BULLETIN

OF THE

PUBLIC ARCHIVES

OF

NOVA SCOTIA

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NOVA SCOTIAN INSTITUTE OF SCIENCE

by

CHARLES BRUCE FERGUSSON

Provincial Archivist

No. 18

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CHARLES BRUCE FERGUSSON

A well known philosopher once defined science as organized knowledge, and a famous lord chancellor in England said that knowledge was power. In the spirit of these sentiments, and motivated by the impelling desire to make Nova Scotia great, the founders of the Nova Scotian Institute of Science inaugurated this society in 1862. Today this institution, which is one of the oldest learned societies in Canada, celebrates its centenary.*

Nevertheless, the founders of the Nova Scotian Institute of Science were not the first Nova Scotians to be imbued with an urge to make this province great by means of an association of this nature. There had been previous efforts, some barren, others relatively fruitful in their results, but none achieving a century of sustained and beneficient activity.

Attempts to investigate and exploit the coal fields of this region had ushered in a period that was favourable to the application of science to mining. This became particularly evident after the founding of Sydney, when a mineralogist named James Miller, who was a friend of Edmund Burke, was sent out to examine the coal mines and to report upon them. Miller received this appointment in 1793, four years after the founding of our first college—King's—in 1789.

At that time there was no provision at King's College for training in science, but the need for it was recognized. On November 26, 1792, Bishop Charles Inglis had had expressed it in these words: ". . . The want of a professor of Mathematics and Natural Philosophy is sensibly felt. . ."[1] He reiterated it to Lord Grenville on June 28, 1793, as follows: " . . . Among the students are several very ingenious young men; but their improvement is much checked for want of Professors; especially a Professor of Mathematics and Natural Philosophy. . ."[2]

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*The first portion of this account was read at the centennial dinner on April 6, 1962.

It was hoped that Miller would fill this need, and *The Weekly Chronicle* and *The Royal Gazette,* two Halifax newspapers, greeted this anticipation in the spring of 1794 with these words:

> . . . It must afford pleasure to the friends of Literature in this rising Colony, to be informed, that the College or edifice for this Excellent Institution is now in such forwardness, that it will probably be finished so far, before winter, as to admit the Students. It is also a pleasing circumstance that JAMES MILLER, Esq; the Gentleman who is to be *Professor of Mathematics and Natural Philosophy* in the College at Windsor, is arrived. The superintendance of Royal Mines in these parts, is committed to this Gentleman, who is eminently skilled in Mineralogy and Chymistry [sic]. This business, we understand, will carry him to Cape Breton for some time; but it is expected that he will return in autumn. By that time a Philosophical Apparatus, which the Governors of the College have sent for to England, will probably arrive; and then he can enter on his department at the College with more benefit to the Students.[3]

But this expectation was not realized. It took time to complete a charter for King's College, and pending its preparation there was no professorship for Miller. Consequently he devoted himself to the coal mines and the other mineral resources of the region until his death in 1799.

Within a few years of Miller's death, Titus Smith, a pioneer naturalist who was known as the Dutch Village Philosopher, made a survey of the unsettled areas of the province. His report, which was prepared for the Government, contains an account of the soil, the trees and other resources.

Meantime certain significant developments had been initiated in education and a number of reading rooms and libraries were soon established. Although a system of free schools supported by compulsory assessment was not to be provided until 1864-65, the Province encouraged education by means of a number of statutes. Common schools increased in number; the secondary schools established at Windsor and Halifax in the late 1780's continued in operation; and after the Grammar School Act was passed in 1811 a number of grammar schools were set up in other counties. Rev. Thomas McCulloch, who was to be an advocate of educational freedom and a pioneer in scientific instruction, not only organized a grammar school at Pictou, but became the founder and first principal of Pictou Academy and the first Principal of Dalhousie College. The Windsor Reading Society had its origin in 1792;[4] circulating libraries were in operation at Halifax as early as 1806; and a network of public libraries, whose use was re-

stricted to subscribers, was established, one at Truro by 1812, another at Halifax in 1823-24, and others at various places during the interval or in later years.[5]

Although there was still no provision for scientific training, Haligonians got an amusing glimpse of chemistry in the summer of 1825 when a man named Wyman delivered several introductory lectures at the Exchange Coffee House.[6] His subjects were atmospheric air and combustion, illustrated by experiments, including the exploding of balloons filled with a mixture of hydrogen and oxygen, and the making of laughing gas, which as *The Acadian Recorder* put it "produced most uncommon effects on the organs of risibility in some subjects. . ." These lectures, delivered leisurely, and illustrated with experiment, were attended by large audiences, who found them useful and interesting.

In the autumn of the same year another attempt was made to put King's College on a better financial footing. It now had a charter under whose terms no one who did not subscribe to the Thirty-Nine Articles could qualify for a degree. Arrangements were made not only to appoint a Professor of Mathematics and Natural Philosophy but also to purchase a philosophical apparatus.[7] Pierce Morton, who had been senior Wrangler at Cambridge, was the new Professor, but he did not stay long. One day the next spring he wrote a letter home and hastened to the wharf at Windsor in order to put it aboard the packet. The ship had already left and was a short distance down the river. Professor Morton got into a boat and went after her; he did not catch up with the packet until she reached Hantsport. Then he got on board the ship himself, and soon found himself at Saint John, from where he continued on to England.[8] Home-sickness, the whim of the moment or a desire to escape from King's College or the Windsor area brought about Professor Morton's departure and left the College without a Professor of Mathematics and Natural Philosophy.

The presence of another Englishman in Nova Scotia about the same time prompted a proposal for the formation of a Geological Society. This occurred at a time of renewed interest in the mineral resources of the Province, for Messrs. Rundell, Bridge and Rundell, London jewellers and goldsmiths, were about to obtain a sub-lease of the Duke of York's mineral rights in Nova Scotia, as well as a lease of certain mining rights in Cape Breton, the General Mining Association was soon to be formed, and a group of Nova Scotians were about to begin iron mining in Annapolis County. Joseph Backwell, a mineralogist, reached Halifax on August 18,1825,[9] for the purpose of investigating the mineral resources of the Province. A few months later, the editor of the Halifax *Free Press* wrote: "We have for a long time felt a hope, that a Geological Society would be formed in Halifax;

but the greatest difficulty which has hitherto existed, as respects such an Institution, was founded in the want of an individual possessing a practical knowledge of that science. This difficulty no longer exists;—there is a gentleman at present in this Province engaged in scientific pursuits, who is perfectly willing to lend his aid to the formation of such a Society. . ."[10]

Although Backwell was eager to see such a society formed, he announced that the large demands which his public duties made upon his time would not permit him either to become one of its active officers or to promise it a regular and steady assistance.[11] For the project, however, he had encouragement and advice, and would be willing to give any other necessary assistance which his limited time would allow. "Every person is aware from the confined enquiry that has already been made," he wrote, "that the mineral possessions of this and the neighbouring Colonies are of some value; but this information - - - requires to be extended and made accurate, before it can be turned to beneficial purpose. The true way to reach this is by the organization of a public Society supported either by general subscription, or in any other way that may be deemed proper. . ."

The subject was also taken up by other newspapers. *The Novascotian* regarded the project as "one of the first importance to the Provincial character and progress,"[12] while *The Weekly Chronicle* appeared to think that making geology a branch of education in a university would be a more feasible plan.[13] To the mind of the editor of *The Acadian Recorder*, however, the proposal was commendable but somewhat premature.[14] "The inhabitants of this country," he wrote, "should first strip the rude mantle of nature from the surface of the earth, before they enter into researches about the deluges of Deucalion and Noah."

After these comments appeared, Backwell again referred to the matter. He declared that "the only and true method in the present situation of the Province is to establish a Society in Halifax, under the sanction of influence, and regulated by a matured system. I give it as a matter for reflection; whether it would not be well to attach this Institution either to the Halifax Library, or to the P. Ag. Society?"[15] He wrote a booklet, "An Introduction to the Study of Mineralogy, Or Students Pocket Companion",[16] of 58 pages, which was published in 1826 by Edmund Ward of Halifax, and he earmarked the profits from its sale for the Halifax Library, where it was intended to form a collection of the geological and mineralogical productions of the Province. Although a geological society was not then formed, doubtless Joseph Backwell's aid was useful in making possible the display in the Halifax Library in 1828, when similar collections could be seen in the Garrison Library and in the Library of the Army Hospital in Halifax.[17]

Interest in the proposal to organize a geological society revived in 1828, when Charles T. Jackson and Francis Alger, of Boston, who had recently been in Nova Scotia, published in *The American Journal of Science and Arts* "A Description of the Mineralogy and Geology of a part of Nova Scotia." Copious extracts from this account were printed in two of the Halifax newspapers, and local editors advocated action. *The Novascotian* regretted that so little had hitherto been done by ourselves towards exploring and ascertaining the geology and mineralogy of our country.

