
*THE DESIGN OF
THE PETER
REDPATH MUSEUM
AT MCGILL
UNIVERSITY:
The Genesis, Expression,
and Evolution of
an Idea About
Natural History*

B Y S U S A N B R O N S O N



Figure 1. The Peter Redpath Museum (1880-1882) at McGill University: the first Canadian building designed specifically to house a museum of natural history. (Journal of the Royal Architectural Institute of Canada 2, no. 3 (March 1925))



AS THE FIRST CANADIAN BUILDING DESIGNED SPECIFICALLY TO HOUSE A MUSEUM OF NATURAL HISTORY, the Peter Redpath Museum in Montreal (1880-1882) (figure 1) possesses architectural, scientific, and museological significance.¹ Its original design² constituted a masterful expression of the *museum idea* of its founder, John William Dawson (1820-1899): his vision of the meaning of natural history and the role that McGill's museum should play in the preservation, presentation, and propagation of its knowledge.³

The account of the genesis, expression, and evolution of this *museum idea* – a story which spans more than two centuries of changing ideas about science, architecture, and museology – can enrich our understanding of the importance of the Peter Redpath Museum today. It also demonstrates that a full appreciation of the museum's design history, so critical in the establishment of an appropriate philosophy to guide its future, implies looking beyond the original formal features of its building and understanding the broader cultural context that first inspired, then shaped, and finally altered its architecture and arrangement.



Figure 2 (top). The 17th and 18th century cabinets of curiosities, such as this one formed by the Danish scholar Ole Worm, were arranged according to the personal whims of their owners. (Kenneth Hudson, *Museums of Influence* (Cambridge, Eng.: Cambridge University Press, 1987), 2)

Figure 3 (middle). The Coral Room at the first home of the British Museum presented a complete and systematic arrangement of specimens that allowed collectors to identify their findings. (Illustrated London News, 11 October 1845)

Figure 4 (bottom). During the Victorian period, British townspeople would escape to the seaside to gather shells: worshipping nature could be seen as a way to come to a closer understanding of God. (From Punch, 1857, in Lynn Barber, *The Heyday of Natural History, 1820-1870* (Garden City, N.Y.: Doubleday, 1980), 14)

THE GENESIS OF THE MUSEUM IDEA (1820-1880)

Histories of museums generally begin with the origin of their collections or the background of their masters. Following either scenario, the tale of the Peter Redpath Museum starts in the 1820s with the childhood ramblings of its founder through the colonial hinterlands of Nova Scotia. Like most stories about ideas, however, this one possesses roots in antiquity. By starting with this earlier beginning, the design of McGill's museum of natural history can be placed in proper perspective with respect to the ideas that provoked its existence.

The beginning of the idea of the museum of natural history

Although the collection of specimens representing the three kingdoms of nature – animals, plants, and minerals – has been a popular pursuit since the days of Aristotle, the idea of the museum of natural history as a repository for preserving, presenting, and propagating knowledge about the natural world did not come into vogue until two millennia later. In the 17th and 18th centuries, cabinets of curiosities (figure 2), arranged according to the personal whims of their owners, displayed natural specimens which were thought to embody magical or mythical powers.⁴ A more systematic approach to nature's scope and diversity was developed in the mid-18th century by Swedish naturalist Carolus Linnaeus (1707-1778). His invention of binomial nomenclature, a classification system that provided a distinct and memorable name for every known species, launched the desire to catalogue all of God's creation and led, at the beginning of the 19th century, to the establishment of numerous museums of natural history. Generally occupying rooms in a building designed for other purposes, these early museums displayed their specimens in a systematic arrangement that demonstrated the impressive extent and variety of God's work (figure 3).

It wasn't long before the fascination with natural history reached all levels of 19th century society. In Britain, townspeople escaped from their increasingly industrialized settings to catch butterflies and pick ferns in the country, or to gather shells and rocks by the sea (figure 4). After carefully identifying their findings by looking them up in popular natural history publications, or by comparing them to specimens at the local museum or botanical garden, they displayed them prominently in their homes; many houses were equipped with a fern cabinet or an aquarium, and those who could afford it built elegant conservatories. The Victorian need to justify such forms of "rational amusement" was satisfied by the conviction that studying nature would lead to a deeper understanding of God.⁵

The beginning of Dawson's museum idea

While British townspeople were enjoying such fashionable pastimes, young William Dawson,⁶ the future founder of the Peter Redpath Museum, was collecting flowers, insects, and rocks in the woods near his childhood home in Pictou, Nova Scotia. His parents and teachers, staunch Presbyterian Scottish immigrants, encouraged him in this pursuit and taught him that nature was a manifestation of God's goodness, wisdom, and power.⁷ Dawson was still a schoolboy when he was introduced to his first museum of natural history. Housed on the upper floor of the Pictou Academy,⁸ the "college cabinet" contained the rich ornithological collection of Dr. Thomas McCulloch (1776-1843), the Scottish Presbyterian minister who had founded the Academy in 1817. It was here that Dawson learned how to prepare birds and moths, a skill he applied to the growing number of specimens in his own cabinet, which was carefully arranged on shelves in his cupboard at home. (Little did he realize that his childhood specimens would later form the basis of his teaching collections at McGill, and part of McCulloch's cabinet would be donated to the Peter Redpath Museum.⁹)

Dawson supplemented his classical studies at the Academy by spending time in its library, where he had access to textbooks and popular articles on natural history. As he grew older he became increasingly fascinated by geology, the study of the earth and its origins. He went on frequent specimen-collecting excursions to the cliffs and coalfields of Nova Scotia, and was soon considered a local authority on the subject.

By the time he was 20, the young naturalist yearned for more advanced scientific instruction, which at that time could only be obtained abroad. He was fortunate to have the opportunity, during the winters of 1840-41 and 1846-47, to study at the University of Edinburgh.¹⁰ While in the "Athens of the North" (as this city of Greek Revival buildings was known), he attended the lectures of such renowned geological experts as Robert Jameson (1774-1854), whose extensive programme of scientific sermons attracted both townspeople and students. Dawson also spent long hours in the university's museum of natural history (figure 5), of which Jameson was the keeper. This systematically arranged repository of natural specimens, rich compared to the modest cabinet of the Pictou Academy, occupied a series of top-lit halls in the Greek-inspired quadrangle designed by Scottish architect Robert Adam



(1728-1792) during the 1770s, and executed in the 1810s and 1820s by William Playfair (1789-1857) (figure 6).

Despite his exposure to the latest pre-Darwinian hypotheses about the origin of life on earth, Dawson upheld his religious conviction that natural history was the result of providential design. He also maintained a strong sense of patriotism for his homeland, which was so rich in unexplored geological resources that it attracted scientific experts such as Charles Lyell (1797-1875)¹¹ and William Edmond Logan (1798-1875).¹² When he joined them on their excursions in his province, these well-known geologists encouraged Dawson to continue his geological pursuits.

While working as Superintendent of Education, he spent his evenings and holidays studying local geology. He documented his findings in numerous papers written for the Geological Society of London, and in his first major book, *Acadian Geology*, which was published in Edinburgh in 1855. It was during that same summer that Dawson, then 35 years old, was invited to become principal of McGill University.¹³ Having never visited Montreal, and knowing of McGill's reputation only as a medical school, he accepted the position on the condition "that a chair of natural history be added to the principalship."¹⁴

Before moving to his new home, however, Dawson went to Britain, where he attended the annual meeting of the British Association for the Advancement of Sciences. During this trip he met the eminent Dr. Richard Owen (1804-1892), who later spearheaded the construction of the new British Museum (Natural History) in South Kensington.¹⁵ At that time Hunterian Professor at the Royal College of Surgeons, Owen gave Dawson advice about the natural history programme at McGill, and demonstrated the fruits of his own accomplishments at the renowned Hunterian Museum (figure 7), with its lofty hall surrounded by two tiers of galleries displaying systematically arranged specimens. No doubt Dawson also became familiar with the magnificent semi-circular lecture theatre (figure 8) where the professor delivered popular sermons on God's design in nature.

Just as McCulloch's college cabinet at the Pictou Academy and Jameson's natural history museum at the University of Edinburgh contributed to the *museum idea* underlying the design of the Peter Redpath Museum, so too did Owen's museum at the Royal College of Surgeons. By the time Dawson left for Montreal there was no question in his mind that the instruction of natural history required a museum with a scientifically arranged collection representing the extent and diversity of God's creation, and a lecture hall in which its lessons could be taught.

