

Stanley Brice Frost

Science education in the nineteenth century

The Natural History Society of Montreal, 1827-1925

We live in an age when the several delights of childhood appear to have little to do with the business of life, and when the word "science" represents a monument of such awesome scale and scope that far too few dare approach it. But before that monument arose, as the following little history shows, science was pursued in the last century by men like Dawson with an unmistakably boyish enthusiasm, and with a sense of curiosity that might ramble like a puppy across all the boundaries of what we now rather earnestly call disciplines. Stanley Frost seems to have ramble in much the same spirit down a side alley of his History of McGill project, with this account of a forgotten phase in the pursuit of science when so much was yet to come, and, when a child could understand the point of it all.

This society had the distinction of being the oldest scientific organization in Canada, and one of the earliest such societies in North America (1). For the greater part of the nineteenth century it played a major role in the development of science in Montreal; in the later decades the encouragement of what might be called "professional science" passed increasingly to the university and to disciplinary societies and their specialized journals, but the Society maintained into the twentieth century a valuable role in the popularization of science, and in the spread of a general understanding of its aims and its achievements.

Regrettably the Society dissolved in 1925, and there is a

considerable danger, more than half-a-century later, that its history may be forgotten. McGill University's Blacker-Wood Library of Zoology and Ornithology possesses remarkably full records of the Society throughout its history, including minutes, annual reports, Journal publications, catalogues of the library and of the museum, lists of members, and lists of donors with details of their donations (2). Together these documents present a fascinating picture of a near-century of popular science, in the best sense of that term.

It was on the 12th of May 1827, in the manse of the Reverend Henry Esson, Minister of the St. Gabriel Street Presbyterian Church, Montreal, that in the conversation of "a few gentlemen, casually met together," the idea emerged of forming a Montreal Natural History Society (3). They resolved to invite others to meet with them six days later with this purpose in mind, and on 18th May the Society came into being.

The early membership

The founding group contains many names which are familiar to us in other connections. Stephen Sewell, the first President, was the attorney of the Royal Institution for the Advancement of Learning, at this time busy with its suits against the Desrivières family to obtain the legacy of James McGill for the founding of a college. The young physician Andrew Fernando Holmes, one of the two original secretaries of the Society and President for the years 1836-41, was one of the founding fathers of the Montreal General Hospital and its teaching arm, the Montreal Medical Institution. He was probably the animating spirit during the early years of the Society. It was he and the Reverend Henry Esson who were asked to propose a constitution for the new Society; he served for many years as Chairman of the Management Committee and in that capacity he wrote the Annual Reports of the Society from 1828 through the years of his presidency. As a student in Edinburgh he had joined the university's natural history organization, the Wernerian Society, and he had become a keen collector of botanical and geological specimens. His herbarium and his mineral collection, constantly added to over many years, were finally acquired by McGill, and incorporated into the University Museum's holdings. William Caldwell, William Robertson and John Stephenson, Holmes' three colleagues in the Montreal Medical Institution, soon to become the McGill Faculty of Medicine, were also among the founding members of the Society. Caldwell was elected a vice-president and Stephenson a member of the Management Committee. There were at least three other physicians among the twenty-six charter members, so the medical presence was considerable.

There were also three clergymen: both James Somerville and Henry Esson were ministers of the St. Gabriel Street Church, and Alexander Mathieson was a minister of the rival church, St. Andrew's, so all three were Presbyterians. But the Anglican rector of Montreal, John Bethune, joined in the first year, and so did at least one other cleric. The close connection of science and religion at this time was the result of the popularity of "natural theology." According to this view, God had given two "books of revelation": the inspired Bible and the "book of nature." One reinforced, illuminated, and explained the other. Isaac Watts had characteristically written

Lord, how thy wonders are displayed
Where'er I turn mine eye,
If I survey the ground I tread,
Or gaze upon the sky.

Contemporary sermons supplemented biblical teachings with copious illustrations drawn from "natural history"; the battles of religion and science lay many years into the future, and in the first half of the nineteenth century much amateur science was conducted from the manse and the rectory.