> At this period of our progress we ought really to be ashamed to be dependent on the inhabitants of other lands for a little scientific knowledge of our own — to neglect the treasures before our eyes, and be obliged to hear from strangers what it concerns us to know, and yet what we are too careless or too indolent to learn. . . At our highest institutions of learning, we believe, a fair knowledge of it may be obtained, but hitherto very few of our graduates have considered it an object worthy of after cultivation; and to the great mass of the reading, thinking, and intelligent, of our population, the science is a thing hidden — a book sealed. . . A Society might easily be formed here, and another at St. John, for the purpose of making full collections of Mineralogical specimens, and watching over this branch of Science; and, with a very trifling expense either of time or money, might, in a few years, by the emulation and interest they would create, and by the judicious application of honorary rewards, do much towards the acquisition of correct and valuable information; and thereby rescue the Province from the reproach of being far behind the rest of the world in an acquaintance with geological and mineral formations. . . It may be said, we have no Lecturers, no Professors, no Books; but the latter may be procured, and as to the former, however desirable they might be, much could be done without them. . .[18]

The Free Press repeated the hope that some effort would now be made to form a geological society. This Province, it added, "abounds in minerals and other valuable substances, to which the attention of such an Institution might be profitably directed; and the individual amusement and instruction that could be afforded, would be ample and unfailing."[19]

By this time, however, one distinguished Nova Scotian was making his mark in science, as teacher, lecturer and founder of a museum. This was Rev. Thomas McCulloch, D.D., who in 1822 had been awarded the D.D. degree by the University of Glasgow, partly "in consideration of the valuable donation of Insects lately presented by him to [that] University", and who by 1823 had been elected an Honorary Member of the Wer-

nerian Natural History Society of the University of Edinburgh, an Honorary Member of the Literary and Philosophical Society of Newcastle, and an Honorary Member of the Antiquarian Society of Newcastle.[20] At Pictou Academy Dr. McCulloch introduced his students to Chemistry and Natural Philosophy, and used philosophical apparatus and museum specimens to illustrate his teaching. At Pictou in the spring of 1827 he delivered a course of popular lectures in Natural Philosophy, with experiments, which *The Acadian Recorder* referred to as "presumably the first of the kind delivered in Nova Scotia."[21] Three years later he delivered similar lectures to crowded audiences in Halifax.[22] By that time his natural history museum at Pictou had taken form, and Audubon, the American naturalist, was both surprised and delighted to find such a collection there, when he visited the place in 1833. A year later McCulloch's museum was taken to England and sold there. Subsequently, after he became Principal of Dalhousie College, McCulloch and his family built up another natural history collection in Halifax.

Three other Nova Scotians who demonstrated a keen interest in Natural History or Natural Science were Richard Garland, Andrew Downs, and Abraham Gesner. Garland, son of a Kingston-upon-Hull solicitor and attorney-at-law, was sub-librarian of the Halifax Library,[23] which had a geological and mineralogical collection. In 1833-34 he advanced a proposal for the establishment of a museum of natural history.[24] Downs also had a fondness for natural history; near the head of the North West Arm in 1847 he was to establish the first zoological gardens in America north of Mexico. Dr. Gesner published his *Remarks on the Geology and Mineralogy of Nova Scotia in 1836*. Another Nova Scotian naturalist of distinction was J. W. (later Sir John William) Dawson, who was associated with Sir Charles Lyell in 1846 and 1852 in an investigation of the geology and mineralogy of the Maritime Provinces, and who published a book entitled *Acadian Geology* in 1855.

If difficulties in the way of the formation of a geological society had not yet been overcome, a significant milestone was reached in this Province with the creation of the Halifax Mechanics' Institute late in 1831. At that time Halifax, still unincorporated, had fewer than fifteen thousand people, and the total population of the Province had not yet reached one hundred and seventy thousand. But aware not only of local needs and possibilities, but also of the aims and achievements of Mechanics' Institutes in the British Isles and of those recently formed at York in 1830 and at Quebec in 1831, Nova Scotian editors described the advantages to be derived from associations for mutual improvement and advocated similar institutions for this Province. Interested individuals took up the cause, with the result that the Halifax Mechanics' Library and the Halifax Me-

chanics' Institute were both organized in 1831.[25] The primary aims of the Mechanics' Institute included the accumulation of models and apparatus, the introduction of such mechanical improvements as had been discovered in other countries, the diffusion of knowledge of such as might be invented here, and the procuring of lectures on scientific and other subjects from members of the society or other competent persons. It began with a membership of 52, and for twenty-five years it contributed a great deal to the educational and cultural life of Halifax. It was an adult education movement, varied in content, providing vocational training and education in the arts and sciences, at a time when Dalhousie College was still in its stone age, having a stone building, but neither staff nor students. Lectures dealt with everything from climate to cart-making, from history to hydraulics and from mechanics to music, and the steam engine, metals and science, chemistry, geology and mineralogy were included. An average of 200 persons attended meetings in January 1832, and as many as 237 tickets were issued in the year 1846. Eventually it went into decline in the 1860's.

While the Halifax Mechanics' Institute was still thriving, the Halifax Literary and Scientific Society was established in 1839.[26] It was somewhat similar in character to the Mechanics' Institute, but its emphasis was more on literature than on science. It met in a room in the old Dalhousie College on the Grand Parade. It considered such matters as mental improvement,[27] and discussed such questions as: Should more than one College in Nova Scotia receive Provincial aid?[28] Should domestic manufactures be aided by protective duties or should free trade be given unlimited scope?[29] It held annual festivals, with quoits, ball games, gymnastic exercises and other amusements, as well as refreshments.[30] At its regular meetings young men not only obtained practical experience in public speaking, but realized the advantage of storing their minds with useful information. It was rather exclusive in character, for its meetings were held behind closed doors, and it was small in numbers.[31] After a few years it seems to have dropped part of its original title, and it was thereafter listed in the almanacs as The Halifax Literary Society until 1846.

The Halifax Literary and Scientific Society ceased its activity, but the Halifax Mechanics' Institute continued its career. Eventually, however, interest in it began to wane, other lectures cut into its membership and its attendance, and the organization and training of the Volunteer Companies absorbed the time and the attention of many of the young men of the area.

Nevertheless, there were persons who would be interested in a society whose meetings would deal with important questions and give a hearing to original papers, and steps were now taken to found one. By circulars

and by notices in the newspapers, a meeting was called for January 4, 1859 in Dalhousie College.[32] Andrew MacKinlay, President of the Halifax Mechanics' Institute, was chairman of this meeting, when it was decided that a society should be established in this Province, to meet in Halifax, or at times in other places, for the reading and discussion of original communications on such subjects in Literature, Science, Political Economy, Commerce, Statistics and the Arts, as might tend to draw forth talent and useful information; to encourage the study of history, natural history, products and capabilities of the Province; to foster a spirit of enquiry and enterprise, and generally promote the advancement of science, learning, and the useful arts. It is clear that in its emphasis on original contributions it differed in some degree from the Mechanics' Institute; and Andrew MacKinlay, President of the Mechanics' Institute, not only presided at the founding meeting of the new society, but was also chosen as its first President.

At this inaugural meeting 21 members were enrolled, and subsequently 56 others added their names to the membership. Besides President MacKinlay, the officers included Rev. Dr. J. M. Cramp (Principal of Acadia College) and Dr. Charles Cogswell as Vice-Presidents; S. L. Shannon as Treasurer; and Hugo Reid and William Garvie as Secretaries. There was also a Council, at first of 16 and later of 21, including Hon. Stayley Brown; Henry How, Professor of Chemistry and Natural History at King's College; Rev. J. M. Hensley, Professor of Mathematics at King's College, and T. B. Akins (Record Commissioner of Nova Scotia).

For about three years the Nova Scotia Literary and Scientific Society continued to meet. During its first session, papers were delivered at six meetings. These were the opening address of the President; "On the kind of Education best suited for Nova Scotia" by Dr. Charles Cogswell; "Notes on the Preservation of Timber Buildings from Fire" by Lieutenant Home, R.E.; "Decimal Currency", by Hon. W. A. Henry; "The Fossiliferous Rocks of Arisaig, Sydney Co., N.S." by Rev. D. Honeyman; "Warming and Ventilation" by W. S. Symonds; "Description and Analysis of Three New Minerals, Associates in the Trap of the Bay of Fundy" by Professor Henry How; and "The Advantages of Local Museums in connection with Mineralogical Studies" by Henry Poole. The programme for the second session was made up of twelve papers, dealing with such subjects as "The Pre-Columbian Discovery of America", "On Some Points of Interest in the Geology of Nova Scotia", "Electric Currents", "The Botany of the Carboniferous Rocks of Nova Scotia", "The Saxons of Germany", and "Recent Discoveries of Roman Remains in Britain". During the session of 1861-62 the proceedings of this society were interrupted by the occupation of Dalhousie College by the military authorities, but its meetings were resumed late in March 1862.[33] Robert Morrow was its President at that time, with

Dr. Daniel McNeill Parker and William Lawson as Vice-Presidents, and Dr. Charles Tupper as one of the members of the Council. At a meeting in March 1862 Israel Longworth of Truro read papers on the early Indian and French occupation of Cobequid and on the erection of Nova Scotia into counties.[34] The regular session of 1861-62 was brought to a close by a meeting on April 7th, when a paper on the edible mollusca of our seas, written by John R. Willis of the National School, and another on the animal creation, written by J. M. Jones, were read.[35] At the end of his account of this meeting, the Halifax *Morning Chronicle* reporter stated: "We are glad to see so suitable a position occupied by the Scientific Society, and hope that the next session may be characterized by increased activity and usefulness." Despite this comment, that meeting was probably the last regular meeting of the Nova Scotia Literary and Scientific Society, although a special meeting of it was called for June 10, 1862,[36] when its proceedings may have been terminated for a variety of reasons.

