Salute to Change

Innovation is a Way of Living

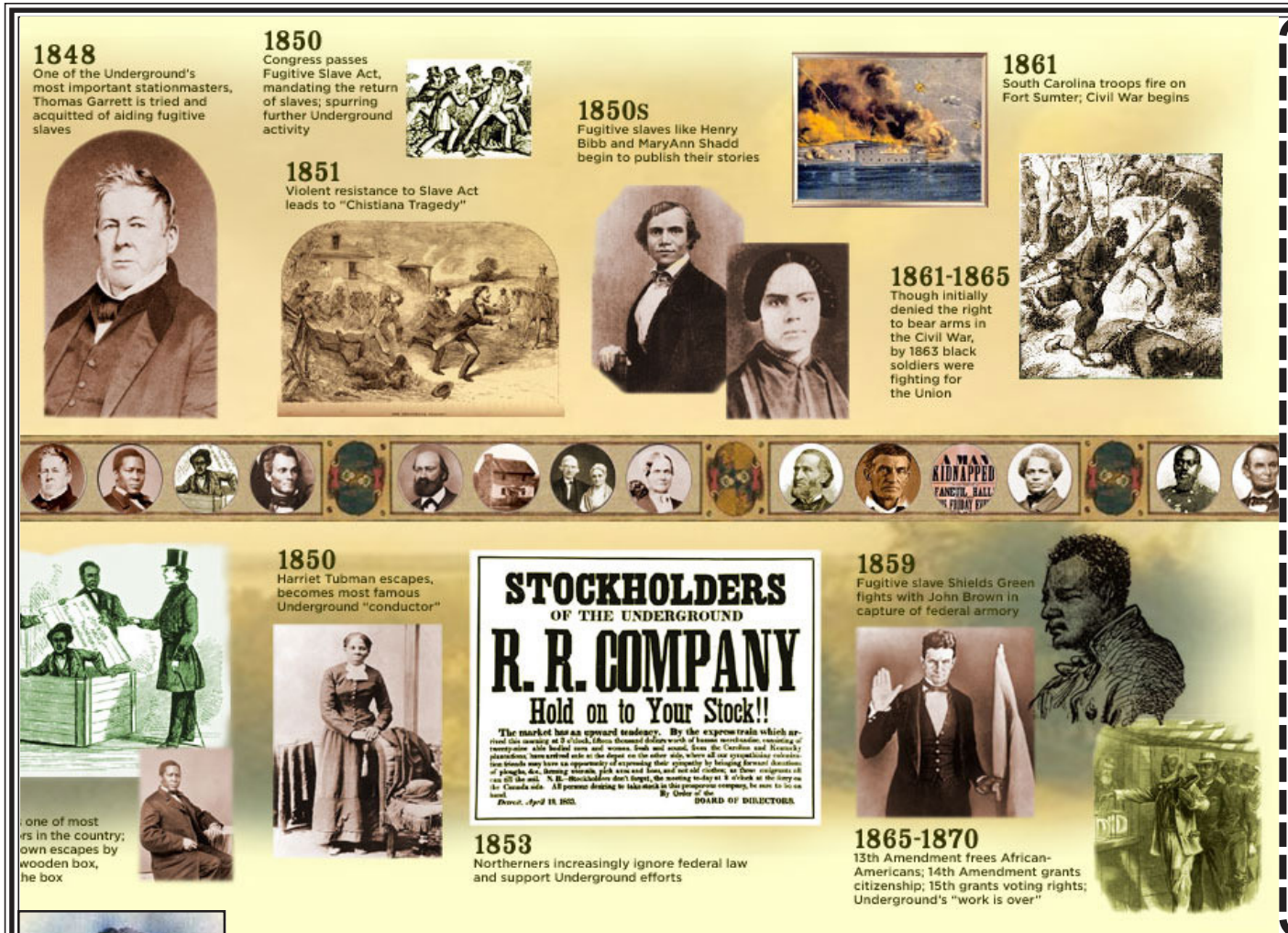
GROUPE LECLAIRE GROUP GLG INC. PROUDLY PRESENTS THIS RECOGNITION OF CANADIAN SOCIAL AND SCIENTIFIC CREATIVITY.