The idea of a new museum for McGill

When he arrived at McGill in October 1855, the new principal confronted a situation that was a far cry from the well-established institutions of higher education abroad. The college's two

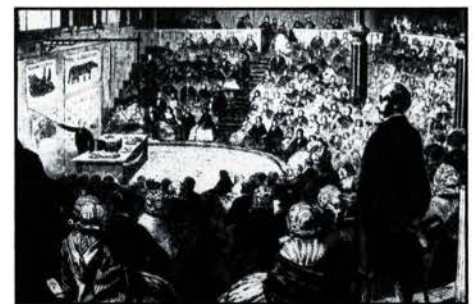
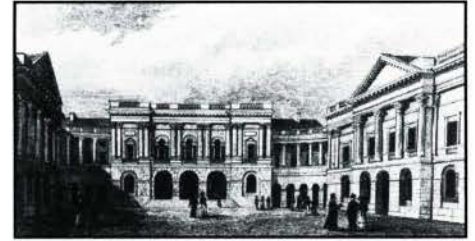


Figure 5 (top left). An 1820s engraving of Jameson's Museum of Natural History at the University of Edinburgh. Note the live puma under the table case. (Andrew G. Fraser, *The Buildings of Old College: Adam, Playfair and the University of Edinburgh* (Edinburgh: Edinburgh University Press, 1989), 209)

Figure 6 (top). This 1829 view of the interior of the quadrangle of the University of Edinburgh, looking west to the Natural History Museum, reveals why Edinburgh was often referred to as the "Athens of the North." (Fraser, *The Buildings of Old College*, 263)

Figure 7 (middle). The renowned Dr. Owen of the Royal College of Surgeons advised Dawson on the natural history programme at McGill and showed him the fruit of his own accomplishments at the systematically arranged Hunterian Museum. (Barber, *The Heyday of Natural History*, 175)

Figure 8 (bottom). The semi-circular lecture theatre at the Museum of Economic Geology, where Owen delivered his popular lectures, probably influenced the design of the lecture theatre of the Peter Redpath Museum. (Barber, *The Heyday of Natural History*, 182)



Figure 9 (top). The Natural History Society of Montreal, of which Dawson was an active member, allowed him to use its collections for teaching following the fire at Burnside Hall in 1856. (Notman Photographic Archives, McCord Museum of Canadian History)

Figure 10 (bottom). The western wing of the Arts Building, where Dawson installed his collections in McGill's first "museum room," was completed in 1862. (Notman Photographic Archives)

buildings, constructed twelve years earlier to the design of the English architect John Ostell (1813-1892),¹⁶ had been abandoned. The natural history collection consisted of a single fossil and, needless to say, there was no museum.¹⁷ Determined to remain optimistic despite his disappointment, Dawson, using his own personal cabinet, delivered his first lectures at Burnside Hall, a building in town shared by the High School and McGill's Faculty of Arts. When this structure was destroyed by fire in 1856 many of Dawson's specimens were lost, forcing him to rely on the collections of Montreal's other two scientific institutions, the Natural History Society (figure 9), established by a group of amateur naturalists in 1827, and the Geological Survey of Canada, founded in 1843. Although both museums possessed impressive arrays of specimens, their facilities were inadequate for teaching students.

This less than ideal situation was soon improved, thanks to a generous gift from William Molson (1793-1875). In 1862, Ostell's original design for the central college complex, which had included a third pavilion and corridors linking the three blocks, was completed. In the western extension (figure 10), a room was provided for McGill's first museum of natural history. Both before and after arranging the remains of his private cabinet in his new "museum room," Dawson invested considerable energy in making his teaching collections as comprehensive as possible. He spent his summer vacations gathering specimens, mostly Canadian in origin, and exchanging duplicates with other museums. These efforts to ensure that McGill's students were exposed to a complete representation of God's design were supplemented by the odd purchase and donation.

In addition to fulfilling his responsibilities as principal and professor of natural history, Dawson managed to play an active role in the increasingly professional Canadian, American, and British scientific communities. He published numerous articles and books and delivered frequent scientific addresses and popular sermons. Many of these were determined efforts to reconcile recent scientific discoveries with established religious convictions, the harmonious relationship of which was increasingly threatened by new ideas about the origin and evolution of life on earth. Most notable, of course, were the revolutionary theories of Charles Darwin (1809-1882), whose publication of *Origin of Species* in 1859 challenged the very foundation upon which Dawson's understanding of natural history – as a manifestation of divine handiwork – was built.¹⁸

Throughout the 1860s and 1870s Dawson conducted research on scientific education in the United States and abroad; he visited a large number of natural history schools and museums, and compared them enviously to the situation in Canada. Determined to upgrade the facilities at McGill, he made a point of reporting his findings to the prosperous Montrealers who constituted the university's potential benefactors.¹⁹ There was an obvious reason for doing so. As Dawson's collections became more and more complete, McGill's "museum room" was becoming increasingly crowded. Almost every natural history museum of the day was experiencing similar growing pains, a situation that prompted, during the second half of the 19th century, the replacement of numerous "museum rooms" by new buildings specifically designed to accommodate the rapidly evolving understanding of natural history, and new approaches to the role of the museum in the preservation, presentation, and propagation of its knowledge.

British and American models

In Britain, the definitive expression of this new architectural type was to be found in the designs of two major museums: the "Ruskinian Gothic" Oxford University Museum,²⁰ designed and built between 1854 and 1859, and the "German Romanesque" British Museum (Natural History)²¹ in South Kensington, conceived and constructed between 1864 and 1881 (figure 11). These two museums, both formal in layout, included a series of separate halls to house the increasingly compartmentalized departments of natural history, as well as rooms for research and instruction (figure 12). The various functions in each were arranged around a majestic museum hall which was flooded with sunlight entering through a structurally innovative glass and iron roof (figure 13). Richly embellished both inside and out with motifs from nature, the architecture of these two museums constituted an integral part of their scientific presentation (figure 14).

In America, six new buildings designed to house museums of natural history were inaugurated in the decades leading up to the opening of the Peter Redpath Museum in 1882.²² These included the Harvard University Museum²³ in Cambridge (inaugurated in 1860), the new home of the Boston Society of Natural History (1864), the first phase of Yale's old Peabody Museum²⁴ in New Haven (1876), the initial wing of Philadelphia's Academy of Natural Sciences (1876), the original wing of the American Museum of Natural History in New York (1877), and the Smithsonian Institution's first National Museum²⁵ in



Washington (1881). These new museum buildings embodied most of the design principles employed in their British counterparts while exemplifying the latest architectural trends of their day. Those built in the 1860s were restrained and classical in their exterior expression: the new building of the Boston Society of Natural History (figure 15), for example, apparently incorporated the Corinthian order according to Vignola.²⁶ The museums of the 1870s and 1880s, on the other hand, tended towards the more picturesque styling that was popular during those years: the palace-like National Museum (figure 16) featured polychrome brickwork, elegant turrets, and arched windows.

Like the Oxford and British museums, the American museums of natural history were generally formal in plan. Their compositions included separate halls for each department of natural history, as well as rooms for research and teaching. Their decor was simple and their scale modest. If they possessed a central hall, as was the case at the Boston Society of Natural History (figure 17), it was much less overpowering, in terms of size and technical innovation, than the monumental centrepieces at the Oxford and British museums.

Although initially less ambitious than their counterparts across the ocean, most of the new American museums were designed as multi-phase projects that could expand to accommodate their rapidly growing collections and the ever-changing notions of the meaning of natural history and role of the museum.²⁷ The Harvard University Museum, for example, was constructed in several stages over a period of 55 years (1860-1915) according to a pre-determined master plan (figure 18). The final design of Yale's old Peabody Museum (figure 19), on the other hand, was never realized, since it was decided after 40 years to replace, rather than extend, its initial wing of 1876.

Dawson, who was aware of these new facilities because of his involvement in the international scientific community, became increasingly discouraged with the situation at McGill. His frustration was compounded in the late 1870s by the decision to relocate the Geological Survey to Ottawa. When he received a tempting job offer from Princeton shortly afterwards, he went to discuss the situation with Montreal businessman Peter Redpath (1821-1894). In April 1880 Redpath officially announced his benefaction of \$100,000 for a new museum of natural history for McGill. By this time, Dawson – who matched Redpath's gift by offering his geological collections to the university – was ready to express his *museum idea* in built form. Not surprisingly, however, the 60-year-old principal's vision of the meaning of natural history and the role of the museum was not in all respects consistent with the latest architectural, scientific, and museological trends exemplified by the new American and British museums of natural history.

THE EXPRESSION OF THE MUSEUM IDEA (1880-1900)

The expression of Dawson's *museum idea* occupied the rest of his life. Although the construction of the Peter Redpath Museum was realized in a short 2 1/2 years, its scientific arrangement could not really be considered complete until 1894, when the retired and feeble principal, satisfied that he had filled the "gaps" in the collections, wrote an eloquent description of the museum "in memoriam" of its benefactor.

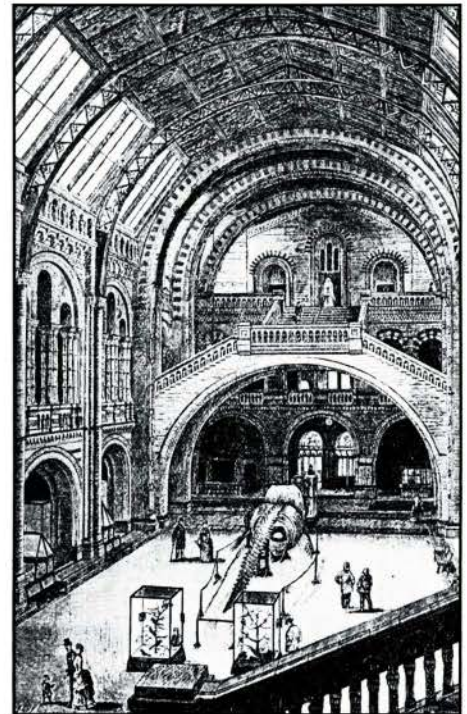
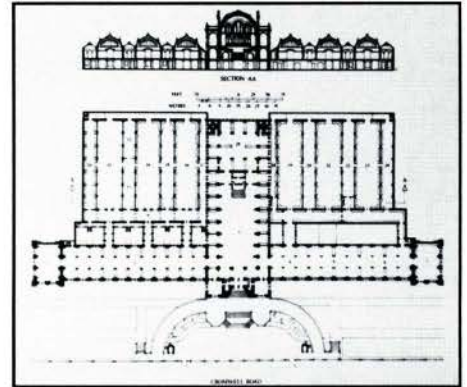


Figure 11 (top left). The British Museum (Natural History) in South Kensington (1864-1881), designed by Alfred Waterhouse under the direction of Richard Owen, was clad in terra cotta, with elegantly rendered naturalistic forms. (Peter J. Whitehead, *The British Museum (Natural History)* (London: Summerfield Press and Philip Wilson Publishers, 1981), 12)