The circumstances which killed the Nova Scotia Literary and Scientific Society called the Nova Scotian Institute of Science into existence. Those circumstances were in a setting which had been marked by significant developments within the preceding two decades. Halifax had been incorporated, and it now had its own elected administration. At the provincial level responsible government had been introduced. In the economic sphere railway building was proceeding, control over the mines and minerals of Nova Scotia had been transferred to the Province, new coal mines were being opened, the tonnage of shipping was increasing, and gold had been discovered. The population of the Province had risen to more than 330,000 and Halifax now had over 25,000 people. The discovery of gold had attracted the attention of the world to Nova Scotia and its resources in 1860. Although the visit of the Prince of Wales had gratified all Nova Scotians in the same year, that gratification was followed by the annoyance caused by the misrepresentations of a few English correspondents, a feeling which was to be mollified by the success achieved by Nova Scotian displays at the International Exhibition at London in 1862. Actually, some of the men who were involved in making arrangements for the Nova Scotian displays for this Exhibition were to be the ones to take the lead in the formation of the Nova Scotian Institute of Science. For some time, moreover, there had been a feeling on the part of a number of the members of the Nova Scotia Literary and Scientific Society that the range of interests and the variety of topics of that institution were too wide to do ample justice to scientific matters or to appeal to their practical minds. These factors combined to end the career of one society and to create another.

After having received an invitation from the Imperial Commissioners for the International Exhibition, Nova Scotia took steps to ensure an

efficient representation of our various resources. A Provincial Board of Commissioners was established in 1861, comprising members of the Legislature and private persons, of which Hon. Joseph Howe, the Provincial Secretary, was chairman, and Andrew MacKinlay was vice-chairman. Among the other members were John Matthew Jones and Robert Morrow; two of the Acting Ex-Officio Members were Rev. Alexander Forrester, Superintendent of Education and Principal of the Normal School, and Professor Henry How of King's College; Agent and Superintendent in England was Rev. David Honeyman, who a few years later became the first curator of the Provincial Museum. R. G. Haliburton, son of Judge T. C. Haliburton, was Secretary of the Nova Scotia Commissioners for the International Exhibition. Committees were appointed on minerals, manufactures, natural history, agriculture, and fish; and Andrew MacKinlay, James Thompson, J. Matthew Jones, Rev. Dr. Forrester and Hon. Benjamin Wier were the chairmen of those committees. In order that the geology and the minerals of the Province should be fully represented, the services of Rev. David Honeyman were secured, as well as those of Dr. How, Professor of Chemistry of King's College, and R. G. Haliburton, Halifax barrister, who was the secretary of the Commission. At the International Exhibition in 1862 Nova Scotian exhibitors were awarded 19 medals and 11 honourable mentions, and at the Royal Horticultural Show of the same year they received 13 medals. This creditable showing at those exhibitions evoked favourable publicity which vindicated Nova Scotia and its resources and inspired Nova Scotians to action along a number of lines. One result was the determination that the natural history of Nova Scotia in all its branches should be carefully studied.

R. G. Haliburton took the initiative in action for the formation of a society for that purpose. By means of a printed circular he called a meeting for March 28, 1862, with a view to establishing such a society. Among those to whom he sent copies of his circular were Rev. Dr. Cramp, Principal of Acadia College, Major B. H. Norton, United States Consul at Pictou, Rev. Dr. James Robertson of Wilmot, and Rev. John Ambrose of St. Margaret's Bay, all of whom greeted the proposal with enthusiasm, although they were unable to attend this meeting. "It appears to me eminently desirable," Dr. Cramp wrote, "that the Natural History of our Province, in all its branches, should be carefully studied. The formation of a Society for that purpose will be hailed with great satisfaction. It will lead, I hope, to the establishment of a Provincial Museum. . ."[37] "The object you have in view, is, to my mind," Major Norton stated, "of vast importance to the future well-being of the Province; and if rightly carried out, will do more to develop the valuable resources to be found within her limits, than from any other cause. . ."[38] Rev. Dr. Robertson concurred in the proposal. "Now it appears to me," he added, "that you are the very man to move in

this business; and that your influence both here & in England could be most beneficially exerted in this behalf . . ."[39] Rev. Mr. Ambrose declared that such a society "will—if properly organised and worked—result in a great benefit to this Province." "The degree of notice," he added, "which Messrs. Jones and Willis have already attracted to this country from scientific men in other lands, and the new-born love for Natural History which they have engendered in other minds among us, producing zealous co-workers—otherwise idle in this respect—plainly show what might be done if a Provincial Museum were established and a well-selected society formed. . ."[40]

Other preliminary meetings were soon held, and The Nova Scotian Institute of Natural Science was established. To Haliburton's circular of May 13th, Rev. Dr. Robertson and A. P. Ross were among those who replied. The former wrote: "I am very glad indeed to understand from your Circular of the 13th Currt that you have succeeded in giving a local habitation and a name to 'The Nova Scotian Institute of Natural Science'. It is just the very thing we want at the present time, and will I have no doubt produce under discreet management benefits to the Province."[41] The latter, a barrister and a man of business, as well as one of the founders of the Pictou Literary and Scientific Society, though unable to attend the meeting of which he had notice, stated: "The Nova Scotia Institute of Natural Science has long been a desideratum in this Province and I have no doubt its formation will be productive of many valuable results. . ."[42]

One of those whose opinions were sought by Haliburton was Dr. Abraham Gesner. On May 15th Haliburton handed him a paper dealing with the proposed society, and Gesner, who was then staying at the Atlantic Hotel in Halifax, a native though not at that time a resident of the Province, suggested that geography and statistics might be added to Haliburton's catalogue of sciences.[43]

The Nova Scotian Institute of Natural Science was organized in the spring of 1862 and officers for the ensuing year were elected at a meeting on May 20th. It was formed for the purpose of encouraging the study of natural science in all its branches, especially with reference to the productions and resources of this Province. It was proposed to hold evening meetings, for the reading of original papers on geology, mineralogy, botany, zoology, meteorology and physical geography, and to publish a selection of those papers annually. The first officers elected were:

President	—The Earl of Mulgrave
Vice-Presidents	—J. M. Jones, F.L.S.; T. Belt, Esq.

Members of Council—Rev. Dr. Forrester, Dr. How, Dr. Cramp, Rev. J. Ambrose, Dr. Gilpin, J. R. Willis, Esq.

Secretaries —R. G. Haliburton, Captain Lyttleton

Treasurer —Capt. Lyttleton[44]

An adjourned meeting was held at Haliburton's office at 53 Barrington Street the next night, and a general meeting of the society was called for Saturday, June 28th, at 8 p.m., in the basement room of the National School, for the election of new members and other business. In the notice which he prepared for the morning newspapers, Thomas Belt, one of the Vice-Presidents of the Nova Scotian Institute of Natural Science, and also superintendent of the Nova Scotia Gold Company's mines, used these words:

> That very excellent institution, the Literary and Scientific Society, which is deserving of more support than it has hitherto received, embraces a wider field, and is open to the reception of historical and literary papers, which is not the case with the Nova Scotia Institute—it being more exclusively intended for the subjects already specified, and having a special reference to the resources of the Province.[45]

This notice appeared in *The Morning Chronicle* of June 21, 1862.

According to the oldest extant membership roll, 24 men were elected to membership on December 26, 1862. These included 5 military officers, 2 engineers, 1 superintendent of mines, 1 or 2 professors, 2 physicians, 3 or 4 lawyers, 2 clergymen, 1 school teacher, 1 press agent and 1 merchant. Among these were several amateur natural scientists of note.

Subsequently, at a general meeting held in the Hall of the Medical Society, Halifax, on December 31, 1862, new officers were appointed and other business was transacted.[46] J. M. Jones was chairman of this meeting, and the others present were: T. Belt, S. Gray, Dr. Gilpin, W. Gossip, R. G. Haliburton, Capt. Lyttleton, H. Poole, Capt. Hardy, J. R. Willis, and P. C. Hill. A draft of the by-laws which had been prepared by the Council was read, and at the desire of the Council and officers their resignations were accepted and a new election was made. The Lieutenant-Governor now became Patron rather than President, and the other office-holders and members of Council chosen at this time were:

President —P. C. Hill (who was then Mayor);

Vice-Presidents —J. M. Jones and R. G. Haliburton

Members of Council—Dr. Gilpin, Rev. J. Ambrose, Henry Poole, Captain Hardy, T. Belt

Secretaries —J. R. Willis and J. B. Young

Treasurer —Capt. Lyttleton

At this meeting it was decided that the next monthly meeting would be held on January 19th and that afterwards regular meetings would be held on the first Monday of each month. The Secretaries were directed to make inquiries as to procuring the Mechanics' Institute Room at Dalhousie College or some other suitable place for monthly meetings. The draft of the by-laws with some slight modifications was unanimously adopted.

By the end of 1862 the Nova Scotian Institute of Natural Science, as it was then called, was solidly established and ready to embark upon that fruitful career which has now reached its centenary. It began less than three years after the publication of Charles Darwin's famous book *The Origin of Species;* as it embarks upon its second century perhaps The Nova Scotian Institute of Science also deserves Herbert Spencer's phrase "the survival of the fittest."

