



The McGill-Montreal Chapter
Sigma Xi :: The Scientific Research Society ::



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SIGMA-XI LECTURE

When:
Monday
November 29, 2010
6 P.M.

Where:
McGill University
Otto Maass Chemistry
Building
Room 10 (Basement floor)

Sigma Xi

**Bridging History:
150th Anniversary of Montreal's
Victoria Bridge**

Despite problems of travel and goods transport during freeze-up or spring thaw, there was no bridge across the St. Lawrence until 1859, when railroad development reached a stage that ensured it would be economically successful. A long bridge across the non-navigable rapids provided easy pier construction and employed a wrought iron box girder design developed shortly before in England. Wrought iron, economically produced by the puddling of coke-reduced pig iron, was deemed the only material of suitable strength and toughness. Because of very low production in Canada, 9000 tons of sheets and angles had to be imported from Britain with about 1.5 million hot-driven rivets braced them together. The bridge proved a technical success for 50 years, carrying up to 100 trains per day, providing passenger traverse and product delivery that enhanced industrial production in Montreal.

In 1898, the Victoria Jubilee Bridge across the St. Lawrence at Montreal was designed as a double-tracked steel truss to replace the original single-track box girder on the piers built half a century earlier. In the interval, large-scale steel production had developed so that in terms of cost and strength it replaced wrought iron. The addition of roadways on the outer sides of the trusses provided the first badly needed crossing for carriages. Following this modification, the bridge was also remodelled in 1958 to accommodate the St. Lawrence Seaway at its south end with one lift bridge replacing the first span.

Hugh J. McQueen is Professor Emeritus of Materials and Manufacturing in Mechanical Engineering at Concordia University and has served one term as Chair. He has been conducting hot working research in industrial Al alloys and on stainless steels since 1965 with over 450 publications.

**Preceded by a members-only reception
5:30 P.M.**

Ruttan Room

