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“Recognition of Engineers and Engineering Achievements: The Hall of Fame of the Canadian Museum of Science and Technology”

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Abstract

This paper presents brief biographical sketches of 16 people - engineers or directly associated with engineering achievements - who have been elected to the Hall of Fame of the Canadian Museum of Science and Technology.

Its objective is to expand the list, begun in other papers in the Cedargrove Series, of those who might be considered to be 'heroes' or 'notables' of Canadian engineering.

About this Series

Principally, the Cedargrove Series is intended to preserve some of the research, writings and oral presentations that the author has completed over the past half-century or so but has not yet published. It is, therefore, a modern-day variant of the privately-published books and pamphlets written by his forebears, such as his paternal grandfather and grandmother, and his grandfather's brother John.

About the Author

He is a graduate in mechanical engineering and the liberal arts and has held technical, administrative, research and management positions in industry in the United Kingdom and in the public service of Canada, from which he retired over 20 years ago.

He became actively interested in the history of engineering on his appointment to chair the first history committee of the Canadian Society for Mechanical Engineering in 1975, has served both CSME and the Engineering Institute of Canada in this capacity for varying periods of time until 2003, and has since provided history-related advice to EIC and the Canadian Society for Senior Engineers. He has researched, written and edited historical material for EIC and CSME organizations, and is a past president of both.

Introduction

There are a number of ways in which engineers and those directly associated with engineering achievements may receive national recognition for their contributions to the field and the profession, to the management of these, and to the development of Canada. They may, for example, be elected to the Science and Engineering Hall of Fame at the Canadian Museum of Science and Technology (CMST), designated by the Historic Sites and Monuments Board of Canada (HSMBC) as being 'persons of national historic significance,' or receive the Order of Canada. They may also be recipients of senior medals or awards from Canadian institutions, such as the Sir John Kennedy Medal of the Engineering Institute of Canada and the Gold Medal of Engineers Canada (formerly the Canadian Council of Professional Engineers). Or, spreading the net more widely still, they may be elected to the Canadian Academy of Engineering or the Royal Society of Canada. Among those so identified may be some who can be judged eligible for consideration as 'heroes' or 'notables' of Canadian engineering. This judgement, however, is being left to others.

The Canadian Museum of Science and Technology was established by the Government of Canada, following the recommendation by the Massey Royal Commission in 1951 that it do more to support work in the arts and sciences in this country by establishing a national museum to collect, preserve, research and interpret its technical heritage. The Canadian Science and Engineering Hall of Fame was established originally in 1991 by the Museum in partnership with the National Research Council, Industry Canada and the Association of Partners in Education to mark NRC's 75th Anniversary. Prior to 1996, the Council took responsibility for the nomination, selection and induction process. The Hall then became the responsibility of the Museum, which now organizes this process for it. It is also an integral part of the *Innovation Canada* exhibit within the Museum. Basically, each nominee must have contributed in an exceptional way to the advancement of science or engineering in Canada, must have demonstrated leadership, and their contributions must have brought great benefits to society. A Selection Committee presides over the selection of nominees for induction. Unlike designation by the Historic Sites and Monuments Board, those nominated for the Hall may still be living.

This paper is not the first in the Cedargrove Series to attempt to identify notables to join Sandford Fleming, Thomas C. Keefer and Casimir S. Gzowski in a Canadian pantheon, but it is likely the last one I will do. As it happens, the three engineers just mentioned have already been designated by the Historic Sites and Monuments Board, but so far only Fleming has been included among the inductees to the Hall. The others included in this paper who belong to both are Armand Bombardier, Sir William Dawson, Reginald A. Fessenden, Wallace R. Turnbull and, I have recently discovered, Elsie Gregory MacGill.

The present (2009) membership of the Hall stands at 42, of whom 16 have been included in this paper. The biographical material about them has been arranged in alphabetical order. It is synoptic rather than definitive since, for most of the inductees, fuller biographies can be found in books, articles and through the Internet. The biographies in this paper vary in length, for a variety of reasons. Of the 16, six were members of the Engineering Institute of Canada: Fleming, MacGill, Mackenzie, McNaughton, Ouimet and Turnbull.

The Biographies

Canada must share **Alexander Graham Bell's** fame in engineering achievement with the United States. He was born in March 1847 in a third country - Scotland - in the city of Edinburgh, the second son of Alexander Melville and Eliza Bell. Both his father and grandfather were well-known practitioners of the science of phonetics and teachers of elocution.

As a young man in the late 1830s, his father had spent several years in Newfoundland escaping the damp, sooty atmosphere of Edinburgh and clearing up persistent respiratory infections. He became a strong believer in North America's healthy climate. Married in 1844, the Bells' eldest son, Melville, was born a year later, then Alec, and a third son, Edward, in 1848. Alec's interest in 'things scientific' began when he was a boy, stimulated by everyday problems he found around him and by his father's, and his brother Melville's, enthusiasm for the science of speech. Brother Edward, less so, as he was in indifferent health much of the time. Also, their mother was deaf and Alec, in particular, became expert in conveying the content of conversations to her using the manual alphabet. Alec was not enthused by his school, which followed the classical tradition of education, preferring instead activities that were related to science and to the outside of a classroom.

In the 1860s the Bells moved to London. In 1867 his brother Edward died at the age of 18. However, Alec was able to take advantage of the city to further his experience in teaching the deaf as well as his formal education and making experiments. But in late May 1870 his brother Melville died of tuberculosis at the age of 25. In July of that year the surviving Bells sailed for North America - and its healthier climate. They settled near Brantford, Ontario, Canada.

Bell's first job, however, was teaching in schools for the deaf in Boston, which became his headquarters for many years to come, although he would visit Brantford during the summers. He also began experimenting again, in the evenings in a basement workshop - and acquired a reputation for overworking himself - endangering the good health he had been brought to North America to preserve! He opened his own school in 1872 and, a year later, transferred his classes to Boston University, where he was appointed professor of vocal physiology and elocution. Among his students was Helen Keller - blind, deaf and dumb - who later credited Bell with helping humanize her life. Another was Mabel Hubbard, daughter of the prominent Boston patent lawyer, Gardiner Hubbard.

Away from his students, Bell worked in a basement laboratory on the 'harmonic' or 'multiple' telegraph and on 'electric speech' or the 'transmission of sound through telegraphy'. But he found he lacked the time and the skill to make mechanical parts for the apparatus he was developing, and sought help. He found it in Thomas Watson, who was only a few years younger than Bell himself. And so began a fruitful collaboration that would last for a very long time, result in the invention of the telephone, and bring both men fortune and renown.

Bell spent the summer vacation of 1874 at Brantford. August 10 of that year was the day, he later wrote, the idea of the telephone was conceived. The work continued. Later the following year he

convinced Hubbard of the value of his invention, obtained his support, and a patent was filed in Washington, only hours before a filing by Elisha Gray, his rival in this enterprise.

