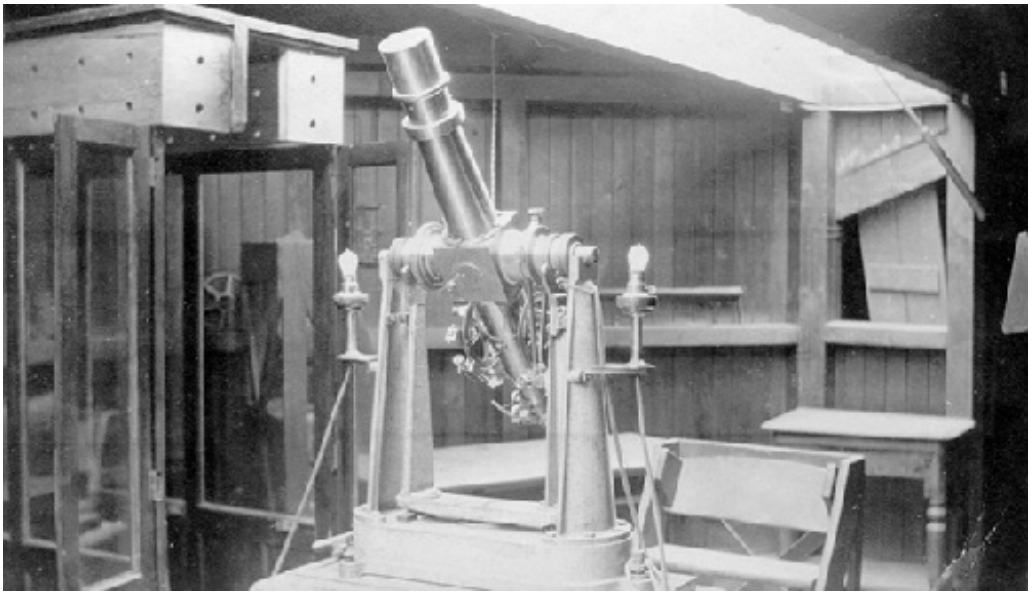
The nation's timekeeper: McGill and the Dominion Observatory

blogs.mcgill.ca/science/2010/10/28/the-nations-timekeeper-mcgill-and-the-dominion-observatory

Image from McGill Archives, lithograph circa 1860s: In this idealized artist's sketch, the McGill Observatory is the building at the top left side.

The Department of Atmospheric and Oceanic Sciences marks its 50th anniversary this year, but meteorological work at McGill began about 150 years ago inside a stone tower built by the Dominion of Canada to track the north star and keep time for the freight trains. Known locally as the *McGill Observatory,* this tower enclosed a 7-foot telescope and stood on the bluff just behind what is today the Leacock Building. "The nation's timekeeper" was housed inside this tower, and most of Canada's clocks in the last century were set by McGill's time!

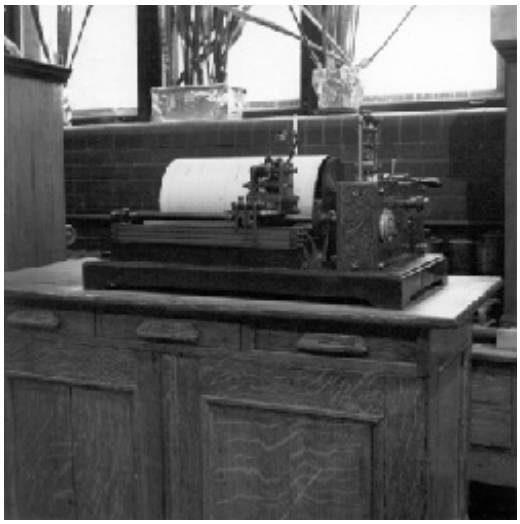
By 1863, the wires from the Montreal Telegraph office had been laid into the Observatory to connect it with the principal places in the United States because the President of Grand Trunk Railway had proposed that there be an observatory in Montreal, and that the University might offer a 'sight'. All the American railways were recommending astronomical observatories to provide reliable time-keeping. **Dr. Clement Henry McLeod, or "Bunty" had already started working in the Observatory while he was an undergrad Engineer** and he had been allowed to room in the McGill College Building beside the observatory so he could take observations at the required times.



Telescope mounted inside McGill Observatory circa 1880s. Observation shaft in Tower has been opened and step ladder is positioned so readings can be taken through the eyepiece mounted on the right side. The glass cabinet on the left side houses meteorological instruments and beside it was the chronograph (pictured below) to calibrate time. McGill Archives, ref. PU10571.

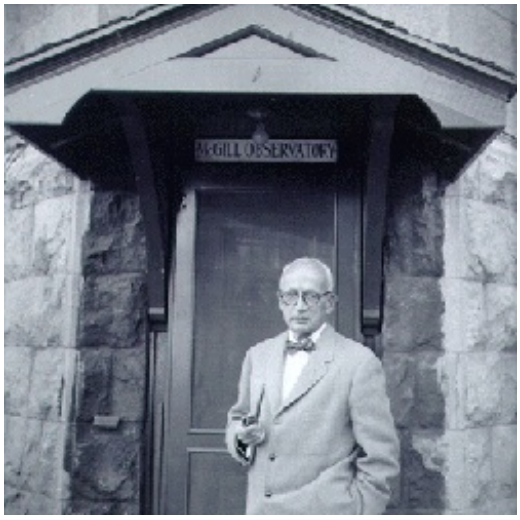
This 7-foot telescope was used by Bunty to take daily measurement of astronomical readings lined up with the North Star. As Supervisor of the Observatory, Dr. McLeod calculated McGill's longitude relative to the continental reference point at Harvard College. In 1892, while working on a follow-up reading relative to the zero meridian at Greenwich, England, McLeod revised the longitude figure for Harvard. As a result, **McLeod was responsible for more accurately positioning every city, town, hamlet and farm in North America.** In his honour, a plaque made from the housing of this telescope is mounted on the Radar Station at Ste. Anne-de-Bellevue and reads "Henry McLeod, B.A. Sc., F.R.S.C. THE NATION'S TIMEKEEPER".