Figure 12 (top). The plan of the British Museum (Natural History) was formal in layout and included separate halls for the different departments of natural history. (Mark Girouard, Alfred Waterhouse and the Natural History Museum (New Haven, Conn., and London, Eng: Yale University Press and the British Museum (Natural History), 1983), 47)

Figure 13 (bottom). The majestic central hall of the British Museum (Natural History) in South Kensington (1864-81) was topped by an innovative roof of glass and iron. (A General Guide to the British Museum (Natural History) (London: British Museum, 1895), 13)

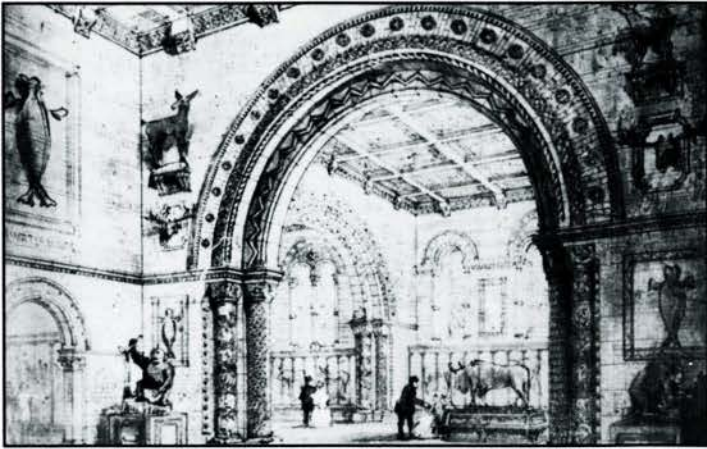


Figure 14. The architecture of the interior of the British Museum (Natural History), like that of its exterior, constituted an integral part of its scientific presentation. (Girouard, Alfred Waterhouse and the Natural History Museum, 31)

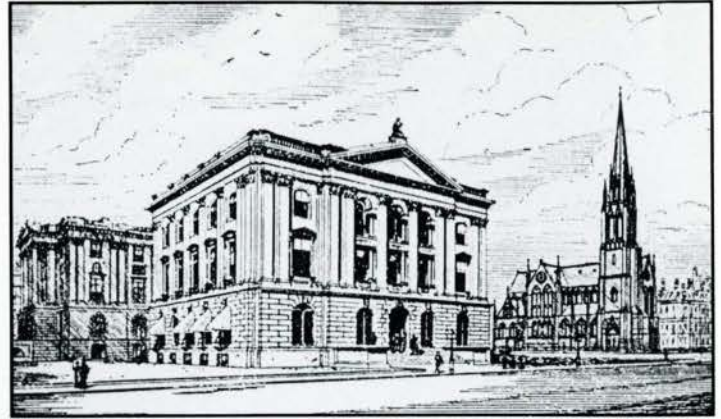


Figure 15. The Boston Society of Natural History Museum (1864), a classically-inspired building. Unlike most of its American counterparts, it was not designed for expansion. (Walter H. Kilham, Boston After Bulfinch: An Account of its Architecture, 1800-1900 (Cambridge, Mass.: Harvard University Press, 1946), pl. xxvi)



Figure 16. Washington's first National Museum (1881) was a picturesque palace-like structure that exemplified the popular stylistic tendencies of its day. (Valentine Ball, "Report on the Museums in America and Canada" (Extracted from the Report of the Science and Art Department, Appendix M) (Dublin, 1884))

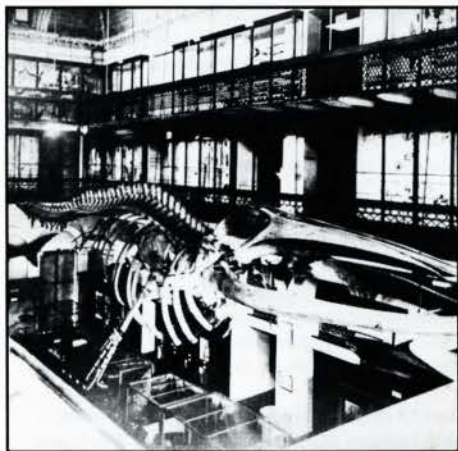


Figure 17. The central hall of the Boston Society of Natural History was much more modest in scale and detailing than the the Oxford University and British Museums. (Mary Desmond Rock, Museum of Science, Boston: The Founding and Formative Years, The Washburn Era, 1939-1980 (Boston: The Museum of Science, 1989)

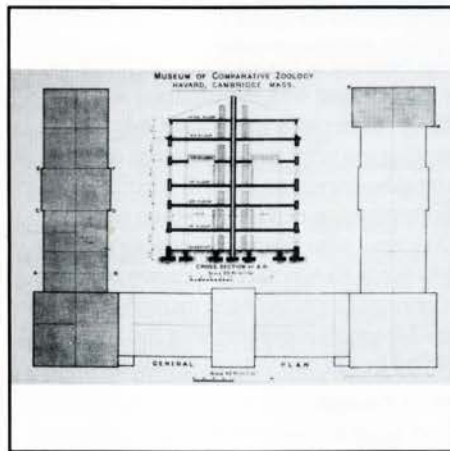


Figure 18. The Harvard University Museum (1860-1915) was designed as a several-phase venture; the shaded area shows the phases completed in 1884. The U-shaped plan was completed in 1915, and today the museum possesses several connecting annexes. (Ball, "Report on the Museums in America and Canada")



Figure 19. Yale's old Peabody Museum was designed as a three-phase project, but only the 1876 wing (the first two bays on the right) was completed. The building was demolished in 1917 and replaced by a new museum building (figure 30) on a different site in 1925. (Ball, "Report on the Museums in America and Canada")

The architects of McGill's Museum

That Dawson played a key role in the design of McGill's museum is undeniable, but it is to the Montreal architectural firm Hutchison & Steele, which was selected for the commission by Redpath with Dawson's approval, that we owe the mastery of its architectural expression and the high quality of its construction. Although we know little about Alexander Denton Steele (1840-1891), except that he had come from Britain in 1875 and practised with Hutchison until his retirement in 1890,²⁸ Alexander Cowper Hutchison (1838-1922) was to become one of the most prominent and longstanding members of Montreal's architectural profession.²⁹ Like Dawson, he was the son of Scottish immigrants, he was a devout Presbyterian, and his initial professional training was largely the fruit of self-imposed dedication. His father was a masonry contractor, and Hutchison mastered the trade of stone-cutting at the age of 12. As a teenager he took evening courses in drawing while working as an apprentice cutter. When he was 20 he supervised the stonework of Montreal's Christ Church Cathedral. Two years later he moved to Ottawa to oversee the masonry construction of the Parliament Buildings.

On his return to Montreal in the early 1860s Hutchison launched an architectural practice that was to continue for almost six decades. During this time he was involved (usually in association with at least one other architect)³⁰ in the design and construction of several important buildings representing a wide range of building types, formal expressions, and construction technologies.³¹ Hutchison's vast repertoire of work, much of which (including the Peter Redpath Museum) was built by his brother's masonry construction firm, exemplifies a number of commendable architectural qualities: simple and clear composition, selective and consistent detailing, and high quality construction. An examination of the buildings in which he was involved before and after 1880 suggests that he was comfortable working in many styles, and had no qualms about combining elements from different periods in the same structure, or adapting classical canons to suit the more liberal approach to architecture that persisted throughout most of his long practice.

The role of McGill's museum

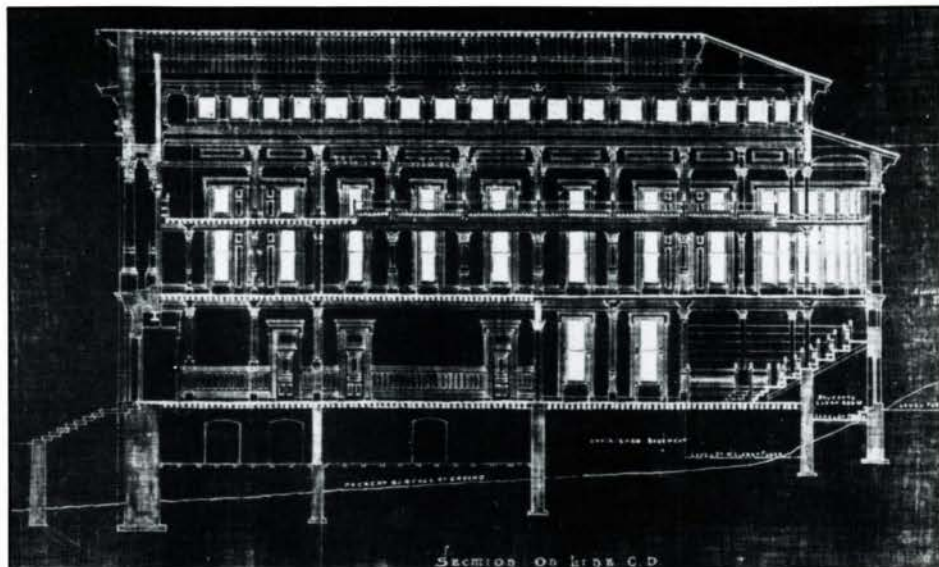
Hutchison & Steele were already working on the construction drawings for the Peter Redpath Museum when Redpath formally announced his gift to the university. During the summer of 1880 the foundations were constructed, and the cornerstone was laid in September of that year. At this ceremony the two men responsible for its existence most clearly expressed the ultimate role of Canada's first building to be designed as a museum of natural history. Redpath, who had come from England for the occasion,³² explained the purpose of his gift:

This building is ... intended as a place of deposit and study of specimens in Geology, Mineralogy, Palaeontology, Zoology, Botany and Archaeology, and it will probably more than meet all the immediate requirements of the University in that direction. It is intended that the use of the museum and its contents shall be in the first place for the professors and students of McGill College and University, and secondarily, for all the students of natural science and for the public....³³

Dawson then expressed his vision of the role of McGill's museum in an address that clearly articulated this aspect of his *museum idea*:

It must be borne in mind that a University Museum is not merely a place for the exhibition of specimens, but a teaching institution and a laboratory of original research.... From this place will go forth the men, and I trust the women also, best fitted to interrogate nature and bring to light the hidden treasures of our Dominion, and to avert by the aid of science the injuries with which any of its industries may be threatened. From it may emanate from time to time new discoveries tending to the honour of our country and the advancement of science. By its means we shall be able to extend the cultivation of taste for the study of nature and do much in the education of special students and of the public generally in those delightful and improving studies which will be represented here. Finally, to this Museum shall resort, for education and guidance, all those who are interested in the aspects of nature in this country, and in the development of our natural resources. Thus we may claim for such an institution as this a large and important mission in science, education and the practical business of life.³⁴

Compared to the ambitious undertakings in Britain and the United States, the Peter Redpath Museum possessed a modest mission, one that was in scale with the scope of its collections and in keeping with its master's self-contained, finite vision of the meaning of natural history. This definition of the role of McGill's museum provided an accurate reflection of the university's – indeed, of Canada's – position in the international scientific and educational communities, and the basis for the museum's design.