Throughout the age of change, Canadian innovators have left their unique mark. This booklet is dedicated to some of those individuals who changed the way we go about our daily tasks.

In addition to those featured in the following pages, there are many, many more people and events we have long forgotten; a few of those that we remember who deserve mention include some of our earliest innovators:

1791– Angus MacDonnel patents process to make potash
1838 – Charles Fenerty produces paper from wood pulp
1857 - Victoria Bridge, the first iron plate bridge, opens
1858 – Frederick Gisbourne oversees the underwater trans-Atlantic cable
1862 – Thomas Hunt makes green ink for the US greenback dollar
1868 - John Forbes designs the ice skate
1874 – Henry Woodward invents the light bulb
1875 - Henry Woodward sells his bright idea to Thomas Edison
1884 - Sandford Fleming devises international Standard Time
1891 – James Naismith introduces the sport of basketball
1892 - Thomas *Carbide* Willson produces an acetylene torch
1898 – YMCA in Toronto sets up the first child daycare program
1907 – John McLaughlin bottles Canada Dry ginger ale
1910 – Arthur Ganong packages the chocolate bar
1913 - Gideon Sundback fashions a zipper
1924 – William Stephenson sends wirephotos to Europe
1927 – Alan Brown gives the world Pablum
1928 – Morse Robb plays his new electric organ
1929 - Archibald Huntsman packages frozen food, Ice Fillets
1936 - Norman Bethune creates the first battlefield mobile blood transfusion
1940 - Norman Breakley unveils the paint roller
1950 - Jack Hopps patents a heart pacemaker

For more information: www.rtscanada.com



Provincial Freeman.

DEVOTED TO ANTI-SLAVERY, TEMPERANCE, AND GENERAL LITERATURE.

"Self-Reliance is the First Step to Independence."

SAMUEL R. WARD, Editor.
ALEX. M'ARTHUR, Cor. Editor.

TORONTO, CANADA WEST, SATURDAY, JUNE 24, 1854.

VOL. I.—NO. 14.