In the late 1800s, the Canadian Meteorological service started a 'new' comprehensive system of observing the weather and reporting it by telegraph to a central forecast office in Ottawa. In 1874 the McGill Observatory became "chief station" in the new network connected directly to the telegraph system so observations could be reported without delay every 3 hours. Thus, the timekeeping grew out of the astronomical observations. **All of Canada set their watches by McGill's time for many years and the railways were still using the signal in the 1960s.**



Chronograph

C.H. McLeod Achievements



Bunty McLeod standing at the front door entrance of the McGill Observatory circa 1915. McGill Archives, ref. PU010560.

In 1882, McLeod was one of the observers in an international effort to watch and record the transit of Venus. By observing (from various locations) the rare event of Venus passing in front of the sun, it was an opportunity to get a better estimate of the size of the solar system. McLeod went to Winnipeg to observe the event, while another observer at McGill also attempted observations but there were some problems with clouds over Montreal and the readings were not accurate enough. In 1886, McLeod and Howard Barnes (Macdonald Professor of Physics) measured the temperature differences between the observatory and the top of Mount Royal. They found changes in temperature at the Observatory that were anticipated by corresponding changes at the top of the mountain, varying from 4-24 hours. **This work was ahead of its time, detecting the passage of cold-fronts and warm-fronts before such things had been discovered or conceived.** In 1889 he was made Fellow of the Royal Society of Canada (RSC) and his work was published in the *Transactions of RSC.* McLeod died in 1917. His legacy was that **he made McGill a centre for research in meteorology and geodesy for over 60 years.**

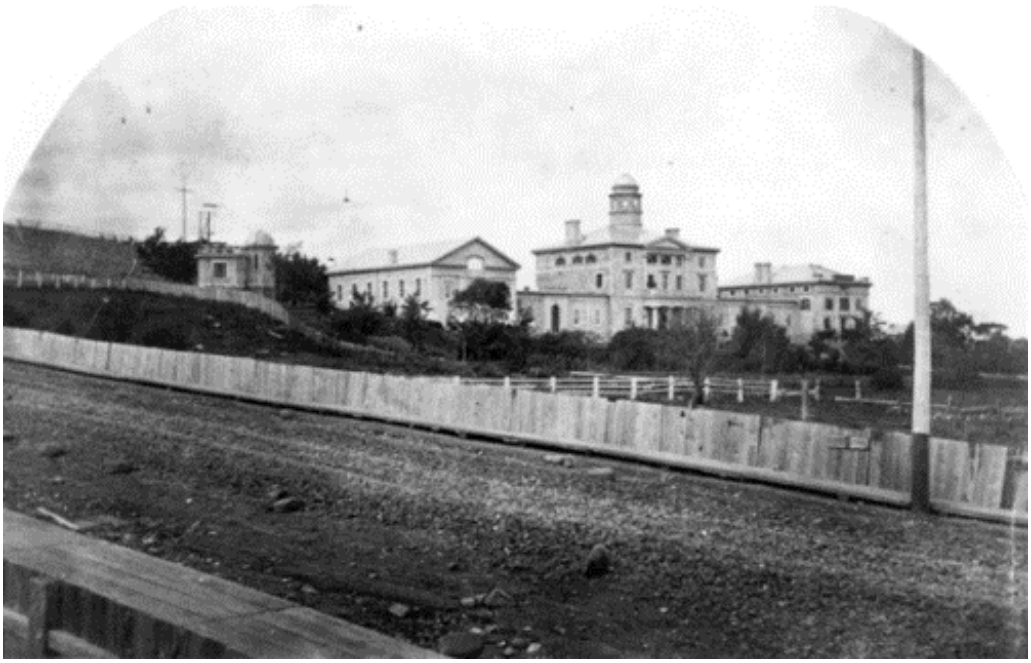
An untimely end...

View of the McGill Observatory, now with the addition of the McLeod family home, circa 1940. McGill Archives, ref. PU010567.

McGill Observatory became the outstanding time-keeping observatory in Canada, providing time signals to the railways and to government services in Ottawa, including the signal that fired the noon gun on Nepean point. This supremacy continued for ten years after McLeod's death, until the late 1920s when the Dominion Observatory in Ottawa appropriately took over the task of being the country's time-keeper, but **for another forty years McGill's time signals continued to go out to the railways.**

The Observatory was destroyed in 1962 to make way
for construction of the Leacock Building. A brass marker embedded into the floor slate outside Leacock Room 132 marks the spot where the telescope was mounted in the Observatory.

McGill Observatory, viewed from West wing of Arts Building, winter 1920.
Smoke stack top right is from McTavish Reservoir.



McTavish Street (unpaved) and wooden fence surrounding McGill College grounds circa 1875. Observatory top left side. McGill Archives PR013449.

Article by Ingrid Birker, with files from the **Secret Science Spot: McGill Observatory,** by Michael Woloschuk and Ingrid Birker, September 2009.