The design of the Peter Redpath Museum

Dawson's insistence that the Peter Redpath Museum should possess a "Grecian" image alludes to the Athenian dignity traditionally associated with scholarly institutions, including, of course, the University of Edinburgh (figure 6). This preference distinguished the Peter Redpath Museum not only from its British and American counterparts of the 1870s and 1880s, but from the majority of new Montreal buildings of its day, which also tended towards more picturesque styling.³⁵

Dawson selected a prominent site for McGill's museum. Perched on the crest of the slope at the end of the cricket field, its principal façade addressed Sherbrooke Street, by this time one of Montreal's most prestigious avenues. Despite its compact size and proximity to its neighbours – the classically-inspired Arts Building complex (1843, extended 1862) and the Presbyterian College, with its new Gothic-inspired extension (1880) – the Peter Redpath Museum, clad in local grey limestone, possessed an imposing presence and a sense of permanence that endures to this day.³⁶

Although the museum was an isolated element in McGill's landscape, Dawson saw it as the initial gesture of an ambitious expansion scheme for the university.³⁷ At his request, Hutchison prepared a campus view depicting a series of new buildings all dressed in Grecian garb (figure 20). The museum was balanced by a similar edifice for the Faculty of Applied Science, and Ostell's central complex was hidden behind a much more monumental central building. (Thankfully, this plan was never realized, but Hutchison used the drawing for his application to the Royal Canadian Academy of Art.)

The museum's principal façade³⁸ (figure 21), which faces south, is without question its most – if not only – "Grecian" aspect. Somewhat unconventional in design and elongated in proportion, it is dominated by a raised portico composed of an unadorned pediment supported on columns and pilasters with boxlike bases and elegantly carved shafts and capitals. The main entrance, raised above a high basement, is at the top of a wide staircase; its carved oak doors, with their naturalistic motifs, are framed by an elaborate stone border depicting shells and foliage. These carefully rendered references to nature, both elaborate and abstract in rendition, reinforce the museum's *raison d'être*.

Compared to the Oxford and British Museums, however, the embellishment of McGill's museum of natural history is simple in design and selective in extent. The side and rear elevations (figure 22), to which ornament was applied only sparingly, are geometric in massing and simple in expression: the east and west walls are articulated by projecting pedimented transepts, and the north-facing rear of the edifice provides a taut, semi-circular conclusion to the composition.

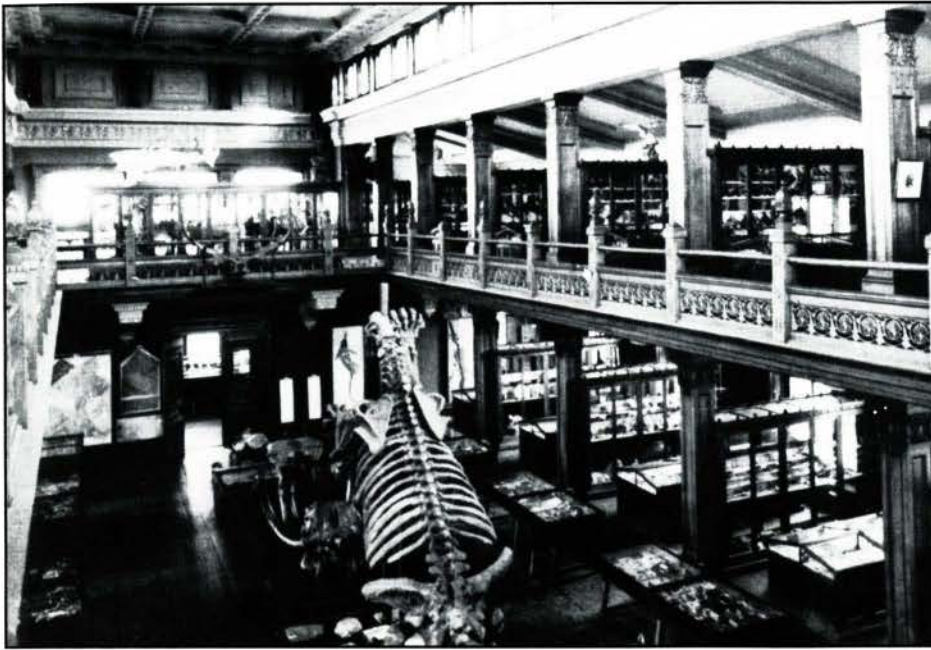
The internal division of the museum's three major functions (figure 23) could be read from its exterior expression. Behind the rusticated base was a raised basement which contained storage and service space. The ground floor, articulated on the outside by prominent stone coursing, accommodated the museum's research and teaching facilities. Finally, the upper reaches, crowned with a continuous clerestory band and defined by flush stonework and elegantly proportioned windows, were occupied by the galleried museum hall.

Figure 20 (top). Hutchison's ambitious "Grecian" scheme for the university campus. The Peter Redpath Museum was to be balanced by a similar building for the Faculty of Applied Science. (National Archives of Canada, in John Bland, "In Advance of All Others," *The McGill News*, summer 1962, 9)

Figure 21 (middle). The principal façade of the Peter Redpath Museum, without question its most "Grecian" aspect, is elaborated with abundant motifs from nature. Photograph from 1913. (Notman Photographic Archives)

Figure 22 (bottom). The side and rear elevations of the Peter Redpath Museum are simple in their detailing and geometric in their massing. (Brian Merrett, 1989)

Figure 23 (top right). A section through the Peter Redpath Museum (1880) shows the disposition of its three principal functions: the collections were arranged in the galleried museum hall on the upper level, the rooms for teaching and research were housed on the ground floor, and the storage and service facilities were in the basement. (Canadian Architecture Collection, Blackader Lauterman Library of Architecture and Art, McGill University)



The museum's symmetrical, self-contained basilican form, coupled with its proximity to the buildings beside and behind it, suggests that it was not designed for future expansion. The arrangement of its interior confirms that the reason for this is directly linked to Dawson's vision of the meaning of natural history, and of the role of McGill's museum in the preservation, presentation, and propagation of its knowledge.³⁹

Upon entering the Peter Redpath Museum the student or visitor was immediately reminded of its ultimate purpose by a plaque that read *O, Lord, how manifold are Thy works! All of them in wisdom Thou hast made.*⁴⁰ Like its exterior, the design of the museum's interior was formal and symmetrical. On one side of the entrance hall was the board room (which also served as an office and library) and opposite it was a generous stair leading up to the museum hall. Straight ahead, at the end of the central hallway, was the lecture theatre (figure 24), with its steeply raked seats arranged to fit the semi-circular "apse" of the building (ensuring that the attention of the audience was focused on the lecturer), and its "transepts" for displaying specimens that were to be used for demonstrations in the lectures. To the east of the hallway was the herbarium (figure 25) where the botany classes were held, and to its west was another classroom and office.

To view the "works of God," the visitor or student was obliged to ascend to the next level. At the top of the stairs was an ante-chamber in which the archaeological collections were presented. This room opened into what Dawson called the "great Museum Hall" (figure 26), an impressive space flooded with daylight from the regularly spaced, elegantly proportioned perimeter windows and the clerestory above. The lofty central nave, dominated by a cast of the British Museum's Megatherium, was surrounded by a gallery with an elegant carved oak and wrought iron railing.

While the gallery level of the museum hall housed the zoological collections representing extant species, the main level accommodated the geological collections, or extinct species. Dawson's 1885 *Guide* noted that the fossil specimens were arranged "primarily in order of geological time, from the older to the newer formations, and subordinately to this in order of Zoological or Botanical classification," allowing the visitor or student "to either see the general order of animal and vegetable forms in the geological history of the earth, or to trace any particular group of animals or plants through several geological formations."⁴¹

The purpose of the arrangement was clear from the start. Standing in the museum hall, one could view Dawson's vision of the entire realm of natural history, its species neatly organized to illustrate the progression from the most primitive forms to their representative extant species. While the serious student or specialist could spend time pouring over an individual specimen and studying its relationships to the specimens beside it, the uninitiated amateur could obtain an overall understanding of the various natural groups and their relationships by comparing the contents in each case to those in the case beside it. In a single room, the incredible scope and impressive diversity of God's grand design could be appreciated on either a general or particular level.

