

### *Notes and Comments*

Construction began in the late summer of 1967 for a building whose initial contracts called for expenditures of \$5,900,000.<sup>3</sup> Although an October 1968 opening was hoped for, the actual date was January 21, 1969. Eleven days earlier on January 10, Redpath Library was closed and a crew of 190 people worked on twenty-four hour a day shifts moving out all the books and furniture and leaving an empty shell. Its interior was subsequently gutted and rebuilt during 1969-1970 to accommodate the Undergraduate Library in the three lower stories and the Blacker-Wood and Blackader-Lauterman Libraries in the upper stories. Although the Undergraduate Library was disbanded in the late 1980s, the spatial configuration of Redpath remains much the same.

The total cost of building McLennan Library was eventually \$7,430,000: \$3,050,000 from the estate of Isabella McLennan and other bequests, \$2,880,000 from the government of Quebec and \$1,600,000 from the Canada Council.<sup>4</sup> Although this was a great deal of money at the time, by 1994 standards it seems relatively modest. McGill continues to enjoy a main library whose total stack and user capacity has yet to be exhausted. It also enjoys an outstanding building whose internal convenience and external prominence continue to attract attention and comment.

One question still remains. When will a plaque be unveiled commemorating Isabella McLennan, the McLennan Family, and the Library's formal opening on June 6, 1969?

### **Notes**

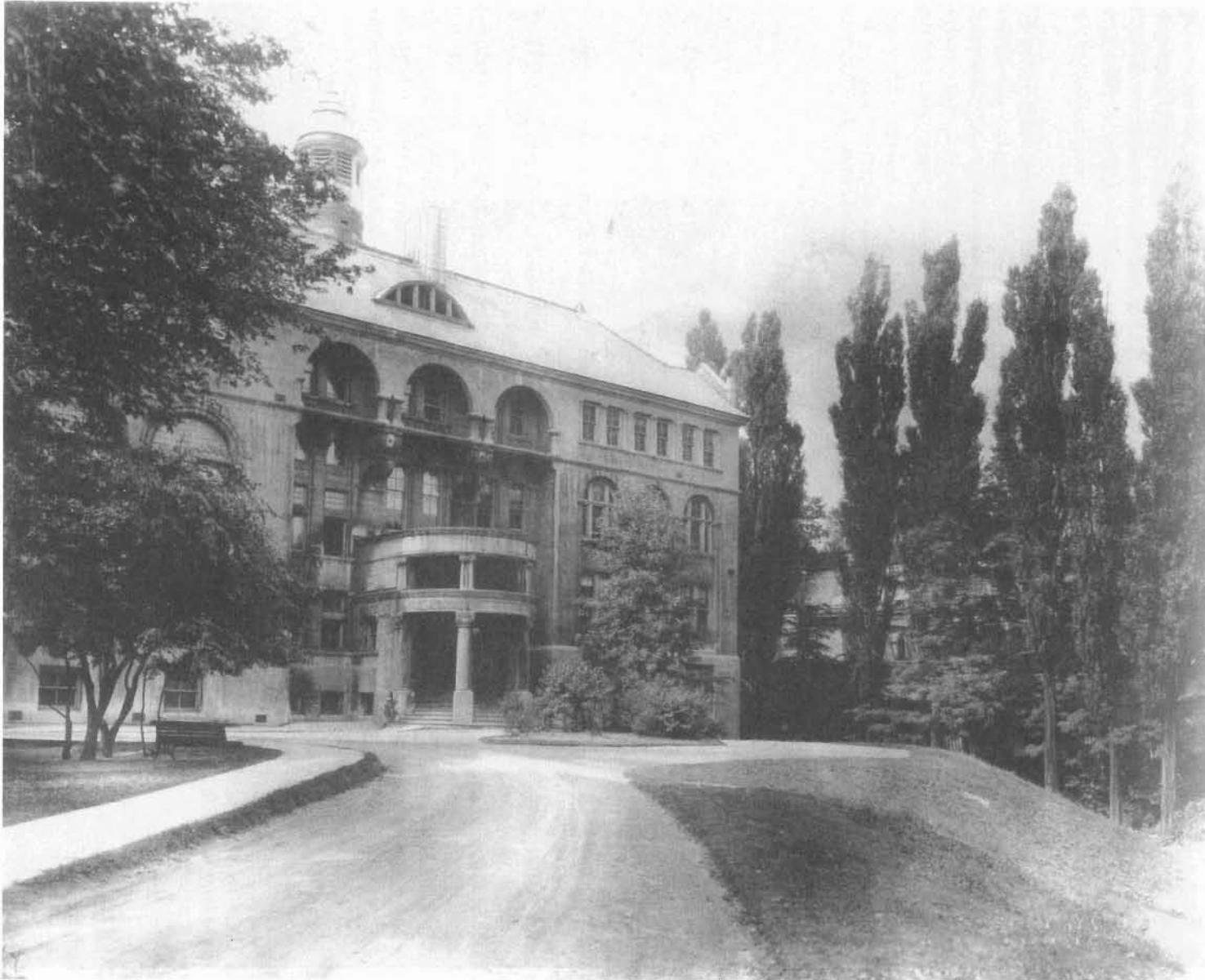
1. The author acknowledges with gratitude the assistance of Mr. David Bourke in writing this article. Also of assistance were the following records: McGill University Archives. RG40 Library. Files 621-623 container 0174, and file 647 container 0175; McLennan Library, Department of Rare Books and Special Collections. Alphabetical files, McLennan Library.
2. Peter F. McNally, "Dignified and picturesque: Redpath Library in 1893," *Fontanus*, v. VI (1993), 69-84.
3. "New McGill library designed to break 'bottle-neck' in learning process," *Montreal Star*, (August 12, 1967), 23.
4. "The McLennan Library," *McGill Alma Mater Fund Newsletter*, v. 1, no. 2 (February 1969), 3.