NOVA SCOTIAN INSTITUTE OF SCIENCE

II

Having completed its organization and having adopted its by-laws, the Nova Scotian Institute of Natural Science began its scientific inquiry at a meeting in Dalhousie College on January 19, 1863.[47] Two papers were read that evening—"The Common Herring of Nova Scotia" by Dr. J. B. Gilpin was the first, and "Nocturnal Life of Animals in the Forest" by Captain Campbell Hardy, Royal Artillery, was the second. Dr. Gilpin and Captain Hardy were the first in a notable line of amateur natural scientists who contributed greatly to the success of the Institute in its early years. Ten years later Dr. Gilpin was elected President of the Institute, and as time passed Captain Hardy not only rose to the rank of Major-General but was the sole surviving original member of the Institute prior to his death at Dover, England, in 1919.

One of the chief objects of the Institute was that monthly meetings should be held for the purpose of reading papers upon, and discussing matters relating to, Natural Science.[48] The proceedings of 1863 in this direction are a sample of what was done and what could be done in the first

period of the society. The papers presented by Dr. Gilpin and Captain Hardy in January were followed by President Hill's address on the purposes and objects of the Institute and Thomas Belt's article "Some recent movements of the earth's surface", at the meeting in February. At the next meeting R. G. Haliburton read his paper on littoral changes and Henry Poole delivered one "On the characteristic Fossils of different Coal seams in Nova Scotia." In April Dr. Forrester read his paper on the ferns of Nova Scotia and J. Matthew Jones contributed one entitled "Contributions to the Ichthyology of Nova Scotia." In May Dr. Gilpin gave a paper on Scymnus Borealis or Arctic Shark; Dr. Abraham Gesner, physician turned scientist, who had discovered kerosene oil in 1852, delivered one on "Gold and its separation from other Minerals;" R. G. Haliburton read an article on "New Materials for the History of Man derived from a Comparison of Customs and Superstitions of Nations;" J. R. Willis read Professor Henry How's paper on Magnesia-Alum or Pickeringite, containing a little nickel and cobalt, occurring in slate, in Hants County; and Vice-President Jones read Colonel R. J. Nelson's communication on granitic formation in the neighbourhood. At the November meeting Dr. Gilpin's third paper of the year had to do with some of the mammals of the Province, and J. M. Jones, the new President, exhibited a collection of the reptilia of Nova Scotia, preserved by alcohol in glass tubes, and described their character and habits. In December Captain Hardy, one of the Vice-Presidents, read a paper on the natural history of the capelin, and J. M. Jones read one on the natural history of the mollusca of the Bermudas. These papers were discussed as well as heard by the other members of the Institute.

The persons who produced papers for the programme of 1863 constitute a typical sample of the membership as a whole at that time. Dr. J. B. Gilpin, native of Rhode Island, had graduated from Trinity College, Providence, and studied medicine in England, before practicing his profession at Annapolis Royal and then at Halifax. He spent his spare time in a study of the animal life of the province, and became widely known as an amateur zoologist.[49] Captain Campbell Hardy, born at Norwich, England, and educated at the Royal Military Academy, Woolwich, had a distinguished military career, and served in Nova Scotia from 1852 to 1867. He was retired in 1880, with the honorary rank of Major-General. Six papers by him were published in the Transactions of the Institute, and in 1869 he published in London his *Forest Life in Acadie,* recounting one of the most delightful phases of his life. P. C. Hill was a native of Halifax, who was educated at King's College and entered the legal profession. He became a lawyer, was mayor of Halifax from 1861 to 1864, a member of the Legislative Assembly in 1870-1871 and from 1874 to 1878, and Premier of Nova Scotia from 1875 to 1878. He was a man of literary rather than scientific tastes, and it was undoubtedly true that he was chosen President of the

Institute in 1862-63 because he was mayor of Halifax at the time. Thomas Belt was a native of England, who conducted geological investigations in the gold fields of Australia, before becoming superintendent of the Nova Scotia Gold Company in 1862. He was a geologist and naturalist. R. G. Haliburton, son of T. C. Haliburton, was born at Windsor, educated at King's College and trained in the law. He practiced his profession at Halifax, was secretary of the Nova Scotia Commissioners for the International Exhibition of 1862, and took a leading part in the formation of the Nova Scotia Institute of Natural Science. For a time he was aide-de-camp to the Lieutenant-Governor. He was an amateur ethnologist. Henry Poole was a well-known mining engineer and geologist, who had charge of coal mining in Pictou County. Rev. Dr. Alexander Forrester was the first Principal of the Normal School at Truro, and he held the dual position of Principal of the Normal School and Superintendent of Education from 1855 to 1864. After relinguishing the Superintendency in 1864, he continued as Principal of the Normal School until his death in 1869. John Matthew Jones was born in Wales, educated at the Middle Temple, London, but possessed of private means did not practice law. He spent some time in Bermuda, where he conducted researches in natural history, and afterwards he came to Halifax, where at the time his relative, the Earl of Mulgrave, was Lieutenant-Governor. He was an amateur zoologist and an enthusiastic collector, who had a large private museum and whose favourite zoological studies related to fishes, reptiles and mollusca. Dr. Abraham Gesner, born at Cornwallis, was both geologist and physician. He made a geological survey of New Brunswick and Prince Edward Island, discovered kerosene oil, and wrote many scientific papers and reports. *Remarks on the Geology and Mineralogy of Nova Scotia,* one of his books, was published in 1836. Henry How, a native of London, England, studied Chemistry at the Royal College of Chemistry, and was assistant professor of Chemistry at the College for Civil Engineers at Putney, analytical chemist to the British Admiralty Steam Coal Enquiry, and assistant professor at Edinburgh University and at Glasgow University, before being appointed professor of Chemistry and Natural History at King's College, Windsor, in 1854. He was one of the Nova Scotia Commissioners for the International Exhibition of 1862, and he helped to make a collection of the minerals of the Province for that exhibition. His writings include *The Mineralogy of Nova Scotia,* which was published in 1869. Colonel R. J. Nelson had been Commanding Royal Engineer in Halifax.

There were enthusiastic amateurs as well as professional men among the natural scientists who provided papers in 1863, with the amateurs outnumbering the professionals. During that year two of the amateurs were military officers. The subjects discussed ranged from geology and mineralogy to ichthyology, lepidoptera and reptilia.

Another object of the Institute was the publication of lists of the various natural productions of the Province, with such observations as their respective authors might deem necessary, as well as of a selection of the papers read at the meetings. Volume I Part I of The Transactions of the Nova Scotian Institute of Natural Science was published at Halifax in 1863, as the first number of a continuing series.

According to the by-laws adopted in 1862, four field meetings were to be held each year. Although it proved to be impossible to have four excursions of this nature annually, the Institute did arrange to have a number of very pleasant field meetings.

The first was held on June 11, 1864 at French Village, St. Margaret's Bay, for the purpose of investigating Indian shell-heaps in that vicinity.[50] Another was held on September 10th of the same year at Acadia Iron Mines, Londonderry. The members left by the evening train for Truro on Friday, September 9th, stayed there overnight, set out from Truro for Londonderry at an early hour on Saturday morning, and returned to Truro at 6 p.m., before continuing on to Halifax.[51] A third field meeting was held that year, with interested members going to Cole Harbour on September 21st in order to examine Indian shell-heaps.

One field meeting took place in 1865. It was at Waverly Gold Mines. On July 1st 14 members and friends went to the site by way of Dartmouth, Mr. James Woodman's livery stable providing two wagons for the trip at 5s. per person. After visiting the mines, they went to Mrs. Marshall's on the Dartmouth Road and sat down to a substantial dinner at 5 p.m. Another field meeting was planned for the Stewiacke area that summer and the Chief Commissioner of Railways offered free transporation for it; but so few members signified their intention to be present that this excursion failed to materialize.[52]

Field meetings were also planned for 1866, but only one took place. This was a pilgrimage on June 26th to the grave of Titus Smith, "the Dutch Village Philosopher," where an account of his life and work was given followed by a visit to President Jones's museum at "Ashburn."

Four years later an attempt was made to have a field trip on June 28th to explore the Indian shell-mounds in the vicinity of St. Margaret's Bay, but this proved to be a failure. The next year, however, there was a field excursion to Montague Gold Mines. On June 21, 1871 about 20 members and friends met at the Steam Boat Wharf and proceeded in the 2 p.m. boat to Dartmouth, from where they drove to their destination about six miles distant. Dr. Honeyman described the strata, and Walter

Lawson, the proprietor of a portion of the mines, provided a conducted tour and explained the processes of crushing, amalgamating and retorting, after which he entertained his guests with coffee and crackers. The members and their friends returned to Halifax delighted with this outing.

In later years three other field meetings were held. One was at Grand Lake on August 24, 1876. Two occurred in 1878 — the first of these at Point Pleasant on August 3rd, and the second at York Redoubt on August 24th. These ended the field meetings of the Institute. Although others were subsequently proposed, none was held. The first by-laws had prescribed four field meetings per year, but when the by-laws were revised in 1884 it was provided that field meetings or excursions should be held at such times and places and under such regulations as the Council might from time to time determine. At the annual meeting in 1935, Harry Piers, the oldest active member, lamented the elimination of field trips and spoke about the desirability of reviving them.