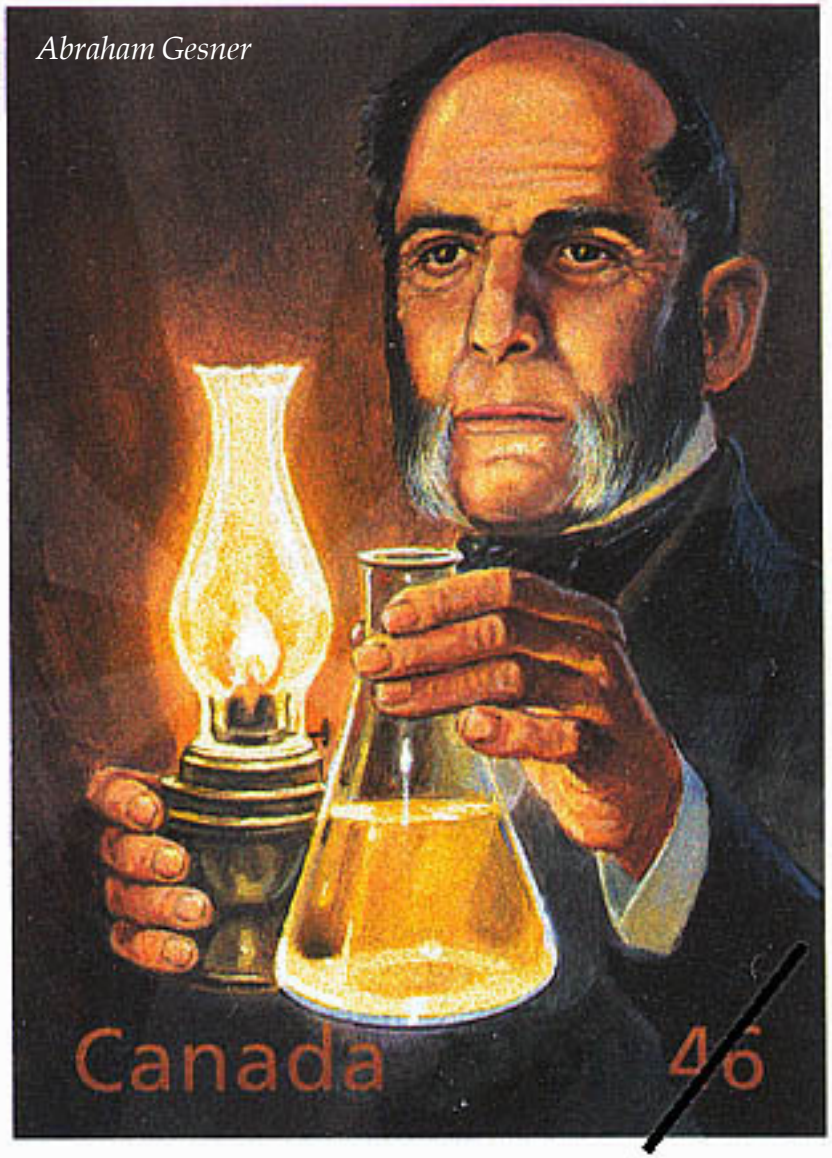
Mary Ann Shadd

Liberty and Literacy

THE UNDERGROUND RAILWAY BROUGHT THE SHADD family to southern Ontario where, in 1853, Mary Ann Shadd edited and published the *Provincial Freeman*, a newspaper dedicated to ending American slavery, encouraging literacy and promoting civil rights.

In 1858, Shadd organized a convention with John Brown to prepare his unsuccessful slave rebellion. Up to the time of the US Civil War, the *Provincial Freeman* was the longest published anti-slavery newspaper. In addition, Shadd taught public school.

Shadd returned to the US in 1861 and recruited black soldiers for the Union army. She became a lawyer in 1883, helped found the Suffragist movement and was the first black woman to cast a vote in a US national election.



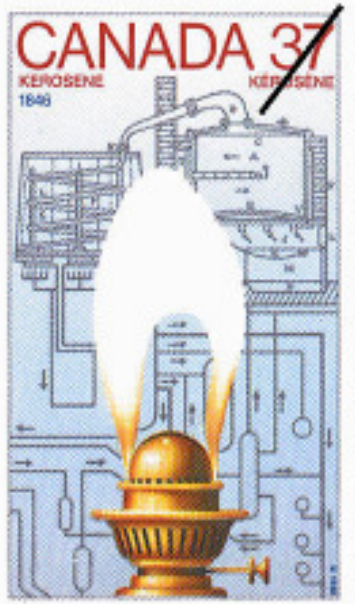
Abraham Gesner

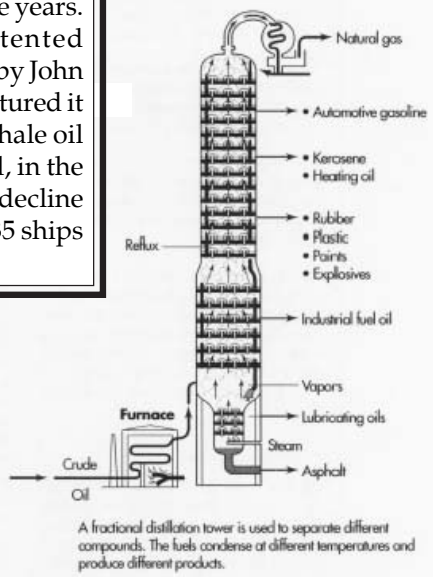
Avant Greenpeace

DR. ABRAHAM GESNER SET UP HIS MEDICAL PRACTICE near his birthplace is Parrsboro, Nova Scotia. In his spare moments, he would return to his greater interest, geology, collecting rocks and fossils along the Bay of Fundy.