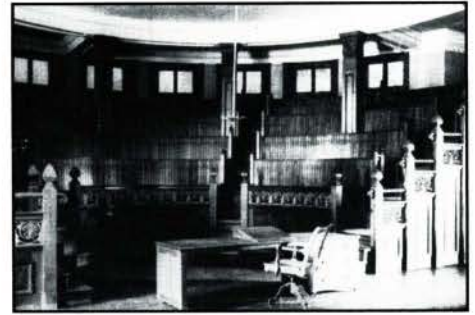


Figure 24 (top). The semi-circular lecture room of the Peter Redpath Museum provided the venue for Dawson's numerous lectures to McGill students and the public. (Notman Photographic Archives)

Figure 25 (bottom). The herbarium of the Peter Redpath Museum was initially used as a classroom for teaching botany. (Notman Photographic Archives)

Figure 26 (top left). The great hall of the Peter Redpath Museum was designed to allow the visitor to appreciate the impressive scope of God's work in a single glance, or to understand its diversity by studying the individual specimens, which together formed a fairly complete representation of the natural world. (Notman Photographic Archives)



Figure 27 (above). Abstract natural motifs were incorporated into the design of the iron grillwork, the oak casework and columns, and the plaster cornices and mouldings. (Detail from a photograph in Notman Photographic Archives)

Figure 28 (right). The inauguration of the Peter Redpath Museum, celebrated on 24 August 1882. (Canadian Illustrated News, 2 September 1882)



Hutchison & Steele ensured that the architecture and arrangement of the museum were in complete harmony. In the museum hall, for example, the glass-topped upright display cases of carved oak were placed in line with the square oak casements that surrounded the cast-iron columns and the perimeter wall, and the table cases were centred on the carefully proportioned windows between them; this allowed for the best possible lighting conditions for each and every specimen.⁴² Throughout the building, abstract natural motifs were selectively incorporated into the design of the iron grillwork, the oak casework and columns, and the plaster cornices and mouldings (figure 27). Although materials were modest and the embellishment was limited, the execution of the museum's interior, like that of its exterior, was carried out according to the highest standards of craftsmanship.

The museum's early years under Dawson

On 24 August 1882, the inauguration of the Peter Redpath Museum was celebrated by some 2,000 guests (figure 28) as part of the annual meeting of the American Association for the Advancement of Sciences, of which Dawson was president at the time. At this ceremony Chancellor Charles Dewey Day (1804-1884) officially dedicated the building by reinforcing Dawson's vision of the meaning of natural history:

We dedicate the Peter Redpath Museum to the study of the varied and wonderful manifestation of God's creation, and emphatically we dedicate it to the use of the earnest student, who in reverent questioning of the works of living nature, and in their records upon the stony tablets of a dead and buried world, seeks that vital truth, which, above all other things, it imports the immortal spirit of man to know.⁴³

For its first decade or so, McGill's museum of natural history flourished under the direction of its founder. Until his health gave out, Dawson went on scientific excursions in search of specimens to fill the gaps in the collections. Like Jameson and Owen before him, he used his specimens for teaching and research, and delivered frequent addresses to students and the public in his lecture theatre. He continued writing articles and books, and in 1890 he published his *Modern Ideas on Evolution*, an alternative to Darwin's theory of natural selection that took into account the possibility of divine intervention.⁴⁴

In 1893 the principal was forced to retire due to failing health. The death of Redpath the following year prompted him to write *In Memoriam: Peter Redpath*, which contains his most complete description of McGill's museum, "the greatest gift ever made by a Canadian to the cause of natural science, and up to this time, the noblest building dedicated to that end in the Dominion."⁴⁵ His own passing five years later, at the dawn of the 20th century, marked the end of his personal expression of his *museum idea* and the beginning of the idea's ongoing process of evolution.

THE EVOLUTION OF THE MUSEUM IDEA (1900-1990)

While numerous changes have taken place in the university around it, the Peter Redpath Museum, its exterior for the most part intact, has maintained its imposing presence on the

campus for more than a century. Its original interior architecture and arrangement, however, have undergone major alterations. After remaining virtually unchanged for almost seven decades, Dawson's and Hutchison's carefully considered design was modified to reflect an updated vision of the meaning of natural history and an expanded role for McGill's museum. Like the evolution of species, the evolution of the expression of Dawson's *museum idea* has implied a series of changes, some subtle and gradual, others drastic and rapid.

The modern museum movement

The first half of the 20th century witnessed major advancements in the approach to designing museums of natural history.⁴⁶ In fact, the new building type that had been developed in the 1860s and 1870s became obsolete almost as quickly as it had emerged. An examination of the design histories of the six American museums inaugurated prior to the Peter Redpath Museum reveals that the main reasons centred on new approaches to science, museums, and architecture.

Late 19th century advancements in the natural sciences, together with technological developments such as photography, sparked a new, more specialized and less field-oriented approach to the study of natural history.⁴⁷ The trend towards compartmentalization of the natural sciences continued, and new fields such as physics and chemistry emerged. Consequently, the collections of "science museums" (as natural history museums began to be called) were expanded to include not only newly discovered geological and biological specimens, but objects illustrating the principles of light, sound, heat, electricity, and atoms.

In terms of museum technique, the first four decades of the 20th century witnessed a series of new standards and the emergence of a new profession, both aimed at making museums more popular, educational, and self-supporting. Museum surveys conducted in the 1920s and 1930s brought to light the need for improvements in all aspects of museum work. The museum of the modern age was expected to attract a wider public by popularizing its shows and offering a series of special events, with emphasis on children's activities. According to the new generation of museum professionals, crowded cases of systematically ordered specimens were to be replaced by explanatory, story-telling exhibits, and scholarly scientific lectures by nature outings for all.

The architecture and arrangement of Victorian museums of natural history were affected by these and other developments. The expansion of collections, the redesign of exhibits, and the increased educational role of museums led to the need for new facilities: storage rooms, additional display space, and updated classrooms and laboratories. At the same time, the introduction of electric lighting resulted in the disappearance of the harmonious layouts that had prevailed in the days when specimens were to be viewed by natural light alone. Finally, advances in construction technology revealed that buildings that had been considered fireproof in the 1880s were not, in fact, so; to protect their cast-iron and wooden structures – not to mention their specimens, most of which were stored in alcohol, and some of which were irreplaceable – from damage or loss by fire was a costly proposition that implied tampering with the buildings' interior finishes.

The designs of most new museums of natural history constructed after the Peter Redpath Museum took into consideration these new scientific, museological, and architectural developments. More relevant to the story of McGill's museum, however, is the effect these new approaches had on its six American counterparts. Three of these museums modified and expanded their existing premises to meet the changing requirements: the Harvard University Museum underwent interior modifications and continued to grow, more or less according to the master plan of 1860 (**figure 18**), until its final phase was completed in 1915; the original wing of Philadelphia's Academy of Natural Sciences underwent a series of alterations and extensions in the early 1900s, carried out to suit the architectural, scientific, and museological preoccupations of the day; the same is true for the initial wing of the American Museum of Natural History, which was not only altered but engulfed by major additions in the 1890s, early 1900s, and 1930s (**figure 29**).

The outdated Victorian buildings occupied by the other three American museums were abandoned in favour of brand new constructions: the Smithsonian collections in the 1881 National Museum (**figure 16**) were moved into a new fireproof building styled according to the Beaux-Arts tradition in 1911; the new Peabody Museum (**figure 30**), with its reinforced concrete structure enclosed by a Collegiate Gothic skin, was inaugurated in 1925, seven years after the demolition of its 1876 forerunner (**figure 19**); and the Boston Society of Natural History sold its downtown building (**figure 15**) in 1946 and, after expanding its mission to become the new Museum of Science, moved into a brand new building in 1951.

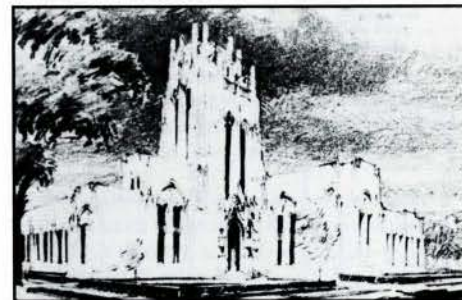


Figure 29 (top). By 1939, the 1877 wing of the American Museum of Natural History in New York (the central section behind the new main entrance on 77th Street, parallel to Central Park West) was not only modified, but engulfed by additions, each designed according to the scientific, museological, and architectural conventions of the day. (Roy Waldo Miner, General Guide to the Exhibition Halls of the American Museum of Natural History (New York: American Museum of Natural History, 1943))

Figure 30 (bottom). Yale's new Peabody Museum, a reinforced concrete structure designed and arranged according to the principles of the modern museum movement, was inaugurated in 1925. (Discovery [Peabody Museum of Natural History] 14, no. 2 (1979): 35)

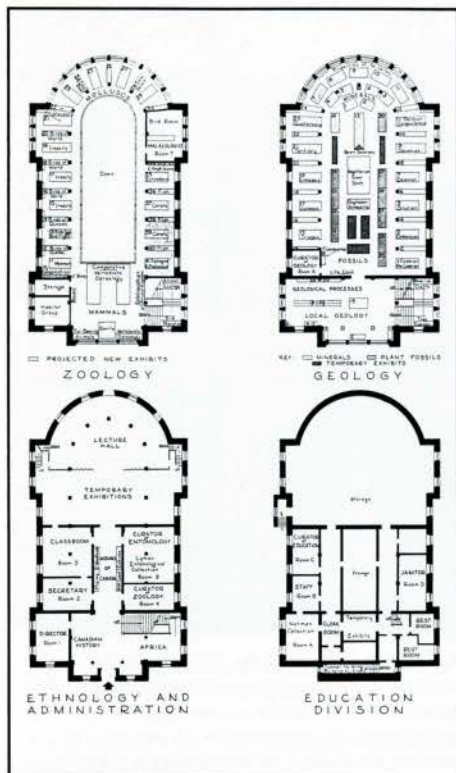


Figure 31. During the 1950s an ambitious facelift programme was carried out at the Redpath Museum under the direction of Alice Johannsen. Although this involved the introduction of new temporary exhibits, the painting of the walls, and the simplification of its architectural fittings, the modifications to the museum's layout were minor and many of the original design intentions were respected. (Redpath Museum, McGill University: Guide (Montreal, 1958))