At intervals the aims and objects of the Institute have been discussed. According to the original by-laws, there were to be regular meetings for the purpose of reading papers upon and discussing matters relating to natural science. There were also to be field meetings, and provision was to be made for the publication of lists of the various natural productions of the Province, with such observations as their authors deemed necessary, as well as of a selection of the papers that were read at meetings. In his inaugural address of February 1863, President P. C. Hill used these words:

> . . . Communication with each other; every laborer in the field casting his contribution into a common receptacle whence all can freely draw, can alone give these results of individual effort their highest value, and convert that which formed the recreation of a single mind into the component portions of one mighty whole.
>
> It is, then, to aid in this important work and to afford a well constituted and organized channel for the contributions to the general stock of knowledge of those among ourselves who are interested in the fascinating fields of knowledge embraced in the term "Natural Science" that the "Nova Scotian Institute" has been established. . .

On that occasion, Mr. Hill also stated: "In conclusion, I may add that the Society embraces in the field of its observations not only the Province of Nova Scotia, but also Prince Edward Island, Newfoundland, Labrador, and the Bermuda's localities, to which the scientific observer has hitherto paid but slight attention."[53]

Dr. A. P. Reid, a Halifax physician, was one of those who advocated broadening the scope of the Institute. To enhance its efficiency he urged it not to confine itself to natural science but rather to embrace within its ambit other branches of science, such as electricity, magnetism, astronomy and so forth.[54] Commenting upon this proposal early in 1872, Professor George Lawson, of Dalhousie University, then the Vice-President of the Institute, declared that, although the Institute took special cognizance of natural science, other branches of science, such as meteorology, had a place in its proceedings, and that the Institute virtually conformed to the views expressed by Dr. Reid.

At the annual meeting of 1874, by motion of Dr. Reid and Augustus Allison, it was unanimously decided to request the Council to report on the desirability of having the Institute divided into sections.[55] Shortly afterwards the Council agreed to the division of the Institute into three sections —one for Natural History, one for Ethnology, and one for Technology.[56] Subsequently, when the by-laws were revised in 1884, while Robert Morrow was President, the Institute retained its old name, but its object was given as "the promotion of scientific research."[57]

Eventually the name was changed. This was done in 1890, during the Presidency of Professor James Gordon MacGregor. At a meeting of the Council on March 4th of that year it was decided that a special business meeting would be called for the 24th of the same month to deal with three propositions of which notice would be given. These were:

1. Resolved that the name of the Institute be the Nova Scotian Institute of Science.

2. Resolved that the name of the Institute be the Nova Scotian Scientific Institute.

3. Resolved that the Council apply for an act of incorporation.

In accordance with these decisions, the special meeting was held at the appointed time, when, on motion of Augustus Allison and Alexander McKay, it was unanimously resolved that the first of the two alternative names should be chosen and that thenceforth this society should be called The Nova Scotian Institute of Science.

In the same year the Nova Scotian Institute of Science was incorporated. This was done by Chapter 123 of the Statutes of Nova Scotia of 1890. Part of one section of this statute runs as follows: "The object of said body shall be the promotion of scientific research. . . ."

Another indication of the modification of the character of the Institute is seen in the proceedings of 1917-18. At the annual meeting in 1917 it was announced that at the next ordinary meeting the question would be taken up as to whether the Transactions should be more particularly confined to the publication of papers on subjects bearing more or less directly on Nova Scotia, except in such non-local departments as chemistry and physics, "as has been the practice hitherto;" or whether the publication of papers on non-local subjects generally should be permitted. This question was dealt with at the ordinary meeting in February 1918, when, with only one member dissenting, this resolution was adopted: "Resolved that the N. S. Institute of Science throw open its Proceedings and Transactions to papers in all departments of science provided they are contributed by persons working in Nova Scotia."

Soon there was such a dearth of papers on natural science that Dr. E. Gordon Young, the President, drew attention to it in December 1930. He tried to redress the balance in some measure by announcing that that type of paper would be welcomed, as well as those of the kind that had been heard during the last few years.[58]

Early in the following year the Council appointed a committee, comprising the President (Dr. Young), Dr. Henderson, Dr. Chipman, and Rev. Brother Cornelia, to consider ways and means of obtaining papers for the meetings and for publication, and this committee was empowered to consider allied topics as it saw fit.

This committee made its report to the Council on October 26, 1931.

This report was as follows:

> After careful enquiry and due consideration the committee submit the following recommendations to the Council of the Institute.

1. That the aim of the society at the present time should be the encouragement of papers pertaining especially to provincial matters in science. The descriptive and systematic paper on the fauna and flora of the Maritimes should logically be published in Proceedings. This likewise applies to the geology of the region.

2. That enquiry should be made from all possible sources as to individuals doing or interested in work of the nature of natural history. The office of the Superintendent of Education, the Church of England Institute are suggested as such places.

3. That if any programme of popular lectures for the year be adopted it might be possible to choose topics pertaining to natural history by way of discovering interested individuals.

4. That representatives of the society be appointed in the various centres of research work in the province to assist in obtaining papers suitable for publication in the Proceedings.

At this meeting of the Council, another committee, composed of the President (Dr. Young), Professor Burbidge, Dr. Johnstone and Dr. Ritchie, was appointed to deal with the question of having popular lectures. Three suggestions were referred to this committee:

1. That one or two science lectures be given during the year to the public on other evenings than those of the Institute meetings;

2. That the reading of research papers at the Institute meetings be supplemented occasionally by talks or papers other than reports of research work;

3. That science lectures be arranged for high school students.

On November 9, 1931, this committee reported at an ordinary meeting as follows:

> Your committee desires to recommend that the Institute do *not* undertake to provide lectures for the general public or for high school students, but that the occasional presentation of papers or lectures on matters of general scientific interest, at the regular meetings of the Institute, be favourably considered and that two such papers or lectures be provided for this winter.

This report was accepted, and the committee was authorized to arrange a programme as recommended.

The object of the Institute, as it related to original research and to popular lectures, was also discussed at later meetings. It arose in November 1934 when it was alleged that the reason for the resignation of one member was the stressing of research problems to the exclusion of topics of wider interest.[59] At that time Dr. Henderson pointed out that the function of the society had always been to confine itself largely to the presentation of papers embodying the results of original research, and the President (Harry Piers) declared that there was a need for more papers on fauna or natural history. At a meeting in 1935 one paper, though of

high quality, but not embodying the results of original research, raised a question of principle. So that the Institute should not without proper consideration make a major change in policy, it was resolved that the Council of the Institute should be requested to consider the criteria which it used for the acceptance of papers. On September 30, 1935 it set forth its decision as follows: "Resolved that the Council of the Nova Scotian Institute of Science reaffirm the policy of the Institute of accepting for presentation at ordinary meetings only papers containing the results of original research."[60]

Later other changes were made in the by-laws. According to the revision adopted on October 11, 1939, the object of the society was stated to be "the promotion of scientific research, the holding of scientific meetings and the publication of proceedings."

Changing circumstances have brought about an inevitable shift in emphasis and created a problem of communication. In the early days there were few specialists trained in laboratory techniques and scientific research, all of whose working time was devoted to scientific endeavour. As time passed, however, old institutions were expanded and new ones were created as the scientific revolution proceeded, resulting in a considerable increase in the number of specialists. Outside the field of natural history or natural science, few interested amateurs could follow the papers presented by highly trained specialists in many branches of science.

Some of these changes are indicated by institutional development. Dalhousie College was reorganized in 1863, with George Lawson as Professor of Chemistry, Charles MacDonald as Professor of Mathematics, and Thomas McCulloch, Jr., as Professor of Natural Philosophy. Soon Dalhousie College provided training in Experimental Physics and Mathematical Physics, the teaching of science was strengthened and expanded, laboratories were improved or established, a faculty of engineering was organized, medical training was given, clinics were created, and eventually in 1955 a course leading to the Ph.D. Degree in biological sciences was inaugurated. Professors at Acadia, St. Francis Xavier, St. Mary's and other universities became members of the Institute. The School of Agriculture, of which the Nova Scotia Agricultural College is an outgrowth, was started in 1885. The Nova Scotia School of Horticulture was formally opened at Wolfville in 1894. Other institutions having an important impact on this development include The Nova Scotia Technical College, the Dominion Experimental Farm or Regional Research Station at Kentville, the Fisheries Experimental Station, the Nova Scotia Research Foundation, the Naval Research Establishment, the National Research Council, and the Institute of Oceanography.