The membership of the one hundred or so persons enrolled on the first register of the Society included in fact a large proportion of the influential anglophone society of Montreal, but it is significant that there were apparently no French-Canadian members and of course no women members. The Roman Catholic Church controlled French-Canadian culture and did not encourage contacts with scientific institutions; women had to wait another forty years before they were welcomed, and then only to associate membership.

The Society's museum

From the beginning the Society had intended to establish a museum, because this would give permanence and continuity. Its avowed intention, as set out in its constitution, was "the investigation of the Natural History of Canada", but enthusiastic donors were soon loading it with specimens and "objects of curiosity" from all over the world. Stephen Sewell the first President donated his very fine botanical collection, and the Montreal Library, founded in 1796, had acquired a number of three-dimensional objects of all kinds, which it was only too happy to donate to the new Society's museum. "The Cabinet", as it was called, was divided into four departments: Zoology, Botany, Mineralogy, and Miscellanies, and each was to have its own catalogue. The 1828 pamphlet containing the Society's by-laws and constitution included for the benefit of the would-be donor

instructions on how to skin quadrupeds and birds, how to stuff and preserve fish, and how to bottle smaller specimens in spirit.

Since captains of sea-going vessels, and furtraders and their agents who voyaged out west, were frequent contributors, not only were the first three departments of the Cabinet soon well-stocked, but the miscellaneous division also grew very rapidly. Early examples of donors are Captain Stoddard of the **S.S. Thomas**, who gave "shells and other objects of interest", and James Keith of the Hudson's Bay Company's station in Labrador, who regularly sent "Indian curiosities, skins of animals, minerals and shells." These latter donations gave the Society clues to cultures and to lands which at that time were remote and largely unexplored, and a committee was set up to report to the Society on "the Indian territories." The Hudson's Bay Company, no doubt by George Simpson's direction, promised to urge its agents to watch for interesting specimens and to send them back to Montreal. The Society was thus in a very favourable situation to be the first depository of Canada's rich variety of flora and fauna and geological specimens.

The botany section began with a selection of European material, gathered by collectors influenced by the well-organized studies of their homelands, but specimens of local flora soon began to come in and quickly came to preponderate. The geological section was much enriched by the donations of one Martyn Raine, M.D., of New York, and these formed in the 1830's the finest and largest part of the Society's collection. The library too, which began only modestly, numbered 352 books in 1832 and was expanding rapidly.

The Discobolus

In that same year, a notable incident occurred. Nathaniel Gould, esquire of London, "made a most valuable and acceptable addition" to the Museum consisting of

four casts from antique statues, known to connoisseurs as "The Discobolus, the Antinous, a Fawn and a Piping Boy." Unfortunately from want of proper care in the packing and transportation from London, they arrived in such a state of mutilation as to lead to the supposition that they were irrecoverably lost, but the Council has the greatest satisfaction in stating that, owing to the ingenuity and zealous labours of two of the members, the statues have been repaired in a manner far beyond the expectations of those who witnessed them in their dismembered state. The Society cannot but feel grateful to the members who,

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at so much cost of labour and time, have restored these precious objects of art, and have made them ornaments of the collection (4).

These gifts were followed by similar donations from other sources, and no doubt were a major cause of the over-crowding which in 1832 led the Society to move from its first location to more commodious premises. Even here, and at subsequent addresses, many prized objects had to be relegated to the store-rooms, where Samuel Butler found the Discobolus in the early 1870's and was moved to write his sardonic poem "O God. O Montreal."

The Society was, as it recognized in one of its early reports, "being formed in the bosom of an infant state, where consequently almost all are engaged in occupations necessary to existence", and where understandably leisure for the arts and sciences was hard to come by. Greek sculpture was not among the Society's primary interests, but it was making sincere efforts, as the quotation from A.F. Holmes shows, to bring elements of culture into the city's life. In this endeavour, the Society was conscious that it was "working more for posterity than for the present generation."(5) The Society deserved, we may think, Butler's commendation rather than his ridicule; in 1830, its good work was recognized and encouraged by a subvention from the Legislative Assembly in the healthy amount of two hundred pounds.