“Conservation in inertia” at McGill’s museum

While its American contemporaries struggled to upgrade in response to changing approaches to science, architecture, and museology, the Peter Redpath Museum remained virtually intact throughout the first half of the 20th century. This is not to say that McGill, which by 1930 possessed sixteen different museums, was unaware of the developments in these fields. In fact, the university’s curator of museums, E. Lionel Judah (1881-1967), was one of Canada’s most knowledgeable proponents of modern museum technique.⁴⁸ Since many of his own recommendations were not followed, however, Judah was pleased when, in 1932, the university commissioned Dr. Cyril Fox, Director of the National Museum of Wales, to “undertake a detailed survey and make recommendations as to what should be the policy, future development, and building programme for a modern university museum.”⁴⁹

In his report, Fox candidly pointed out that “the character and condition of the Peter Redpath Museum is unsatisfactory and discredits the University which owns and controls it.” Although he reacted favourably to some of the new exhibits, he noted that “many cases have probably not been touched in forty years.”⁵⁰ Disturbed as he was by its state of neglect, the Welsh museum expert recognized the historical value of the museum’s arrangement and fittings:

Since the Peter Redpath Museum contains all its original case fittings practically unaltered, and since its collections for the most part represent Museum technique as it was in the nineteenth century, it forms a remarkably complete and unusual example of conservation in inertia in this educational field.⁵¹

He showed the same sense of appreciation for the historical value of the museum’s architecture when he claimed that it was:

... the most scholarly, the most distinguished, the most beautiful building in the University, in a finely chosen position which gives an air of Athenian dignity to the Campus, hinting most fittingly at the dependence of the University spirit upon the Greek tradition. It is an historic document, marking a phase in cultural evolution as expressed in architecture, as well as a thing of beauty.⁵²

Historical appreciation aside, Fox was a modern museologist. Noting that the museum structure was not fireproof and that there was no lighting system, he proceeded to recommend that “the use of the Peter Redpath building as a Natural History Museum be given up,” and that “a new Museum building is absolutely and urgently necessary.”⁵³ Despite enthusiastic response to Fox’s report by the principal⁵⁴ and museum personnel, the time was not ripe for McGill to invest in the construction of a new museum building, given that the country was in the midst of the Depression. The *Survey* did, however, result in the implementation of a series of new explanatory exhibits and some minor improvements to the museum’s facilities during the 1930s and 1940s.⁵⁵

The “metamorphosis” of the Redpath Museum

The appointment of Alice Johannsen as director of the McGill museums⁵⁶ in 1950 led to major changes aimed at updating the interior architecture and arrangement of the Redpath Museum (as it came to be called during this era). Johannsen, who possessed a dynamic personality and museum experience in the United States, Europe, and other parts of Canada, had worked in the university’s museums since 1939.⁵⁷ She was anxious to update the tired expression of Dawson’s *museum idea* to reflect her own more modern vision. Since her limited funding, much of which she raised by means of new programmes, did not allow for the construction of a new museum building, Johannsen worked with the space available inside the existing edifice. An avid writer, she documented most of the changes imposed during the 1950s; in addition to her frequent contributions to *The McGill News*, she prepared an illustrated album explaining the rationale behind the proposed facelift.⁵⁸ These records and her visitor’s guides, which were complete with descriptions and (for the first time) plans of the museum’s arrangement (figure 31), provide an invaluable record of the evolution of the museum’s design during this transitional period of its history.

One of Johannsen’s first interventions was the installation of a lighting system in the museum hall. Realizing that she would not be able to follow the latest trend in museum design – which was “to eliminate all natural light in the galleries, relying solely on properly placed, controlled artificial illumination”⁵⁹ – she made use of the building’s shutters and introduced a series of inexpensive spotlights on the ceilings and walls and fluorescent fixtures in the cases. For the first time since the gas jets had been turned off in the 1920s, it was possible to enjoy the museum without a flashlight on dark winter afternoons.

To complement this practical improvement, Johannsen painted over the deep



Figure 32 (above). During the 1940s, 1950s, and 1960s the Redpath Museum's new explanatory exhibitions attracted school children in droves; this view of the entrance hall shows the new metal cases that were added to allow the display of the ethnology collections. (Notman Photographic Archives)

Figure 33 (left). Although the exterior of the Redpath Museum remains largely intact, the original design of the interior is difficult to appreciate due to the rearrangement of exhibits and the addition of numerous finishes and partitions. (Susan Bronson, 1990)

Victorian hues of the museum's walls, dingy with age and stained by the gas jets, according to a special colour scheme that related to the collections. The ground floor hall, which housed the expanded ethnology collection in new metal cases (figure 32), was painted pale yellow; blue provided the backdrop for the geology exhibits on the lower level of the museum hall; and green was chosen for the zoological collections on the gallery above. She justified this cheerful departure from the original drabness by pointing out that "The colours, quite apart from any psychological value, add tremendously to the attractiveness of the museum and serve to accent the specimens to a remarkable degree."⁶⁰

In keeping with the simplified detail and clean architectural lines of the Modern movement, many of the carefully designed Victorian fittings were simplified:

Ornate decoration, in vogue when the building was opened in 1882, drew more attention to itself than to the exhibits. As part of the current simplification program, ponderous newels on the railing and crenellations on the case-tops have been removed.⁶¹

The facelift extended to exhibits. "By placing the greater part of the collection in accessible storage for consultation by specialists," Johannsen suggested, "much needed exhibition space would be released for public displays of more general interest."⁶² Temporary shows were designed to lure visitors who would otherwise never set foot in the museum, and many of Dawson's crowded specimen-filled cases were reorganized into new-style story-telling exhibits that were understandable to the school children who constituted a growing percentage of the museum's audience during those years. This particular aspect of the museum's evolution represented a major shift from Dawson's and Redpath's vision of its primary role "as a teaching institution and a laboratory of original research"⁶³ first and foremost "for the professors and students of McGill."⁶⁴ After a decade or so the university became concerned about this development, and in 1959 a committee was appointed to look into the issue; the report issued the following year concluded that "the University Museums should serve the needs of the University first, and engage in outside service with caution."⁶⁵

It did not come as a surprise in 1970 that McGill decided to close the Redpath Museum to the public; this move was related to reduced provincial funding and major cut-backs in university spending. But there is no question that the inherent conflict between the museum's enlarged public vocation and its original obligation to the university played a role in the decision.

In order to meet the research and instruction needs of McGill students and professors the Redpath Museum has undergone, during the last two decades, a further metamorphosis. Partitions now divide the once generously proportioned, light-filled museum hall (figure 33) into a smaller, darker exhibition space surrounded by much-needed storage rooms, laboratories, and offices. Dawson's arrangement of specimens representing God's work has been dispersed into various storage units in the museum's basement, though a few of the original oak cases have been spared. On the ground floor, new walls and suspended ceilings have altered the proportions and compromised the elegance of the original rooms; the symmetry of the carefully designed lecture room has been destroyed by the insertion of

an exit stair, and the need to expand the adjacent laboratory and offices has robbed the room of the transepts where Dawson displayed the specimens he required for demonstration in his lectures.

By 1990 it was clear that these drastic modifications had failed to provide the Redpath Museum with acceptable conditions for the scientists, curators, researchers, teaching staff, and students who worked there. Nor did its facilities meet the increasingly demanding museum standards for the conservation, storage, and exhibition of natural history collections, or other contemporary requirements such as security and safety, public programming, and operational viability. While the museum's exterior has remained reasonably true to Dawson's vision of McGill's museum, its interior architecture and arrangement present a candid and revealing testimony of the university's changing priorities in the fields of the natural sciences, museum techniques, and architecture over the past century.

CONCLUSION

The expression of Dawson's *museum idea* continues to evolve, but this part of the story ends in 1990, the year the university published a study proposing an ambitious preservation/expansion scheme for the Redpath Museum.⁶⁶ If the project proceeds, the challenge will be to develop an appropriate philosophy to guide this transformation and future interventions. The story of the genesis, expression, and evolution of the museum's design suggests at least four major ideas for consideration in the establishment of this philosophy.

The first and most obvious idea is that McGill's museum has a fascinating story to tell, and its preservation should allow it to do so. This does not mean that the long-lost formal features of the building's original design must be recreated in their Victorian splendour, erasing all subsequent interventions and compromising all future possibilities. A more philosophically valid and financially viable way to tell the story of the museum's design would be to dedicate a part of the building to a modest permanent exhibition illustrating the two centuries of ideas about science, architecture, and museums that are embodied in its own design history. The remainder of the museum could be respectfully refurbished to accommodate its newly defined contemporary role in the preservation, presentation, and propagation of the knowledge of natural history.

The second idea for consideration is that the philosophy should involve extending and updating Dawson's *museum idea*. That is, it should address the present-day meaning of natural history, which ranges from global issues (such as the environment) affecting us all, to specialized research (such as biogenetics) aimed at enlightening advanced medical research. As for the role of McGill's museum in the preservation, presentation, and propagation of the knowledge of natural history, the redefined mission should obviously address questions such as the museum's place in the local, national, and international museum and scientific networks, its obligations to the university and to the public, its operational budget, and its long-term objectives.

Third, the philosophy might aim to place emphasis on the restoration of certain commendable *principles* that distinguished the museum's original design, rather than on the replication lost formal features that are incompatible with its contemporary role. It should, for example, be possible to re-establish a harmonious relationship between the museum's architecture and its internal arrangement, to strike an appropriate balance between high quality design and financially viable solutions, and to establish realistic guidelines for the scope and design of each intervention.