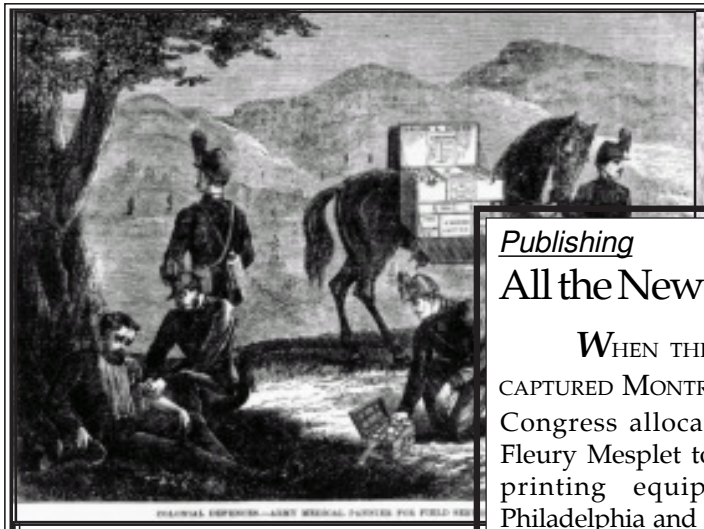
After conducting a geological survey of New Brunswick and Prince Edward Island for the colonial government, Dr. Gesner discovered alberite in 1839, a coal like hydrocarbon that intrigued him for its potential. His experiments would continue for the next five years.

In 1846, he patented kerosene and, financed by John D. Rockefeller, manufactured it in the US. It replaced whale oil in American homes and, in the mid 1850s, marked the decline of the whaling fleet – 735 ships in 1846 to 39 in 1876.

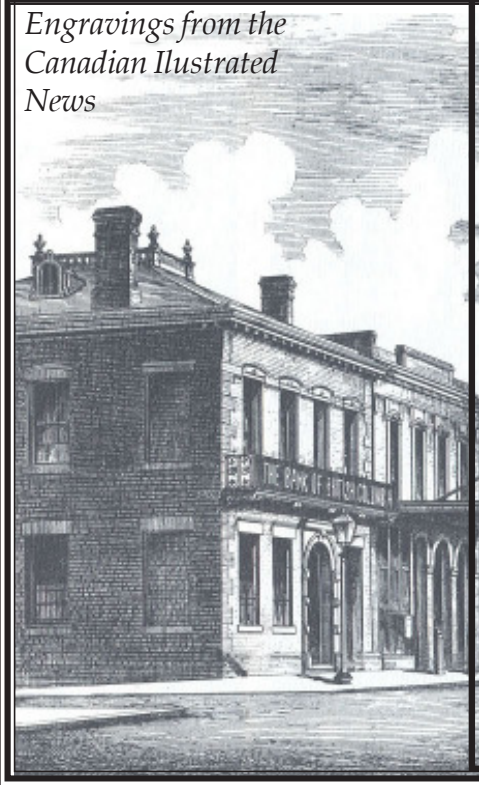




A fractional distillation tower is used to separate different compounds. The fuels condense at different temperatures and produce different products.