If in the early days there were excursions or "field days", the Institute had also held other special meetings of various kinds. Two such meetings were conversaziones. One of those was held in the Horticultural Hall, Horticultural Gardens, on Thursday evening, July 6, 1865, with about 200 persons in attendance. On that occasion the Hall was tastefully decorated with flags and with objects of natural science, and J. M. Jones, the President, not only delivered an address on the advantages which the Institute might be expected to confer upon the country, if it were properly supported and encouraged, but gave an interesting description of the butterflies and moths found in Nova Scotia. Dr. J. B. Gilpin gave an account of the manner of taking, curing and smoking Digby herrings (so-called), with illustrations, and William Gossip read a paper on the geological phenomena near Halifax. There was then an interval, during which ices, lemonade, strawberries and cream, and cakes were served, and afterwards Professor Lawson of Dalhousie College made some observations on the subject of botany and the President concluded the programme with appropriate remarks. A similar meeting was held in the new Provincial Building (later known as the Dominion Building, and now the headquarters of the Royal Canadian Mounted Police) on Monday evening, January 20, 1873, at 7.30 p.m. There was first a promenade in the Museum, after which at 8 o'clock about 200 persons assembled in the Hall below, where a platform had been erected and seats had been arranged. At 8.15 Lieutenant-Governor Doyle, the Patron of the Institute, took the chair. The programme included a paper by Rev. Dr. Warren on atmospheric air, illustrated by experiments, observations by Dr. A. P. Reid on coal and its products, a paper by Dr. Honeyman on Pre-Adamite life, and an address by Dr. Lawson on the development of cellular time. Then those in attendance proceeded to the Museum, which was brilliantly lighted, and examined the collections there, before going to an apartment for refreshments which had been provided by Rev. Dr. Warren, Mrs. Warren and Miss Clarke.

The question as to whether the Institute should provide popular lectures has been raised time after time, and it has been answered in different ways on different occasions. A series of such lectures was given in each of the years, 1922, 1923, 1924 and 1925, and one was also given in 1932. Dr. J. H. L. Johnstone, then Assistant Professor of Physics at Dalhousie University, gave one on "The Smallest Things in Nature (the Atom, Electron and Proton)," on February 27, 1922, and Professor F. Ronald Hayes delivered one on "The Life of the Salmon", on January 11, 1932. Between those meetings there were other popular lectures on "Modern Aspects of Heredity", "Colour Photography", "The Mechanism of the Wireless Telephone", "The Quebec Bridge", "Races that Dwell above the Clouds" (i.e., those which live at least 12,000 feet above sea-level), "Weather in the Belt of Cyclonic Storms", "In-breeding and Out-breeding", "What Seeing

Means", "The Lure of Nature Hiking", "The Age of the Earth", "Musical Sounds, their Nature and Quality", "Sightseeing at Banff and Lake Louise", "The Biology of the Pearly Mussel and its Ultimate Use in the Button Trade". "Elementary Discussion of Waves and Radiant Energy", The Production, Transmission and Detection of Wireless Waves", "Short Wave Transmission and Reception", and "Transatlantic Reception and Disposal of News Traffic". Although these popular lectures generally attracted an attendance considerably larger than at orginary meetings, there was considerable doubt as to their value, and ultimately in November 1931 the Institute reconsidered the matter. At that time the decision made was that popular lectures as such not be undertaken, but that the occasional presentation of papers or lectures on matters of general scientific interest at regular meetings be favourably considered. The general opinion of the Institute on Professor Hayes's address of January 11, 1932 was that the presentation of lectures such as that "would be advantageous in the future."

Subsequently, since September 1941, the Institute has held a number of extraordinary meetings at most of which visiting distinguished scientists have delivered addresses. Two of these formed part of the centennial celebration of 1962, with Dr. H. B. Newcombe, of Atomic Energy of Canada Ltd., speaking on radiation, man and his genes, at one, and Sir Bernard Lovell, Professor of Radio Astronomy, University of Manchester, and Director of Jodrell Bank Experimental Station, speaking on the exploration of outer space, at the other.

There have also been other commemorative meetings. One was held on January 20, 1913 for the purpose of marking the completion of the first half-century of the Institute. At that meeting Harry Piers read a paper entitled "A Brief Historical Account of the Nova Scotian Institute of Science, and the events leading up to its establishment; with Biographical Notes on some of those who have been prominent in its affairs." Eleven members were present on that occasion. Nearly twenty-five years later, when the 75th anniversary was celebrated, with a public meeting in the School for the Blind, Major-General A. G. L. McNaughton, President of the National Research Council of Canada, gave an address on "The Organization of Research in Canada", to an audience of about 250 persons.

In the course of its first hundred years the Nova Scotian Institute of Science has held two free public scientific exhibitions. The first one was held in the Medical Sciences Building, College Street, Halifax, on Friday and Saturday, November 26 and 27,1926. Assistance was afforded to the Institute by the various departments of Dalhousie University and the University of King's College, the Maritime College of Pharmacy, the Nova Scotia Technical College, the Atlantic Fisheries Experimental Station, and CHNS Radio Broadcasting Station, as well as by a number of students who aided

in installing exhibits and explaining them to visitors. The exhibits and demonstrations related to physics, electricity, chemistry, biochemistry, geology, botany, bacteriology, zoology, fisheries, physiology, pathology, histology, embryology, pharmacy and dentistry, and took up nine of the large rooms in the building. A brief printed guide or folder was prepared and sold at ten cents per copy. The exhibition proved to be very popular and most successful. The estimated attendance on Friday evening was 1500; on Saturday afternoon 500; and on Saturday evening 2500; making an estimated total of about 4,500. As the Recording Secretary put it: "It was probably the first really notable exhibition of its kind ever held in the province."

The second scientific exhibition took place on Friday and Saturday, November 23 and 24, 1928, in the Science Building, Studley Grounds, and the Medical Sciences Building, College Street. The Governors of Dalhousie University, the managers of the Telephone Company, the Nova Scotia Tramways and Power Company and Moirs Limited, the managing director of Halifax Herald Ltd., the general manager of the Chronicle Company Ltd., the manager of Imperial Oil Ltd., and the representatives of Liquid Air Ltd. and Eastern Hosiery Mills, of Truro, all assisted in this undertaking. Programmes were sold, and a total of about 6,000 persons attended. Such was the over-crowding, particularly in the Medical Sciences Building, that the committee in charge suggested that if a similar exhibition were held in the future an admission fee should be charged in order to reduce the attendance to a comfortable limit. Financially, there was a small deficit for this exhibition. When it was discussed at a subsequent meeting, the prevailing opinion seemed to be that the labour involved in such an exhibition was so great that it seemed inadvisable to undertake another for some time.

Another project that the institute promoted was the preparation of a catalogue of the scientific periodicals in the Maritime Provinces. This was initiated in 1934 and, with the assistance of a grant from the National Research Council, was carried to completion in 1936.

The publication of proceedings has always been one of the objects of the Institute, although this object has been expressed in slightly different ways at different times. It has been and is being achieved, with financial assistance from the Provincial Government. The first selection of papers to be printed appeared in 1863, as "The Transactions of the Nova Scotian Institute of Natural Science, Vol. I — Part I." The next selection appeared in the following year, as Vol. II, Part I, with the same general title. But a new title "Proceedings and Transactions of the Nova Scotian Institute of Natural Science" was used on the selection of papers published as Vol.

II, Part III, 1864-5, and this continued to be used until 1889. Then, with the alteration of the name of the organization from the Nova Scotian Institute of Natural Science to the Nova Scotian Institute of Science, the next selection of papers to be printed was given the title "Proceedings of the Nova Scotian Institute of Science", and this new title continued to be used until one portion of Vol. XVII, for 1928-29, was labeled "Transactions of the Nova Scotian Institute of Science." On November 24, 1930, the Council considered the title of the publication, and on January 26, 1931 it decided that it should be changed to "Proceedings of the Nova Scotian Institute of Science." This has been the name of the publication ever since that time.

To the establishment and development of the Provincial Museum, the Nova Scotian Institute of Science has contributed a great deal. In fact, as Dr. A. H. MacKay aptly stated, the Provincial Museum is "the ward of the government, but the child of the Institute."[61]

Although the Provincial Museum may be said to have originated in the efforts made by the Province in connection with the International Exhibitions of 1862, 1865 and 1867, there had been advocates of the establishment of such an institution in earlier years. As we have already seen, Rev. Thomas McCulloch, Richard Garland and others had attempted to do something on their own, and the Halifax Mechanics' Institute, founded in 1831, formed its own museum. Early in 1848 a suggestion appearing in *The Times* elicited the following facetious response from *The Nova Scotian:*

> A writer in the *Times* suggests the propriety of establishing a Provincial Museum. We approve of the object. Two or three active men and a short Act of Incorporation, are only wanted to make a beginning. Some of our Correspondents have already offered to contribute:
> A String of Beads from Digby Neck.
> A bushel of roots that Gesner thought were potatoes.
> A dose of Morrison's Pills that had gone through the Gut of Canso.
> The Square Root of the Grand Rounds.
> A Fin of a Fish Market Shark.
> The Pole of the Barber, one sees between Halifax and Dartmouth.
> Some bristles from the Bore of the Shubenacadie.
> The Key to the Night Watch.
> The first half mile of the West India "League".
> A strand from the 'Cunard Line'.
> A volume of smoke from "the Battle of Life".[62]

Subsequently, as the Province in 1861 made plans to see that its re-

sources would be adequately represented at the International Exhibition in the following year, the project was revived and given renewed impetus. Several of the founders and early members of the Nova Scotian Institute of Science advocated action, and early in 1861 a petition to the Legislature from Cape Breton County proposed the establishment of Geological Museums in the several counties with a central institution of the same nature in Halifax.[63] Early in the next year there was a proposal by the Governors of Dalhousie College to establish a museum in connection with that institution.[64] On March 9, 1863, a petition from Rev. David Honeyman, who had been a Provincial Commissioner at the Exhibition in London in 1862, for the adoption of measures to found a Provincial Industrial and Educational Museum, was tabled in the House of Assembly.[65] Two years after that—on March 13, 1865—another communication from Dr. Honeyman and John R. Willis in regard to the establishment of a Provincial Museum was read in the House and referred to the committee on mines and minerals. This committee considered the matter and made its report to the House. Dated April 4, 1865, this report is as follows:

> The committee have examined the memorial of Dr. Honeyman and John R. Willis, advocating the establishment of a Provincial Museum, and have heard the latter gentlemen in person; and while they entertain favorable views of the proposal, and fully appreciate the importance of the work, and the benefits to flow therefrom, yet the committee cannot recommend any active steps to be taken in the matter until the new provincial building is completed, and suitable apartments therein can be had as a depository for the proposed collection, free of charge. It appears, however, that there is at present a valuable collection of articles in the museum of the late Mechanics' Institute, and other places, which would be contributed to a Provincial Museum, and are being lost for want of proper care. The committee recommend the Government to take such steps as they may deem necessary to collect and preserve the same, provided the expense does not exceed three hundred dollars.[66]

Early in 1866 Dr. Honeyman proposed to Andrew MacKinlay, trustee of the Mechanics' Institute, that the museum of that defunct institution be made the nucleus of the Provincial Museum. MacKinlay and James Forman, the other trustee, agreed to this proposal,[67] and Dr. Honeyman then applied to the Provincial Government for accommodation for a museum in the new Provincial Building, then under construction.On May 9, 1866, the Lieutenant-Governor-in-Council directed the commissioners of that building to provide a room for a Provincial Museum.[68] Dr. Honeyman, who had had charge of the Nova Scotian exhibits at the International

Exhibitions of 1862 and 1865, also looked after the provincial displays at the Paris Exhibition of 1867, and the Nova Scotia Commissioners purchased the natural history collections from the contributors, with a view to their being deposited in the Provincial Museum after their return from Paris. Finally, the Provincial Museum was founded in October 1868, when Dr. Honeyman was authorized to take possession of the room in the new building, and the Mechanics' Institute Museum and the specimens which had been exhibited in Paris were transferred to it. Dr. Honeyman became the first curator of the Provincial Museum, for a time without any remuneration.

Before long the two main objects contemplated had been fairly well realized. These were the formation of a permanent exhibition of the industrial resources of the Province with a view to their manifestation and development and the provision of means for illustrating the various branches of physical science and for furnishing the indispensable requisite for an effective scientific education.[69] In 1870 Dr. Honeyman started a Geological Class in the Provincial Museum, a development which he described in a letter of May 25, 1871 to the Hon. William Garvie, Chief Commissioner of Mines and Works, as follows:

> . . . Having an extensive and useful Geological Collection arranged in the Museum in every respect fitted for the illustration of the Sciences of Geology & Mineralogy especially in their application to Nova Scotia I proposed to open a Geological Class, and received the sanction of Hon. Robert Robertson to establish it. This was intended as a Pioneer to the establishment of a School of Mines. This class has passed its first Session, with perfect success. I have had 9 regular students and I anticipate a larger attendance next Session. . .[70]

Members of the Nova Scotian Institute of Science had taken a prominent part in the creation of the Provincial Museum, and the association of these two institutions has continued. On February 6, 1872, Dr. Honeyman commented upon their relationship in his letter to the Superintendent of Education:

> . . . The Nova Scotian Institute of Natural Science is now associated with the Museum. The association is mutually beneficial and there is reason to expect that the interests of Science in Nova Scotia will thereby be materially advanced. . .

Over the years the Institute has accumulated a library of considerable proportions. It has been accommodated in a variety of quarters; now num-

bering nearly 100,000 volumes, part of it is in the library of the Nova Scotia Research Foundation and part in the Nova Scotia Technical College Building.

During the first hundred years of the Nova Scotian Institute of Science there have been things quaint as well as things common. One memorable development was announced at a meeting on May 13, 1879 by the President. This was that he had received a communication from the Royal Microscopical Society of London offering to confer the honorary title of Fellow of that Society, F.R.M.S., on the President of the Institute for the time being, and that the Council had decided to accept the honour. A remarkable incident in the course of the Institute is the fact that among the many papers indicative of the specialized interests of highly trained members there was one prepared and delivered in January 1935 by an eleven-year-old girl. As the Recording Secretary noted at the time, "this paper probably constituted a record in the activities of the Institute." A number of years later a man in another part of the Province tried to get the Institute to sponsor what he described as a cure for ringworm. He claimed to have discovered a "cure", certainly not unknown earlier, that the oily residue left after burning brown paper on iron or steel would serve as a remedy for that skin-disease.

In 1958 prizes were offered by the Institute to science students below the Master's degree at any of the universities or colleges in Nova Scotia for the best essay in each of the following fields of science:

(a) Physical Sciences and Engineering;

(b) Biological Sciences

The first award in this competition was made in 1959.

The membership of the Institute is now much greater than it was in the early days. Twenty-four men were elected to membership on December 26, 1862; now, however, there are 253 members. The admission fee for ordinary membership used to be 20 shillings and then $4.00, with an annual subscription of 10 shillings or $2.00. That admission fee remained constant until 1942 when it was raised to the modest sum of $3.00. Associate membership was authorized on October 26, 1863, with an admission fee of 10 shillings and a yearly subscription of 5 shillings. Provision was made for life memberships in 1864 and 1866, in the first instance on payment of £5, and in the second case on the payment of $45 for ordinary members of less than ten years standing or $22.50 for those of ten or more years of good standing. Eventually student memberships were authorized in 1930 at a

fee of $1.00 each, and in January 1935 this fee was reduced to 50 cents. Ladies, of course, have long been members of the Institute. Miss Bertha Elliot, Superintendent of Nurses, Victoria General Hospital, was admitted to membership in 1895, for example, and Miss Margaret R. Butler was elected to the Council of the Institute in 1934, the first lady to be so chosen.

There are also honorary members. In 1947 it was decided that honorary membership might be conferred on persons rendering sufficient service to the Institute, members holding responsible positions in science work related to Nova Scotian problems and now retired, or non-members who have made significant contributions to such problems. The first persons so honoured were Dr. L. C. Harlow, Dr. H. E. Bigelow, Dr. H. L. Bronson, Dr. John Cameron, Mr. P. R. Colpitt, Dr. A. G. Huntsman, Dr. S. G. Ritchie, and Dr. F. H. Sexton. Others later similarly honoured included Mr. Robie Tufts, Dr. E. Hess, Dr. R. J. Bean, Dr. J. H. L. Johnstone, Dr. Hugh Bell, Dr. A. Kelsall, Mr. F. Herman, Dr. P. M. Bayne, Dr. H. M. Creighton and Mr. J. A. D. McCurdy.

In addition, provision was made in 1951 for granting life membership to recording secretaries, corresponding secretaries, treasurers and editors with five or more years of service. A life membership was subsequently conferred on Dr. J. G. Aldous in recognition of his valuable services.

A branch of the Institute was organized at Wolfville in 1901, and it continued in active operation until 1904. Then that Kings County branch went out of existence. In 1952, however, a Valley branch or chapter was established at Wolfville, and it is functioning very successfully.

There have been attempts of various kinds to maintain or raise the attendance at meetings. Popular lectures have occasionally attracted larger audiences; special meetings have been held; and for part of 1940 and 1941 refreshments were provided at meetings. These inducements have had a temporary effect, though perhaps no great lasting value in increasing the membership. In the early days the Institute owed much to a small number of devoted members. Later such men as Professor James Gordon MacGregor, Dr. A. H. MacKay and Mr. Harry Piers nursed it through trying times. Since 1947 the membership has risen from a total of 172 to 289 in 1953, and it now stands at 253 in the centennial year.

The Nova Scotian Institute of Science has had a variety of meeting places. Preliminary meetings in 1862 were held in R. G. Haliburton's office at 53 Barrington Street, the basement room of the National School on Argyle Street, and the Hall of the Medical Society. From January to March 1863 it met in the old Dalhousie College Building. From April 1863 to

May 1871, inclusive, its meeting place was Province House. In October 1871 it began to meet at the Provincial Museum, in the new Provincial Building (later the Dominion Building, and now the headquarters of the Royal Canadian Mounted Police), where it continued to meet until October 1878. Then it met in Dalhousie College until May 1881. For October and November 1881 it used the Provincial Museum again; it met in the Stairs Building in December of that year; and then it returned to the Provincial Museum till April 1887. It began to meet in the Provincial Engineer's Office in October 1887 and continued to do so until May 1888. It had its annual meeting in Province House in October 1888. Then it returned to the Provincial Engineer's Office for the meeting in November 1888, after which it began to meet in the Victoria Art School Rooms, where, with the exception of a meeting at Dalhousie College in February 1889, it continued to meet until April 1890 inclusive. From then until December 1909 it met in such places as Province House, the Provincial Museum, the Legislative Committee Room, the Church of England Institute, the Legislative Council Chamber, the City Council Chamber, the Provincial Science Library, the Assembly Chamber, the Room of the Mining Society of Nova Scotia, the Assembly Committee Room, and the Geological Lecture Room, Dalhousie College. On December 13, 1909, it began to meet in the Technical College, and continued to do so until November 1916. Since December 1916 it has met chiefly in buildings of Dalhousie University—The Physiological Lecture Room (Room 39) of the Forrest Building, the Munro Room in the same building, the Physics Lecture Room in the Science Building, Studley, the Physiological Lecture Room in the Medical Sciences Building, College Street, and the Dental Lecture Room, Carleton Street. The Medical Sciences Building is now and has been for some years the main meeting place. Occasionally, however, there have been meetings in the Biological Building, Acadia University; Elliot Hall, Acadia University; the Naval Research Establishment, Dartmouth; the Physics Lecture Room, Dalhousie University; the Nova Scotia Technical College or the Arts and Administration Building, Dalhousie University.