Finally, the design history of the Peter Redpath Museum embodies important lessons that can be applied to its future. Dawson's most serious oversight was his failure to address some of the new ideas about science, architecture, and museums that were exemplified by other museums of natural history of his day – in particular, the need to allow for expansion and flexibility to accommodate changing approaches to the meaning of natural history and the role of museums. The possibility of refurbishing the Peter Redpath Museum at this point in time presents an opportunity for McGill to make a positive contribution to the most current thinking about museums, natural history, and architectural conservation. Clearly, this process, which involves considerable research and discussion as well as collaboration between many disciplines, cannot be rushed. The Peter Redpath Museum is a national treasure, and deserves to be treated as such.

Endnotes

- 1 More detail on all aspects of this paper, as well as a complete list of bibliographic sources, can be found in the thesis upon which it is based: Susan Bronson, "The Design of the Peter Redpath Museum at McGill University: The Genesis, Expression and Evolution of An Idea About Natural History," M.Sc.A. thesis, Faculté de l'aménagement, Université de Montréal, January 1992. A copy of this document (June 1992) has been deposited in the Blackader-Lauterman Library of Architecture and Art, McGill University.
- 2 For the purposes of this article, the term "design" will be used in its all-encompassing sense. The design of a museum of natural history, for example, refers not only to its architecture – the formal expression, massing, proportion, plan, and so on – but also to its architectural and scientific arrangement – the disposition of, and relationships between, its various furnishings, fittings, and specimens.
- 3 The knowledge of natural history is "preserved" by the formation and care of collections of specimens representing the natural world; it is "presented" by the arrangement and display of these specimens in an organized manner that shows their relationships and illustrates scientific ideas; finally, knowledge is "propagated" through research, teaching, and publication.
- 4 The antique origins of museums of natural history and the concept of the cabinet of natural curiosities are discussed in the following sources, among others: Sir William Henry Flower, *Essays on Museums and Other Subjects Connected with Natural History* (1898; rep. ed. Freeport, N.Y.: Books for Libraries Press, 1972); David Murray, *Museums: Their History and Their Use*, vol. 1 (London: J Maclehose & Sons, 1904); Susan Sheets-Pyenson, *Cathedrals of Science: The Development of Colonial Natural History Museums during the Late Nineteenth Century* (Montreal and Kingston: McGill-Queen's University Press, 1988).
- 5 This period in the history of the natural sciences is eloquently discussed in Lynn Barber, *The Heyday of Natural History, 1820-1870* (Garden City, N.Y.: Doubleday, 1980).
- 6 Most of the information about the life of William (as he was generally called) Dawson can be found in his autobiographical notes published two years after his death: John William Dawson, *Fifty Years Work in Canada: Scientific and Educational*, ed. Rankine Dawson (London and Edinburgh: Ballantyne, Hanson & Co., 1901) (hereafter cited as *Fifty Years*). In addition, an insightful account of Dawson's life and his role at McGill is provided in volume 1 (1801-1895) of Stanley Brice Frost, *McGill University and the Advancement of Learning* (Montreal: McGill-Queen's University Press, 1980).
- 7 This conviction, called "natural theology," and its effect on the thinking of Dawson and his Canadian contemporaries is discussed in Carl Berger, *Science, God and Nature in Victorian Canada* (Toronto: University of Toronto Press, 1983); Luc Chartrand, Raymond Duchesne et Yves Gingras, *Histoire des sciences au Québec* (Montréal: Boréal, 1987); T.H. Clark, "Sir John William Dawson, 1820-1899," in G.F.G. Stanley, ed., *Pioneers of Canadian Science*, A symposium presented to the Royal Canadian Society of Canada in 1964 (Toronto: University of Toronto Press for the Society, 1966); John Cornell, "Sir William Dawson and the Theory of Evolution," M.A. thesis, McGill University, 1977; Charles F. O'Brien, *Sir William Dawson: A Life in Science and Religion* (Philadelphia: American Philosophical Society, 1971).
- 8 Further information on the Pictou Academy can be found in Marjory Whitelaw, *Thomas McCulloch: His Life and Times* (Halifax: Nova Scotia Museum, 1985); Joseph Howe, *Western and Eastern Rambles: Travel Sketches of Nova Scotia*, ed. M.G. Parks (Toronto: University of Toronto Press, 1973), a reprint of Howe's writings in 1830-31.
- 9 Minutes of Meetings, 1880-1891 (file on Redpath Museum in McGill University Archives), p. 6. Other specimens from McCulloch's collection, many still mounted according to "Audubon style," are housed in the Thomas McCulloch Museum, Biology Department, Dalhousie University.
- 10 Sources on the University of Edinburgh during the first half of the 19th century include Andrew G. Fraser, *The Buildings of Old College: Adam, Playfair and the University of Edinburgh* (Edinburgh: Edinburgh University Press, 1989); D.B. Horn, *A Short History of the University of Edinburgh, 1556-1889* (Edinburgh: The University Press, 1967).
- 11 Dawson believed that Charles Lyell, author of the revolutionary *Principles of Geology* (1830-33), "more than any other man gave form to modern geological science." *Fifty Years*, 50. It was Lyell who introduced Dawson to Sir Edmund Head, who later invited him to become principal of McGill, and to Richard Owen, who advised him on the university's natural history programme.
- 12 William Edmond Logan was the Montreal-born, self-taught geologist who, Dawson felt, was responsible for giving "the first great impulse to the systematic geology of the older rocks of the North American continent." *Fifty Years*, 50. He was the founding director of the Geological Survey of the Province in Canada. The 1878 decision to relocate the Survey from Montreal to Ottawa was one of the factors that prompted the creation of the Peter Redpath Museum, and it was thanks to Logan's foresight, aided by Dawson's persistence, that McGill's museum would eventually acquire the Survey's duplicates, and be able to purchase, through the Logan Memorial Fund, such treasures as the cast of the British Museum's Megatherium.
- 13 The most informative and insightful account of the history of McGill University is Stanley Brice Frost, *McGill University and the Advancement of Learning*, 2 vols. (Montreal: McGill-Queen's University Press, 1980, 1984).
- 14 *Fifty Years*, 98.
- 15 Owen's pamphlet to promote the idea of building a new museum for the natural history departments of the British Museum is an extraordinarily rich source about the Victorian notion of the museum of natural history. Richard Owen, "On the Extent and Aims of a National Museum of Natural History" (London: Saunders, Otley, & Co., 1862).
- 16 The design and early history of McGill's first two buildings, which represented the first phase of the "central college complex" (now the Arts Building), is discussed in Ellen James, *John Ostell, Architect, Surveyor* (Montreal: McCord Museum, McGill University, 1985).
- 17 The early history of the Peter Redpath Museum and the factors leading to its creation are also discussed by Susan Sheets-Pyenson, *Cathedrals of Science*, and in "Stones, Bones and Skeletons: The Origins and Early Development of the Peter Redpath Museum (1882-1912)," *McGill Journal of Education* 17 (winter 1982).
- 18 The theory of natural selection, which was independently developed by Charles Darwin and Alfred Russel Wallace, brought the science-religion controversy to a new level of debate. In *Origin of Species* and subsequent publications, Darwin provided convincing scientific evidence for the concept that every species evolved, and that it was due to the somewhat random process of natural selection – not to a grand design that was controlled by divine intervention – that some species died out and others adapted.
- 19 Dawson's published articles promoting the idea of a new museum of natural history for McGill included "Notes on a Visit to Scientific Schools and Museums in the United States," *Canadian Naturalist*, 1869; "Plea for the Extension of University Education in Canada and More Especially in Connection with McGill University, Montreal" (Montreal: Office of John C. Becket, 1870); "Science Education Abroad: A Lecture" (Being the Annual University Lecture of the Session 1870-71, delivered in the William Molson Hall, November 18, 1870) (Montreal: Gazette Steam Printing House, 1870).
- 20 The architecture of the Oxford University Museum is described and analyzed in Eve Blau, *Ruskinian Gothic: The Architecture of Deane and Woodward, 1845-1861* (Princeton, N.J.: Princeton University Press, 1982).
- 21 One of the best of several good sources on the British Museum (Natural History) in South Kensington is Mark Girouard, *Alfred Waterhouse and the Natural History Museum* (New Haven, Conn., and London, Eng.: Yale University Press and the British Museum (Natural History), 1983).
- 22 Numerous primary and secondary sources were consulted for each of these six American museums of natural history. Among the most useful references, and one of few that discusses all of them, is Valentine Ball, "Report on Museums in America and Canada" (Extracted from the Report of the Science and Art Department, Appendix M [Special Reports]) (Dublin, 1884).
- 23 The zoology department of the Harvard University Museum was, and still is, often referred to as the Agassiz Museum of Comparative Zoology, named after its founder, the Swiss scientist Louis Agassiz (1807-1873); the U-shaped complex also houses the Peabody Museum of Archaeology and rooms for the other departments of natural history.
- 24 Yale refers to this building as the "old" Peabody Museum because it was demolished in 1917 and replaced by the present-day Peabody Museum (1925) on a different site.
- 25 The "first" National Museum was constructed in 1881 to house the natural history collections of the Smithsonian Institution; this building now houses the Arts and Industries collections. The science collections are housed in the present-day National Museum.
- 26 Walter H. Kilham, *Boston After Bulfinch: An Account of Its Architecture, 1800-1900* (Cambridge, Mass.: Harvard University Press, 1946), 70.
- 27 Of the six American museums, only two – the Boston Society of Natural History (1864) and the National Museum (1881) – were not conceived as multi-phase projects.
- 28 Notes and correspondence of John Bland, file on the Redpath Museum, Canadian Architecture Collection, Blackader-Lauterman Library of Architecture and Art, McGill University.
- 29 To date, there are no comprehensive published accounts of Hutchison's architectural career, but references to his life and his work can be found in a wide range of sources, a list of which is far too long to cite here. The writer is currently conducting research on this subject and an article summarizing its results will be published in an upcoming issue of the *Bulletin*.
- 30 Hutchison worked in association with a number of other architects during his 60-year career, including