Engravings from the Canadian Ilustrated News



Publishing

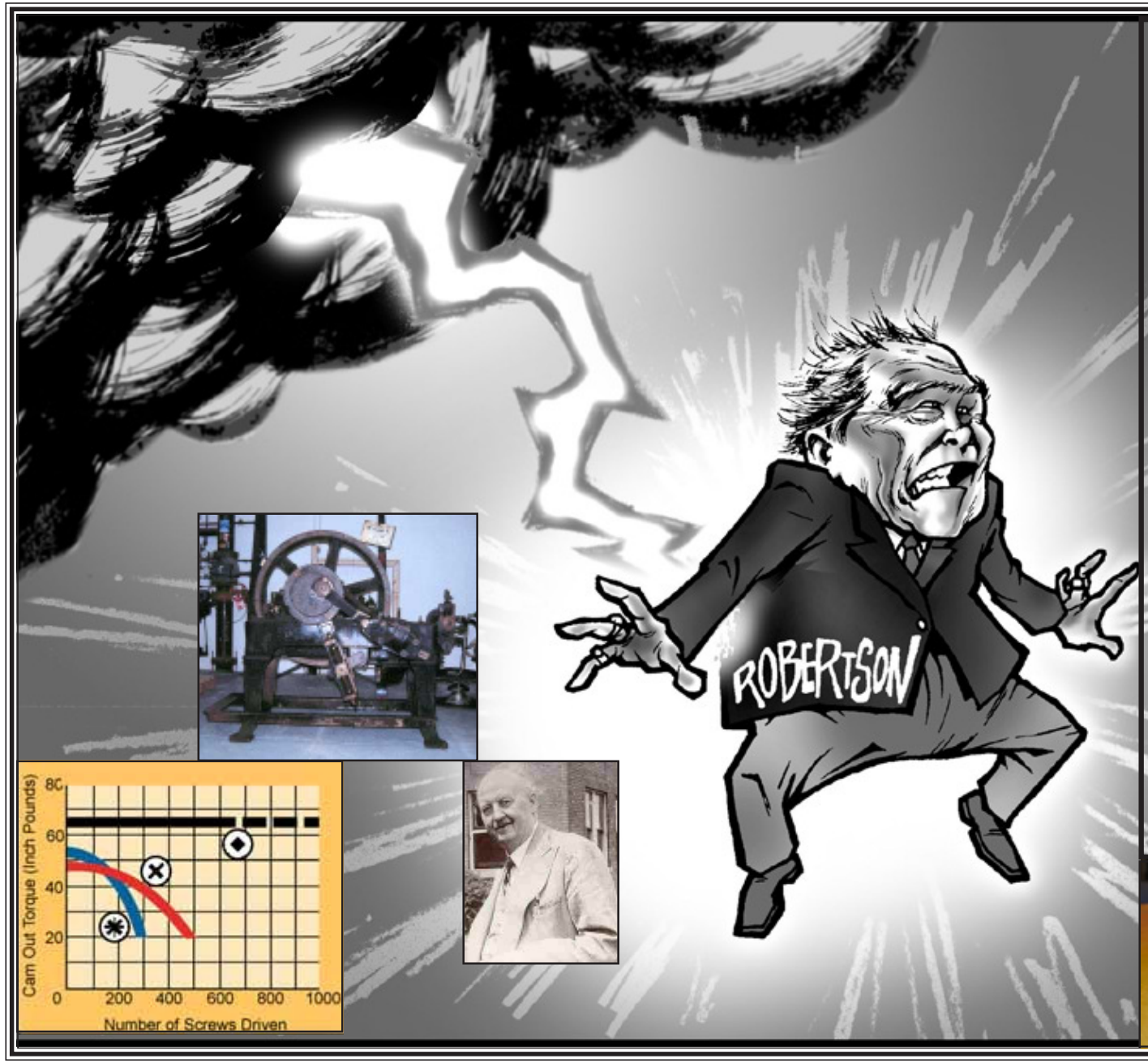
All the News that Fits

WHEN THE AMERICANS CAPTURED MONTREAL IN 1775, Congress allocated $200 for Fleury Mesplet to relocate his printing equipment from Philadelphia and together with Benjamin Franklin, publish a weekly French-language newspaper called La Gazette.

Ten years later, he would translate news to create a bilingual paper with news and a few decorative graphics. Of the enterprises born in the 18th century, the only other Canadian business still in operation is the Molson Brewery.

Photo Engraving

IN 1869, GEORGE DESBARATS a lead engraver introduced his innovative half-tone photo engraving in the Canadian Illustrated News bringing vivid reproductions of people, places and events across Canada and across the world. It changed how the news was seen and, as a result, the way it was reported.