A considerable variety continued to be shown for many years in the list of donations to the museum. Some were curiosities pure and simple, but others were scientific specimens of considerable merit: "**Geothlypis Philadelphia, Baird**, male (Morning warbler)" donated by W. Hunter, and "**Accipenser carbonaria**, Agassiz (long-nose Sturgeon)" from G. Barnston. But then again these specimens had to compete with "An antique pair of stays, 100 years old", given by Mrs. Hamilton in 1862. As the years passed, however, the nature of the donations became more uniform and in the later years became strictly scientific; in 1880, for example, of some sixty donations or purchases reported all are irreproachably scientific, other than "a Box made out of a plank of the Royal George and a lock of Grace Darling's hair", contributed by Captain Dutton of the **S.S. Sardinian**. For the rest, they range from "a fine **Limulus Polyphemus**" donated by Miss Mathewson to "Green Black Cap Fly Catcher (male, winter plumage) **Muscicapa pusilla**", purchased by the Society.

The Museum of the Society was open at certain times to the public, and as Holmes had foreseen it was from the beginning the Society's greatest asset and its assurance of continuity. A photograph taken probably in the middle 1880's shows a large hall with a high ceiling and an encircling mezzanine. The centre ground floor is occupied by cases displaying geological specimens,

and the wall cases are filled with stuffed birds. On the mezzanine are further cases, above which on the walls are hung Indian spears and other warlike instruments. The Museum must have been for the citizens of Montreal an interesting and instructive place in which to spend an afternoon, as well as one which offered the serious student a great deal of material excellently catalogued and displayed.

Prosperity, decline, and renewal

The most notable achievement of the Society in its early days was its petition presented, with the support of the Quebec Literary and Historical Society, to the newly re-united Province of Canada in 1841. This petition asked that a systematic geological survey of the province might be undertaken; with the government's support the necessary bill was enacted and the Canadian Geological Survey was instituted. This organization remains Canada's oldest scientific organization and one of its most valuable. The Natural History Society incidentally thereby acquired a new and valuable member, for the Director of the Survey, William Logan, made his headquarters in Montreal and became a loyal supporter of its work. In 1869-70 he served as President.

Another, even earlier petition, put forward in 1831, sought funds from the province to establish a series of public lectures on scientific subjects to be given annually "without charge or for some trifling amount." This attempt failed, "largely because of the depressed state of the Provincial finances." But in 1833 the Reverend James Somerville died and left one thousand pounds, the interest from which was to support the kind of lectures the Society had previously advocated. The Annual Somerville Science Lectures thus became a regular feature of Montreal life until the end of the First World War.

By 1852 the Society had been in existence for twenty-five years and for some time the initial enthusiasm had been waning. When Major Lachlan succeeded to the chair in that year, his presidential address took the form of a history of the society and a survey of its prospects. Of the original twenty-six founding members, he observed, only one, Dr. A.F. Holmes, was still active in its affairs. In 1836 the Society had purchased a mansion to give it more much-needed space, but from lack of funds had been obliged up to the present to rent out most of its rooms. In 1841 the government had proposed that when the Bonsecours Market Building was completed, it should house the Mechanics Institute, the Montreal Library, and the Natural History Society united in one Montreal Institute of Literature, Science and the Arts (6). The government proposed to support the new institute with an

annual grant of three hundred pounds; had that imaginative development taken place, the Major said, there would have been no need for the formation of the Institut Canadien; the move "would have gotten rid of those narrow and sectional feelings and prejudices", and the Society would have been a provincial rather than a local one. Presumably he envisaged a bilingual and bicultural society. But the proposal was lost in the aftermath of the parliamentary riots, and the removal of the government from Montreal, and had never been revived.