- Henri-Maurice Perrault (1857-1909) in the 1870s for Montreal City Hall, Alexander Denton Steele (1840-1891), his son-in-law George W. Wood (1863-1941), his son William Burnet Hutchison (1865-1959), John Melville Miller (1875-1948), and his grandson Alexander Campbell Wood (1887-1959). Notes of John Bland, file on A.C. Hutchison in the Canadian Architecture Collection, Blackader-Lauterman Library of Architecture and Art, McGill University).
- 31 Among the 60-odd Montreal commissions in which Hutchison was involved were the Ives & Allen Warehouse (1864-72), the Harbour Commissioners' Building (1875), the ice palaces of the 1880s, the Erskine Presbyterian Church (1894), the headquarters of La Presse (1899), the Canadian Express Building (1900), the Shaughnessy Building (1912), and Macdonald College (1905-34), to name a few. He was also involved in the design and construction of town and country houses for several of his corporate clients.
- 32 Redpath resided in England from 1880 until the end of his life, but made occasional visits to Montreal, where he maintained business interests. His letters to Dawson about the progress of the museum, many of which are safeguarded in the McGill University Archives, provide revealing insight into the construction process.
- 33 As reported in *The Montreal Gazette*, and quoted by Dawson in *In Memoriam: Peter Redpath* (Montreal: "Witness" Printing House for McGill University, 1894), 21-23 (hereafter cited as *In Memoriam*).
- 34 *Ibid.*
- 35 Montreal's most prominent examples of the Greek Revival style – including John Wells's Bank of Montreal (1848), William Footner's Bonsecours Market (1853), and John Ostell's Custom House (1836) and Court House (1856) – were by this time at least 25 years old.
- 36 In 1891 the Peter Redpath Museum was selected as one of the two Canadian buildings illustrated in the third revised edition of James Fergusson's widely read *History of Modern Styles in Architecture*. This honour, which was shared with Thomas Fuller's Parliamentary Library in Ottawa (1859-77), was explained as follows: "Numerous interesting examples might of course be given of good modern work in Canada, but these two will suffice to satisfy the reader of the superiority of the best of it." Its significance was downplayed somewhat by the ambiguity of the accompanying text: "The building at McGill University, Montreal, represents very fairly a sufficiently graceful treatment of Classic – indeed of Neo-Grec, although scarcely in French form – on a somewhat academical ground. The reader will find several indications of that kind of independent thought that is characteristically American." James Fergusson, *History of Modern Styles in Architecture*, 3rd ed., revised by Robin Kerr (London: John Murray, 1891), 2:170-71.
- 37 Hutchison's scheme for the university is discussed in John Bland, "In Advance of all the Others," *The McGill News*, summer 1962, 9; Dawson, *In Memoriam*, 23; Minutes of Meetings, 1880-1891 (file on Redpath Museum in McGill University Archives), p. 10.
- 38 A critique of the museum's principal façade is provided in Rhodri W. Liscombe, "The Peter Redpath Museum, An Architectural Analysis," *Fontanus* 1 (1988). With reference to Kerr's citation of McGill's museum in Fergusson's book, Liscombe suggests that "The critique is one of many instances of Kerr's condoning historicist architecture and expressing admiration for the contemporary North American design which differed markedly from the views that Fergusson had given in the second edition of his book. For Kerr not only brought the text up to date by adding a quantity of new material, but also questioned Fergusson's radical and critical analysis of nineteenth century architecture." *Ibid.*, 56.
- 39 Although little remains today of the museum's original scientific arrangement representing God's handiwork, we are able to appreciate the religious aspect of its design and its importance in influencing the building's architecture thanks to Dawson's detailed descriptions in such publications as *Report on the Peter Redpath Museum of McGill University, No. II* (January 1883); *Guide to Visitors to the Peter Redpath Museum of McGill University* (1885); and *In Memoriam*. Copies of these documents are in the McGill University Archives.
- Although the Canadian Architecture Collection of the Blackader-Lauterman Library of Art and Architecture possesses blueprints of the original sectional and elevational drawings, no copies of the original plans have been located to date. Photographs in the Notman Photographic Archives, McCord Museum of Canadian History, however, are helpful records of the museum's arrangement and the layout of the specimens during its first few decades.
- 40 Frost, *McGill University*, 1:178.
- 41 *Guide to Visitors to the Peter Redpath Museum of McGill University* (Montreal: McGill University, 1885).
- 42 Most Victorian museums were designed so that the collections could be viewed by daylight alone. Those that possessed supplementary gas lighting including the Peter Redpath Museum, tended to use it only when the museum was open at night.
- 43 "The Peter Redpath Museum Formal Opening of the Building," *The Montreal Gazette*, 25 August 1882.
- 44 John William Dawson, *Modern Ideas on Evolution* (1890; rep. ed. Montreal: Academic Publications for the University, 1977).
- 45 *Fifty Years*, 174.
- 46 Among the best sources on the modern museum movement are Laurence Vail Coleman, *The Museum in America: A Critical Study*, 3 vols. (Washington, D.C.: American Museums Association, 1939), and Alfred Eide Parr, *Mostly About Museums* (New York: American Museum of Natural History, 1959), a collection of articles written between 1939 and 1958.
- 47 The turn of the century developments in science and their impact on the Peter Redpath Museum and other Victorian museums of natural history are eloquently explained by Susan Sheets-Pyenson in *Cathedrals of Science*.
- 48 The career of E. Lionel Judah, who had started his museum career in 1896 as a lab boy in the Peter Redpath Museum, is discussed in Paul Carle et Michèle Metzner, "Lionel E. Judah et la formation en muséologie au Canada," *Muse* 8, no. 4 (winter 1991).
- 49 Introduction by Principal Arthur Currie in Cyril Fox, *A Survey of McGill University Museums* (Montreal: McGill University, 1932), 3.
- 50 Fox, *Survey*, 19.
- 51 *Ibid.*, 20.
- 52 *Ibid.*, 27.
- 53 *Ibid.*, 26.
- 54 In his introduction to Fox's *Survey*, Principal Currie reinforced Fox's recommendations by stating that "it is now plain that further additions of material, so necessary for the growth and development of our museums, will embarrass, rather than assist, the work of the University, unless proper facilities for housing and exhibition are at the same time provided." *Ibid.*, 3.
- 55 The history of the Peter Redpath Museum during the 1930s and 1940s is documented in notes and reports in the McGill University Archives, as well as the following recent articles: Paul Carle et Michèle Metzner, "Lionel E. Judah et la formation en muséologie au Canada," *Muse* 8, no. 4 (winter 1991): 74; Paul Carle et Alain Mongeau, "La difficile naissance d'une muséologie scientifique moderne: Le cas de l'Université McGill et du Musée Redpath pendant la première moitié du XX^e siècle," *Musées* 11, no. 1 & 2 (1989).
- 56 The years during which Johannsen was involved in McGill's museums are well documented in numerous reports, letters, guides, and photographs in the McGill University Archives, as well as several articles she wrote for *The McGill News* and an essay entitled "As the Twig is Bent" in Margaret Gillett and Kay Sibbald, eds., *A Fair Shake: Autobiographical Essays by McGill Women* (Montreal: Eden Press, 1984). In addition, more recent published articles include Paul Carle, Madeleine Dufresne, Alain Mongeau et Lynne Teather, "Le Mouvement de modernisation des musées scientifiques au XX^e siècle: Le cas du Musée Redpath de l'Université McGill," *Fontanus* 3 (1990); Paul Carle, Alain Mongeau et Lynne Teather, "La difficile naissance d'une muséologie scientifique au XX^e siècle: Le cas de l'Université McGill et du Musée Redpath pendant la première moitié du XX^e siècle," *Musées* 11, no. 1 & 2 (1989); Paul Carle, Madeleine Dufresne et Lynne Teather, "Le Musée Redpath de 1940 à 1970: Les années Johannsen," *Musées* 11, no. 1 & 2 (1989).
- 57 Johannsen had a long and prolific career in museum work. Besides playing a key role in the establishment of the Canadian Museums Association in 1947 and the Province of Quebec Museums Association in 1958, she was actively involved in the American and British museums associations.
- 58 This album, entitled "McGill University: Redpath Museum, 1950," is now in the McGill University Archives (Acc. No. 1476, Box 3).
- 59 "McGill University: Redpath Museum, 1950."
- 60 Alice Johannsen, "Keeping Up With the Times," *The McGill News*, spring 1950.
- 61 "McGill University: Redpath Museum, 1950."
- 62 *Ibid.*
- 63 From Dawson's address at the ceremony during which the cornerstone was laid, 22 September 1880. *In Memoriam*, 21-23.
- 64 From Redpath's address, 22 September 1880. *Ibid.*
- 65 Quoted from "Report of the Committee Appointed by Senate on 18 March 1959 to Consider the Recommendations of the University Museums Committee" in Paul Carle, Madeleine Dufresne, Alain Mongeau et Lynne Teather, "Le mouvement des musées scientifiques au XX^e siècle: Le cas du Musée Redpath de l'Université McGill," *Fontanus* 3 (1990): 98.
- 66 McGill University, "Mother of Museums: Redpath Museum, McGill University – Study of Future Vocations" (Montreal: Instructional Communications Centre (ICC), McGill University, May 1990).

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