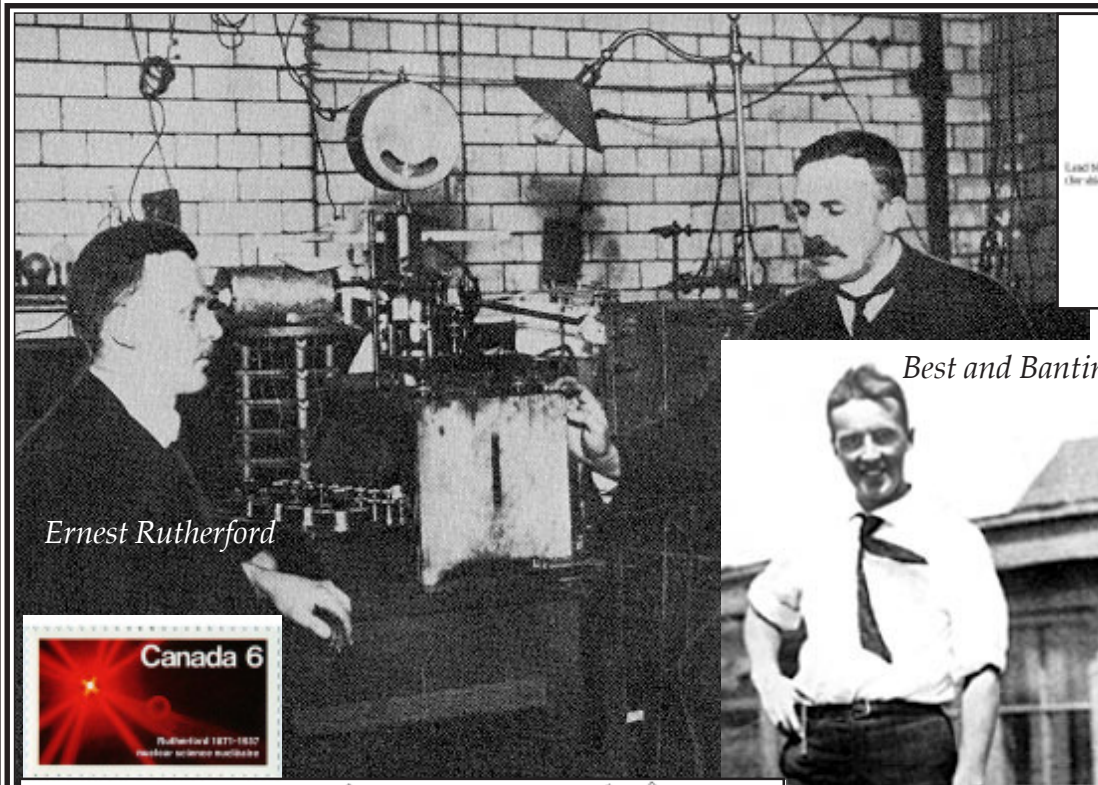
P. L. Robertson

The Canadian Screw

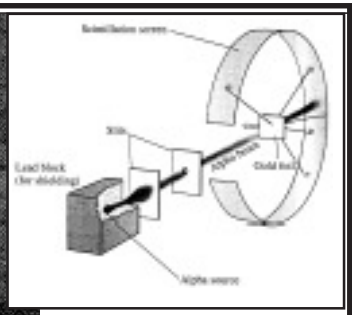
THE ASSEMBLY LINE IS NO PLACE FOR A SLIP OF A screwdriver. And when travelling salesman Peter Robertson cut his hand showing off a spring loaded screwdriver, he knew he needed either a new tool or a new job. He set his mind on the former.

By 1906, Robertson applied for a patent that he called the biggest little invention of the century. His square-head recessed screws were self-centering and could be driven with one hand. When Fisher Bodies ordered them for the Model-T Ford cars, he knew he had set a new standard.