Major Lachlan urged that the Society must now make a "well-directed, strenuous effort to regain its lost popularity", and suggested that "though the chief object of the Society be the advancement of the study of Natural History, it also embraces, not only Science and Literature, but all useful knowledge." It should therefore broaden the scope of its activities, but members would then have to take a more active part in the life of the Society. One of the points he emphasized was that a society like this one must publish "if it is actually to bear fruit." (7)

Major Lachlan sounds very much like the adherent of a dying cause seeking to whip up a non-existent enthusiasm. Such well-intentioned efforts are seldom successful. But had he known it, the Montreal Natural History Society was on the verge of a remarkable revival and its best days were yet to come. The Royal Institution for the Advancement of Learning had been moved in 1845 from Quebec City to Montreal and its membership reformed by the appointment of just the kind of person who had formerly provided the mainstay of the Society - the professional and merchant leaders of the city. Further, this same group had, in the same year as Lachlan gave his presidential address, been made the Governors of that moribund institution, McGill College. These men were determined to revive its fortunes. The renewal of economic prosperity in Montreal, consequent upon the success of the Reciprocity Treaty with the United States and the coming of the railways, favoured their efforts to the point where in 1855 they were able to appoint a new principal for the College, a man called John William Dawson, from Pictou, Nova Scotia. He at once associated himself with the Natural History Society and proved to be the one who could accomplish all that Major Lachlan had hoped for.

An audacious proposal

Dawson was an extraordinary person, in all kinds of relationships, but as a scientist he is without parallel in Canadian history. When he arrived in Montreal he was already a Fellow of the Geological Society of London, the author of **Acadian Geology** and of a score of scientific articles, and above all, an ardent

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naturalist. His enthusiasm was infectious. He was previously friendly with William Logan, the Director of the Geological Survey, and he quickly established close relationships with other members of the Society, such as Dr. Charles Smallwood the meteorologist, who had built his own observatory in St. Martin, and Abraham de Sola, the learned Rabbi of the Spanish and Portuguese Synagogue, and the young Dr. W.H. Hingston, who had recently returned from advanced medical studies in Britain and Europe.

Dawson was elected President of the Society in 1856, a scant year after joining its membership. He probably, however, made his audacious proposal even earlier, soon after he became a member. It was nothing less than that the Society should invite the prestigious American Association for the Advancement of Science to hold its fourteenth annual assembly in Montreal. The Association had never before met outside the United States, and apart from the almost defunct Natural History Society and a barely resuscitated McGill College there was no reason why it should now come north of the border. But Dawson's enthusiasm prevailed, and he, Logan, Smallwood, and four other members journeyed to the 1856 Assembly in Albany to present the invitation. Baltimore put in a competing invitation, and the matter was referred to the Association's standing Committee, which surprisingly decided in Montreal's favour.

The 1857 meeting was a great success. Montreal took its place upon the scientific map of North America, and the cause of science in the city was invigorated (8). Dawson was immediately asked to serve as President of the Society for a second year, 1857-58. He was to serve in that capacity, off and on, for twenty of the next thirty-five years, and in 1890 he was elected Honorary President for life.

The Society's journal

The next step in the rehabilitation of the Society was to fulfil the second element of Major Lachlan's prescription for its well-being - the publication of a journal (9). In its early numbers it was wholly written by Elkanah Billings, described as "Barrister at Law," of Ottawa, Canada West, and later as of Montreal. He served as palaeontologist to the Geological Survey and was an ardent and erudite naturalist. In his hands the journal was a didactic work, giving a survey of such general subjects as geology, or the classification of the animal kingdom, and more detailed accounts of specific subjects such as the natural history of the Canadian moose. Billings' style is well illustrated by the opening remark of his second article: "For the benefit of the juvenile reader, it appears proper in this place to explain, that in

classifying objects of natural history, two names are absolutely necessary for each species." He illustrates this principle with **brown bear, grizzly bear**, and then continues, "The only difference between ordinary and scientific conversation in this respect is, that in the first we use our native language and in the other the dead languages." Accordingly, he does not hesitate to punctuate his articles with very useful etymologies of Latin and Greek terms. But at the end of the twelve months his prolific pen had run dry, and it was announced that Volume II, No. 1, would be published in March 1857 by a committee of the Society.

From this time forward, the articles are contributed by various scientists on subjects of their expertise. T. Sterry Hunt, chemist to the Geological Survey and Associate Professor of Chemistry of McGill College, writes on "Fish Manures", Charles Smallwood on "The Cold Term of January, 1859" (10), Billings himself on "Some new genera and species of Brachiopoda", and Dawson on "The Microscopic Structure of some Canadian Limestones." The didactic note has been dropped, and the communications have become straight scientific reporting. The journal thus served as the premier Canadian scientific journal for many years, and numerous important contributions - for example, those of George Mercer Dawson in his capacity as geologist and botanist to the 1873 North American Boundary Commission - first appeared in its pages.