## **Macdonald Physics Building: 1893-1993**

**By Montague Cohen**  
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This year is the centenary of the opening of three important buildings on the downtown campus: the Macdonald Physics Building, the Macdonald Engineering Building and Redpath Hall. Only the first of these (Figure 1) will be discussed in this article.

The teaching of physics at McGill began in 1854, when the Department of Mathematics and Natural Philosophy was set up. However, little progress was made in teaching 'practical science' before 1878, when the Faculty of Applied Science was inaugurated, with Henry T. Bovey, Professor of Civil Engineering, as Dean. The next step was taken in 1891, when Sir William Macdonald endowed a chair of physics and John Cox, a Fellow of Trinity College, Cambridge, was appointed as the first incumbent. Macdonald also provided generous funds for erecting and equipping a physics building and Cox was asked to visit laboratories in Europe and America to garner ideas as to the design and furnishing of such a building. The architect chosen was Andrew T. Taylor.



Macdonald Physics Building, ca. 1900  
(McGill University Archives)

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The Macdonald Physics Building was formally opened on February 24, 1893 by the Governor General of Canada, Lord Stanley. The building was considered to be the finest of its kind in North America - perhaps in the world - thanks to Macdonald's "everything of the best" philosophy. It was designed in Romanesque style and constructed of Montreal limestone lined with pressed brick, and with woodwork of quartered oak. The walls were three feet thick at the base. In order to facilitate experiments in electromagnetism (an important field in the 1890s) some parts of the building, including the magnificent quartered oak stairway, were constructed entirely with the use of iron. The main entrance hall (now no longer used as such) was provided with an elegant stone fireplace inscribed with the motto "Prove All Things." (Figure 2) The cost of the building, excluding equipment, was £29,000 (\$145,000), i.e. about 23¢ a cubit foot.

According to Arthur Stewart Eve (who came to McGill from England in 1903 and was Chairman of the Physics Department from 1919 to 1935), the Macdonald Physics Building was intended "to meet the requirements of the ensuing fifty years." (Eve, *Nature*, July 19, 1906.) In fact, the building served as a physics teaching and research centre for over 80 years and still functions well, albeit in a different role.

However, a building alone does not constitute a university department, particularly a science department. Accordingly, Macdonald instructed Cox to prepare estimates for equipment and apparatus for the new laboratories. Cox submitted a request for £5,000 in response to which £6,000 was provided! Moreover, this was not the end and, in fact, the purchase of equipment continued until 1897, by which time £22,000 had been spent and the Physics Building was deemed to be "fully equipped." However, Macdonald continued to make grants from time to time for special purchases such as radium, a liquid-air machine, and books.

Perhaps most important of all, Macdonald provided funds for staffing the new department (although it was not formally designated as such until much later). In particular, he endowed a second chair, this time in experimental physics. The first incumbent was Hugh L. Callendar, also from Cambridge, who quickly established himself as a world authority on the physics of heat. Callendar specialized in high-precision measurements of thermal quantities and his platinum-resistance thermometer became widely accepted as the standard for the measurement of temperature.