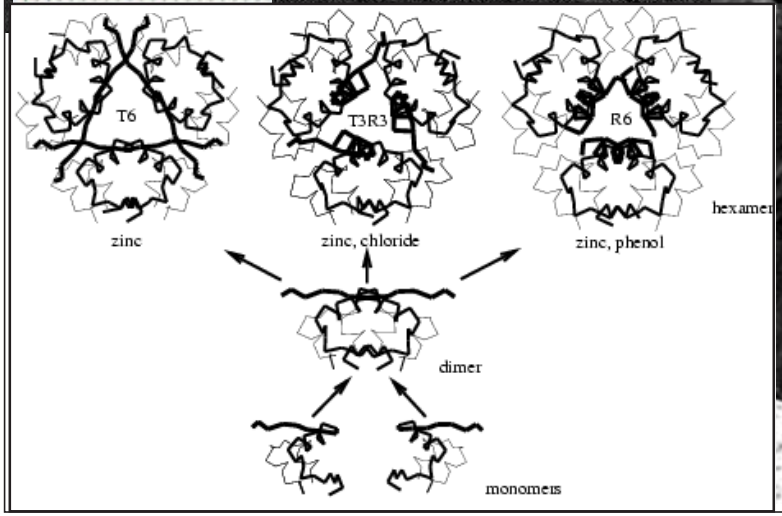
Robertson received a $10,000 loan in 1908 from Milton, Ontario to locate his factory there. Robertson not only paid back the loan but today is the largest year-round employer in the Milton region and he changed the way hundreds of thousands do their jobs.



Ernest Rutherford



Best and Banting



University Labs

Beyond Blackboards

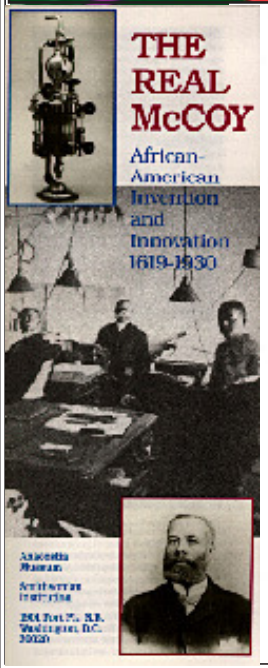
AT THE AGE OF 27, ERNEST RUTHERFORD, THE "FATHER" OF nuclear physics, arrived in Montreal. At McGill University with a lab donated by Macdonald tobacco and students he would keep anonymous, he won a Nobel prize for developing radium, thorium and by consequence radioactivity.