To commemorate its centennial the Nova Scotian Institute of Science not only sponsored two well attended special lectures by distinguished visiting scientists but had a centenary dinner at the Lord Nelson Hotel, Halifax, on April 6, 1962. Dr. W. J. Archibald, the President of the Institute, was the chairman at this dinner, which was attended by about 110 persons, including Major-General the Honourable E. C. Plow, Lieutenant-Governor of Nova Scotia, and Mrs. Plow, Hon. R. L. Stanfield, Premier of Nova Scotia, and Mrs. Stanfield, and at which Dr. C. Bruce Fergusson, Provincial Archivist, delivered an address on the history of the organization.

REFERENCES

1. Bishop Charles Inglis to the Archbishop of Canterbury, November 26, 1792. Public Archives of Nova Scotia (hereafter PANS), Bishop Charles Inglis's letters.
2. Bishop Charles Inglis to Lord Grenville, June 28, 1793. *Ibid.*
3. *The Royal Gazette,* June 3, 1794, page 3, and *The Weekly Chronicle,* May 31, 1794, page 3.
4. Journal of the Reading Society of Windsor, Nova Scotia, in the Public Archives of Nova Scotia.
5. C. Bruce Fergusson, "Mechanics' Institutes in Nova Scotia", Bulletin No. 14 of the Public Archives of Nova Scotia (1960), 16-22.
6. *Acadian Recorder,* August 13 and 20, 1825, and *Novascotian,* August 17, 1825.
7. *Novascotian,* November 2, 1825, page 366.
8. Reminiscences of Rev. T. H. White. The White Collection of Manuscripts, No. 1555, PANS.
9. *Novascotian,* August 24, 1825.
10. *The Free Press,* January 3, 1826, page 3.
11. *Novascotian,* January 11, 1826, pp. 12-13.
12. *Ibid.*
13. *Novascotian,* January 18, 1826, page 21.
14. *Acadian Recorder,* January 7, 1826.
15. *Novascotian,* January 18, 1826, page 21.
16. There is a copy of this booklet in the Public Archives of Nova Scotia. Cf. *The Free Press,* February 28, 1826, page 35 and March 14, 1826, page 43.
17. *The Free Press,* August 12, 1828, page 131.
18. *Novascotian,* August 7, 1828.
19. *The Free Press,* August 12, 1828, page 131.
20. *The Halifax Journal,* January 5, 1824, page 3.
21. *Acadian Recorder,* May 12, 1827, page 2.
22. *Colonial Patriot,* February 27, 1830, page 3.
23. *The Free Press,* April 24, 1827, page 69.
24. Assembly Journal, 1833, pages 356, 435 and 473. Also *Novascotian,* February 27, 1834, page 70.
25. Bulletin No. 14 of the Public Archives of Nova Scotia.
26. *The Pearl,* November 29, 1839, page 383.
27. *Novascotian,* December 5, 1839, page 387.
28. *Nova Scotian,* January 23, 1843, page 30.
29. *Nova Scotian,* September 23, 1843, page 307.
30. *Nova Scotian,* July 12, 1843 and July 15, 1844.
31. *Nova Scotian,* May 11, 1846.

32. Transactions of the Nova Scotia Literary and Scientific Society, January 4 to December 3, 1859 (Halifax, N.S.—Printed for the Society, by Bowes and Sons, 1859).
33. *Morning Chronicle,* March 25 and April 12, 1862.
34. *Morning Chronicle,* March 25, 1862.
35. *Morning Chronicle,* April 12, 1862.
36. *Morning Chronicle,* June 7, 1862.
37. J. M. Cramp (Acadia College), to R. Haliburton, March 27, 1862. Letter Book—N.S. Inst., PANS.
38. B. Hammatt Norton (Pictou) to R. Haliburton, March 28, 1862. *Ibid.*
39. J. Robertson to R. G. Haliburton, March 29?, 1862. *Ibid.*
40. John Ambrose (St. Margaret's Bay) to R. G. Haliburton, March 31, 1862.
41. J. Robertson (Wilmot Rectory) to R. G. Haliburton, May 20, 1862. *Ibid.*
42. A. P. Ross (Pictou) to R. G. Haliburton, May 26, 1862. *Ibid.*
43. Abraham Gesner (Atlantic Hotel) to R. G. Haliburton, May 15, 1862. *Ibid.*
44. *Morning Chronicle,* June 21, 1862.
45. Draft of Notice for Morng papers by Mr. Belt. Letter Book—N.S. Inst., PANS.
46. Minute Book Nova Scotian Institute of Science, volume I, PANS
47. Minute Book of the Nova Scotian Institute of Science, volume I.
48. Nova Scotian Institute of Science By-Laws.
49. Harry Piers, "A Brief Historical Account of the Nova Scotian Institute of Science, and the Events Leading up to its Formation; with Biographical Sketches of its Deceased Presidents and other Prominent Members," in Proceedings of the Nova Scotian Institute of Science, 1912-1913, lxxxii-lxxxiv.
50. Minute Book of the Nova Scotian Institute of Science, volume I.
51. Circular letter from William Gossip, Secretary of N.S. Inst. Nat. Science, dated at Halifax, Sept. 5, 1864. Letter Book—N.S. Inst., PANS.
52. Minute Book of the Nova Scotian Institute of Science, volume I.
53. The Transactions of the Nova Scotian Institute of Natural Science, Vol. I—Part I (1863) 1-4.
54. Minutes of January 8, 1872.
55. Minutes of October 14, 1874.
56. Minutes of November 9, 1874.
57. Laws of the Nova Scotian Institute of Natural Science, Halifax, N.S. (William MacNab, 1885).
58. Minutes of December 8, 1930.
59. Meeting of the Council of the Institute, November 5, 1934.

60. Meeting of the Council of the Institute, September 30, 1935.
61. Harry Piers, *op.cit.,* lxxvii.
62. *The Nova Scotian,* January 17, 1848, page 23.
63. Journal and Proceedings of the House of Assembly of the Province of Nova Scotia, 1861, page 25.
64. James Thomson to Hon. Joseph Howe, February 25, 1862. PANS, MS. Docs., vol. 272, doc. 21, Cf. *Eastern Chronicle,* June 5, 1862, page 2.
65. Assembly Journal, 1863, page 35.
66. Assembly Journal, 1865, Appendix No. 55, pages 2-3.
67. Harry Piers, *op.cit.,* lxviii.
68. Minutes of Council, May 9, 1866.
69. D. Honeyman to Rev. A. S. Hunt, Superintendent of Education, February 6, 1872, in Annual Report of the Common, Academic, and Normal and Model Schools in Nova Scotia for the School Year ended October 31st, 1871 (Halifax, 1872), xvi-xviii.
70. D. Honeyman to Hon. W. Garvie, May 25, 1871. PANS.

List of Presidents 1862-1962

1.	The Earl of Mulgrave	1862
2.	Philip Cartaret Hill	1862-63
3.	John Matthew Jones	1863-73
4.	Dr. John Bernard Gilpin	1873-78
5.	William Gossip	1878-80
6.	Dr. John Somers	1880-83
7.	Robert Morrow	1883-85
8.	Dr. John Somers	1885-88
9.	Professor James Gordon MacGregor	1888-91
10.	Martin Murphy, D.Sc.	1891-93
11.	Professor George Lawson	1893-95
12.	Edwin Gilpin, Jr., D.Sc.	1895-97
13.	Alexander McKay, M.A.	1897-99
14.	Alexander Howard MacKay, B.Sc., LL.D.	1899-1902
15.	Henry S. Poole	1902-05
16.	Francis William Whitney Doane	1905-07
17.	Professor Ebenezer MacKay	1907-10
18.	Watson Lenley Bishop	1910-12
19.	Donald MacEachern Fergusson	1912-15
20.	Professor David Fraser Harris	1915-18
21.	Professor H. L. Bronson	1918-20
22.	Professor John Cameron	1920-22
23.	Professor C. B. Nickerson	1922-24
24.	Dr. S. G. Ritchie	1924-26

25. Professor J. H. L. Johnstone 1926-28
26. Professor Douglas MacIntosh 1928-30
27. Professor E. Gordon Young 1930-32
28. Dr. Alexander Henry Leim 1932-34
29. Harry Piers 1934-36
30. Professor G. H. Henderson 1936-38
31. Dr. H. S. King 1938-40
32. Professor R. J. Bean 1940-42
33. Dr. Ernest Hess 1942-44
34. Professor F. Ronald Hayes 1944-46
35. Professor C. C. Coffin 1946-48
36. Dr. C. B. Weld 1948-50
37. Dr. A. E. Cameron 1950-52
38. Professor W. J. Chute 1952-54
39. Dr. H. D. Smith 1954-56
40. Dr. J. G. Aldous 1956-58
41. Dr. J. R. Dingle 1958-60
42. Professor W. J. Archibald 1960-62