Early in February, 1896, little more than a month after the discovery of X-rays by Wilhelm Conrad Roentgen in Germany was announced to the world, Professor Cox set up the equipment for the production of the radiation in the Macdonald Physics Building and succeeded in making the first radiographs in Canada. These early X-ray photographs included the first clinical radiograph in North America (of a bullet lodged in a young man's leg) to be used as an aid to a surgical procedure (for removing the bullet) and reproduced in a scientific journal: *Montreal Journal of Medicine*, March 1896.

In 1898 Callendar left McGill and the vacant post was filled by a young New Zealand physicist who had just completed three years of graduate research in the Cavendish Laboratory, Cambridge. During his nine years at McGill (1898-1907), Ernest Rutherford carried out pioneering research in the newly discovered field of radioactivity. He established the nature of the radioactive process, the exponential law of radioactive decay, the details of the uranium-radium series and the nature of the alpha-particle. Rutherford's work at McGill laid the essential foundation on which he later (1910) constructed the nuclear model of the atom, the basis of the 'atomic age.' Ernest Rutherford's Nobel Prize (1908) was awarded for his work at McGill University. Indeed, two of his collaborators at McGill would later themselves become Nobel Laureates: Frederick Soddy, a young Demonstrator in Chemistry, and Otto Hahn, a graduate student from Germany. What other building, in McGill or elsewhere, has nurtured three future Nobel Prizewinners in the first fourteen years of its existence?

In a short article it is, of course, impossible to name--let alone discuss--all the distinguished scientists who worked in the Macdonald Physics Building after Cox, Callendar and Rutherford. A partial list must include Eve,

Howard Barnes, Louis King, Norman Shaw, John Stuart Foster, David Keys, Anna McPherson, Stuart Marshall, Walter Hitschfeld and Robert Bell, each of whom merits an article to himself or herself. And that excludes all the physicists who are still alive and working in the Department.

It must not be forgotten that the Macdonald Physics Building was designed not only for research but for teaching, too. Indeed, in an early article in *Nature* on "Physics and Engineering at the McGill University, Montreal" (October 4, 1894), the Physics Building is described as "designed for the teaching and study of physics (including mechanics) with special regard to (1) its intrinsic importance as an integral part of a liberal education in the Faculty of Arts; (2) its essential necessity as a study preliminary to the courses of engineering, mining, and practical chemistry in the Faculty of Applied Science, (3) prosecution of scientific research." It will be noted that the principal aims did not include the education and training of professional physicists! That came later, as Rutherford and others demonstrated the potential of Montreal as a world centre of science.

The Macdonald Physics Building served its original purpose, as a home for the teaching and development of science, until well past the Second World War—far beyond the original 50 years suggested by Eve—but, inevitably, it became too small and too inconvenient to satisfy the needs of modern physics. In 1977 the Physics Department moved into a new building on the upper campus, appropriately named the Rutherford Physics Building. The old Macdonald Building was then gutted, remodelled (at least, internally) and converted into a library. The Physical Sciences and Engineering Library was officially opened on May 19, 1982. Thus William Macdonald's original bequest, for the service of science and engineering, lives on in another guise. Long may it continue!

**Views of Rome, Visions of Rome  
Piranesi Prints from the Nobbs Collection in the Blackader-Lauterman Library,  
McGill University**

**By Ron Harvie**

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Giovanni Battista Piranesi (1720-1778) was one of the great masters, along with Rembrandt and Goya, of the highly demanding medium of etching. He was also that rarity, an artist who was able to combine commerce and conviction. For while he successfully supplied the ever-increasing demand by tourists for inexpensive souvenirs of Rome, Piranesi never abandoned his own personal vision of what the city stood for.

Briefly stated, Piranesi's concept was that the seeds of classic art had originated in Italy, germinated in Greece and flowered most perfectly again in Rome.<sup>1</sup> The more that archaeological discoveries refuted him, the more steadfastly, and profusely, Piranesi maintained his position. This wrong-headed obsession led Horrace Walpole to write of "the sublime dreams of Piranesi, who seems to have conceived visions of Rome beyond what it boasted even in the meridian of its splendour."<sup>2</sup> Piranesi's images, however, clearly matched the romantic, neoclassic sensibility then so prevalent, particularly in northern Europe.

Although his name is forever attached to Rome, Piranesi was actually Venetian. He was born, and had his early training (as an architect and a theatrical set decorator) in Venice, and the romantic spirit of this city seems to infuse his etcher's needle. So does the Venetian sense of drama, which had been sharpened by study with Bibiena, the self-styled inventor of the *scena per angolo*, (the use of exaggerated low-angle diagonal perspective in stage scenery). Thus, Piranesi's work melds two traditions which appear mutually exclusive: that of the Baroque theatre with that of topographically accurate renderings of architecture.<sup>3</sup>