Popular science

Although the journal became a reputable scientific publication, the parent Society retained its more popular character. This was evidenced by the subjects of the annual Somerville lectures. They appear to have begun in 1840. In 1857 Dr. Hingston lectured on the circulation of the blood and Dawson on "The Physical Geography of the Lower Province." Alexander Johnston, Professor of Mathematics and Natural Philosophy at McGill lectured in 1869 on the history of astronomy, and T.D. King on "The Microscope." The most intriguing titles are those of two lectures given in 1873 by Dr. Philip Carpenter, the protagonist for hygiene in Montreal; they were "The Life of an Oyster from a Man's Standpoint" and "Man's Life in Montreal from an Oyster's Standpoint." They must have been well worth hearing.

Another of the ways in which the Society fulfilled its popular role was to organize an annual **exploring field day**. The first took place in 1867, and each year thereafter it was a happy occasion of mingled instruction and enjoyment. The exercise might take place on Montreal's own mountain, or further afield at some such location as Mount St. Bruno. At the picnic site a brief lecture would be given by a senior member of the Society

on the flora or the geological specimens which might be encountered in that location. At the end of the day there was a prize given to the one who had collected the finest specimen. The specimens had to be entire - that is, root, stem, leaves and flower - unless they were over two feet in height, in which case the root could be omitted; the correct scientific name had to be attached; and the collecting and naming had to be the work of the one person submitting the specimen. In 1890 the prize was won by a young McGill graduate of that year, Miss Maude Abbott (11). In rather the same vein, the Society offered prizes to those submitting the best essays in a yearly contest, but this practice seems to have been conducted only intermittently.

Yet another popular activity of the Society, which began in 1863, was the annual **Conversazione**. Dawson described this as "an occasion on which the members of our association, with all its beasts, birds and creeping things, announce themselves at home, and invite their friends to a scientific and intellectual feast." It was a very distinguished event, often attended by the Governor General; gentlemen had blue tickets and ladies pink ones, and there were separate entrances for them. The evening began at 8 p.m. and "sleighs may be ordered for eleven o'clock." Special displays were mounted, refreshments and music were provided. We can well understand that in Victorian Montreal the Natural History Society's *Conversazione* had its regular place in the social calendar.

The Society's locations

The homes of the Society reflect its history and to a large extent may be said to have determined it. The earliest home was on St. Paul Street in rooms rented from a Mr. Cunningham; they were conveniently located in the centre of Old Montreal. The first move in 1831 was to 20 St. James Street, to share the building occupied by the Montreal Medical Institution, which had lately become the Medical Faculty of McGill. No doubt Dr. A.F. Holmes facilitated these arrangements, and also those with regard to McGill's first degree-granting convocation. It was held in 1833 in the Museum of the Natural History Society. A year or two later, a mansion owned by M. Reguies came up for sale on the same street, and in 1837 the Society decided to purchase it. For a while the new building was shared by the Society and the Montreal Library. When, after the decline of the 1840's, the Society began to revive in 1856, it soon became apparent that yet another dÉmenagement would be required. Dr. Dawson used his good offices with the McGill Board of Governors, and they made available to the Society a piece of land on which a permanent home could be located. With the help of a mortgage from the McGill Governors, a building was erected on the northwest corner

of University and Cathcart Streets, and this was the home of the Society for nearly fifty years.

In 1906 the future of the Society appeared to be sufficiently assured for yet another move to be planned, this time in search of a less commercial, more congenial environment. The University Street building was sold, and two contiguous sites were purchased, one fronting on Drummond and the other on Mountain Street, just below Sherbrooke. Since the houses occupying the land were not suitable for the Society's activities, it was intended to demolish them and erect a new building to house both the Museum and the Library. Until the necessary funds could be raised the museum collections and the library were put in boxes and stored.

