covered by the Great Ice Sheet. Evidence in support of this opinion is set forth; and some reasons are stated, also, why it is thought that, at some time, a small ice-cap covered a part of the northern highlands.

GEORGES SANDOZ exhibited, described, and gave a demonstration of, a New Type of Loud-Speaker which he has devised and which is an improvement on those generally in use.

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SIXTH ORDINARY MEETING.

*Physics Lecture Room, Science Building, Studley, Halifax,  
9th April, 1928.*

THE PRESIDENT, DR. JOHNSTONE, in the chair. Attendance, 25.

It was announced that PROF. PARKER M. BAYNE, Acadia University, Wolfville, N. S., had been elected an associate member on 28th March.

THE PRESIDENT, DR. JOHNSTONE, gave a demonstration of the latest model of the Hilger (constant direction) Type of Spectroscope.

G. O. LANGFORTH, B. S., and D. LEB. COOPER, B.A., presented a paper on "The Specific Heat of Molybdenum, using an Adiabatic Calorimeter." (See Trans., p. 32).

S. S. SINGER, M.Sc., presented a paper entitled, "Preliminary Notes on the Mitochondria of the Parathyroid of the White Rat." (See Trans., p. 14).

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SEVENTH ORDINARY MEETING.

*Medical Science Building, Halifax.  
21st May, 1928.*

THE VICE-PRESIDENT, DR. D. MCINTOSH, in the chair. Attendance, 14.

MISS ANNA M. WILSON, B.A., presented a paper on "Molecular Weight Determinations and Conduction in Liquified Sulphur Dioxide."

*Abstract.*—This paper gave an account of some experiments on liquified sulphur dioxide as a solvent. This material dissolves many compounds and gives some solutions which conduct the electric current. A number of non-polar substances such as chloroform, carbon tetrachloride and toluene were used to determine the boiling-point constant in a modified Beckman apparatus. It was found to be about 1.2 for 1000 grams of the solvent. Potassium iodide, sodium iodide and potassium sulphocyanate

gave conducting solutions and anomalous results for their molecular weights. Compounds of the first two salts made at low temperatures showed a ratio of 13 and 2 molecules of the dioxide to one of the iodide.

STEPHEN G. RITCHIE, B.A., D.M.D., delivered an address on "Bakelite, its Manufacture and Uses, particularly in Dental Work."

A paper by MISS MABEL A. BORDEN, B.A., on a Distribution and Limiting Factors of *Acmaea testudinalis*, was read by title.

PROF. DOUGLAS McINTOSH, D.Sc., presented a paper on "Experiments with Carefully Dried Substances." (See Trans., p. 34).

A vote of thanks was presented to the non-members, the MISSES WILSON and BORDEN, for their contributions.

HARRY PIERS,  
*Recording Secretary.*