This proved to be a fatal mistake. With the Museum no longer functioning the future of the Society became uncertain. One good reason after another delayed the public appeal, until in 1914, just as the Society was beginning to revive and was re-commencing the publication of its *Journal*, the First World War broke out and the favourable moment had passed. By the time the war had ended, the financial indebtedness of the Society had mounted to over sixty-six thousand dollars, nor in the postwar depression was there much hope of an appeal to the public. The most substantial fiscal asset throughout its history had been its immovable property, and as we have seen the land portion had been contributed in 1858 by the McGill Governors. It was therefore appropriate that, in resolving to dissolve itself, the Society should invite McGill to take over both its assets and its liabilities, and to receive its collections. These collections were major accessions which the Redpath Museum, the McCord Museum, and the Redpath Library were very gratified to receive.

Tamen fit surculus arbor

There must have been considerable sadness in the minds of many when the Society finally gathered to approve the motion winding up its affairs. There were some present like Professor Carrie Derick who could remember the Society in its heyday and who were conscious of the major role it had played in the intellectual life of the city. In one sense, it had perhaps fulfilled its purpose, in that it had firmly established the place of science in the esteem of the citizens of Montreal, and indeed, through its journal, of Canada generally. Science had now become more departmentalized, and the learned societies were beginning to provide specialized services for the different disciplines. Yet we have to recognize that the loss of the Montreal Natural History Society's Museum has never been made good. Montreal, indeed the Province of Quebec, still lacks an equivalent to the Royal

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Ontario Museum, and the Natural History Society's Museum could have been the foundation stone on which such an institution might have been built.

The Society devised for itself an emblem, a coat of arms as it were. It consisted of a plaque displaying the name of the society and an owl clutching in its beak a twig; the Latin motto was **tamen fit surculus arbor**, the shoot becomes a tree. The shoot planted on 18th May, 1827, did indeed become a great tree; it is fitting that we should remember how it took root, spread its branches and bore much fruit, and how its strength was not lost but gathered up into McGill, where it continues to serve succeeding generations.

This paper was read to the St. James Literary Society, Montreal, in November 1981.

NOTES

1. The Quebec Library and Historical Society was older, but its interests were not exclusively or even mainly scientific, as its name reveals. It did accept occasional natural history lectures.
2. The author acknowledges a particular debt to Eleni Bakopanos, who under his direction researched the Blacker-Wood Natural History Society materials, and to the Librarian Eleanor MacLean for her generous cooperation.
3. **First Annual Report**, 1828.
4. **Fifth Annual Report**, 1831-32.
5. **Annual Report**, 1828.
6. The Mechanics Institute was also founded in the manse of Henry Esson, one year later than the Natural History Society; the Montreal Library dated back to 1796. For the part played in the Bonsecours scheme by the egregious Nicolas Vattermare, see E.C. Moody, **The Fraser-Hickson Library** (London, 1977) pp.15-18.
7. **Annual Report**, 1852.

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8. The A.A.A.S. returned for a second visitation in 1882, and the British Association in 1884.
9. **The Canadian Naturalist and Geologist** first appeared in 1856, and volumes 1-8 continued through to 1863. A new series then began, and volumes 1-10 continued through to 1883, having the title after 1869 of **The Canadian Naturalist and Quarterly Journal of Science**. In 1884 the name changed again to **The Canadian Record of Science**, and Volumes I to VIII continued through to 1902. Volume IX numbers 1 through 5 were issued in 1903-04, but then a lack of funds forced a suspension of publication; in April 1914 publication was resumed with number 6, and the journal continued with numbers 7 and 8 through to 1916, when publication finally terminated.
10. He recorded a low of -43.1 F on 11 January 1859 and a level below -20 from 9-13 January, "a record of temperature, I believe, unequalled in Canada, both as to its intensity and duration." Of course, his "Canada" was limited to southern Quebec and eastern Ontario.
11. Maude Abbott, one of the first women to graduate M.D. in Canada, became a cardiologist of international repute. See S.B. Frost, "The Abbotts of McGill", **McGill Journal of Education**, 1978, XIII, No. 3, pp. 253-270.