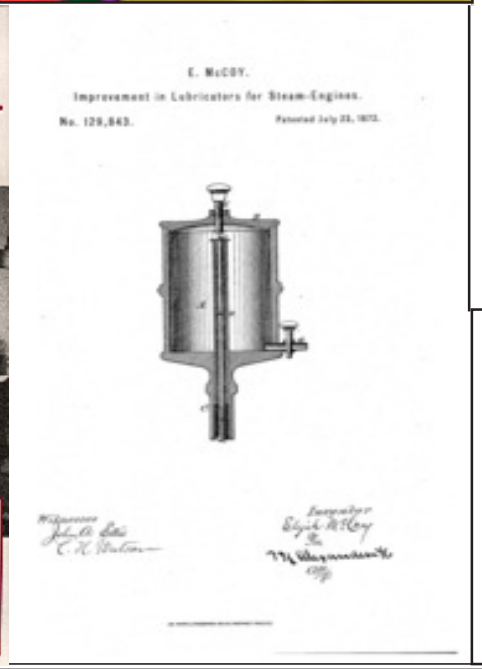
Electron Microscope

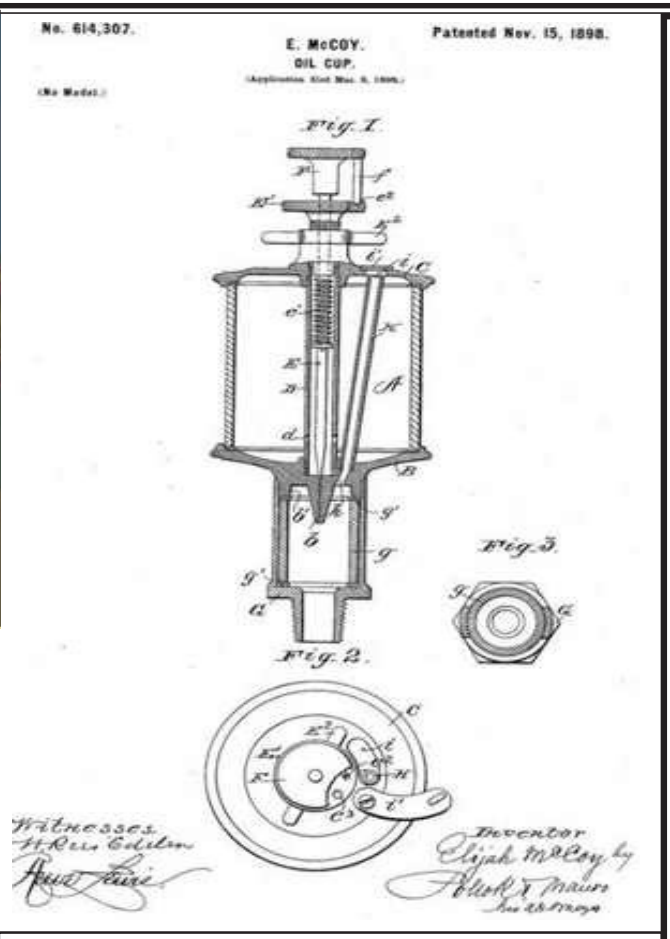
IN A RACE WITH NAZI scientists to create scientific instruments that could have applications for World War II, University Professor E. F. Burton built the first electron microscope in 1938, a device that would also have extensive medical applications.

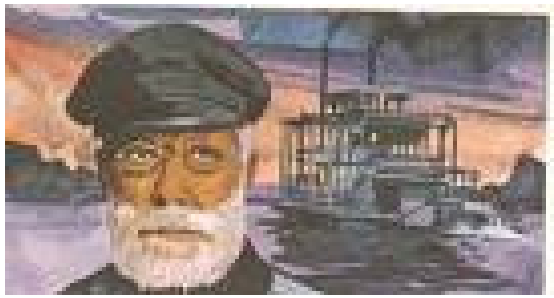
Diabetes Research

INSULIN WAS ISOLATED BY Frederick Banting and George Best in 1921 while working in the lab at the University of Western Ontario. Further work in Toronto led to a major breakthrough in medicine and the first treatment for diabetes.









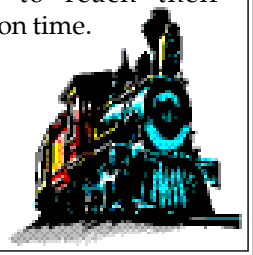
Elijah McCoy

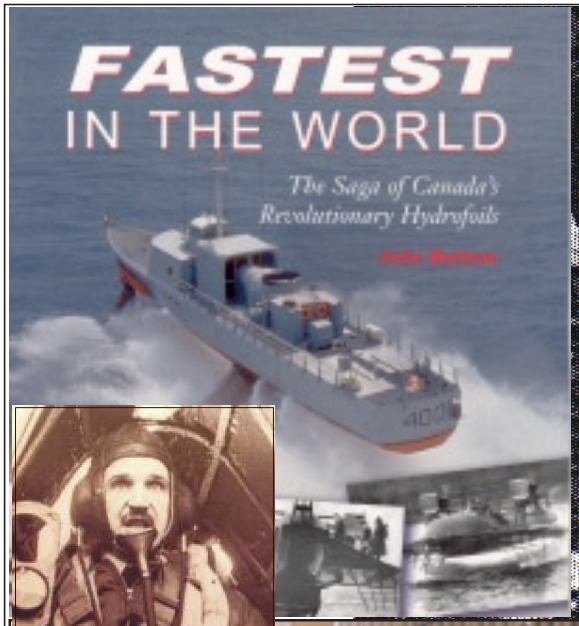
Making Real McCoy

NOTED AFRICAN AMERICAN INVENTOR ELIJAH McCoy was issued 57 patents, mostly serving the field of mechanical engineering. The most notable was in 1872 for lubricating oil that allowed trains to operate without stopping to cool. It would be known in the industry as "the real McCoy".

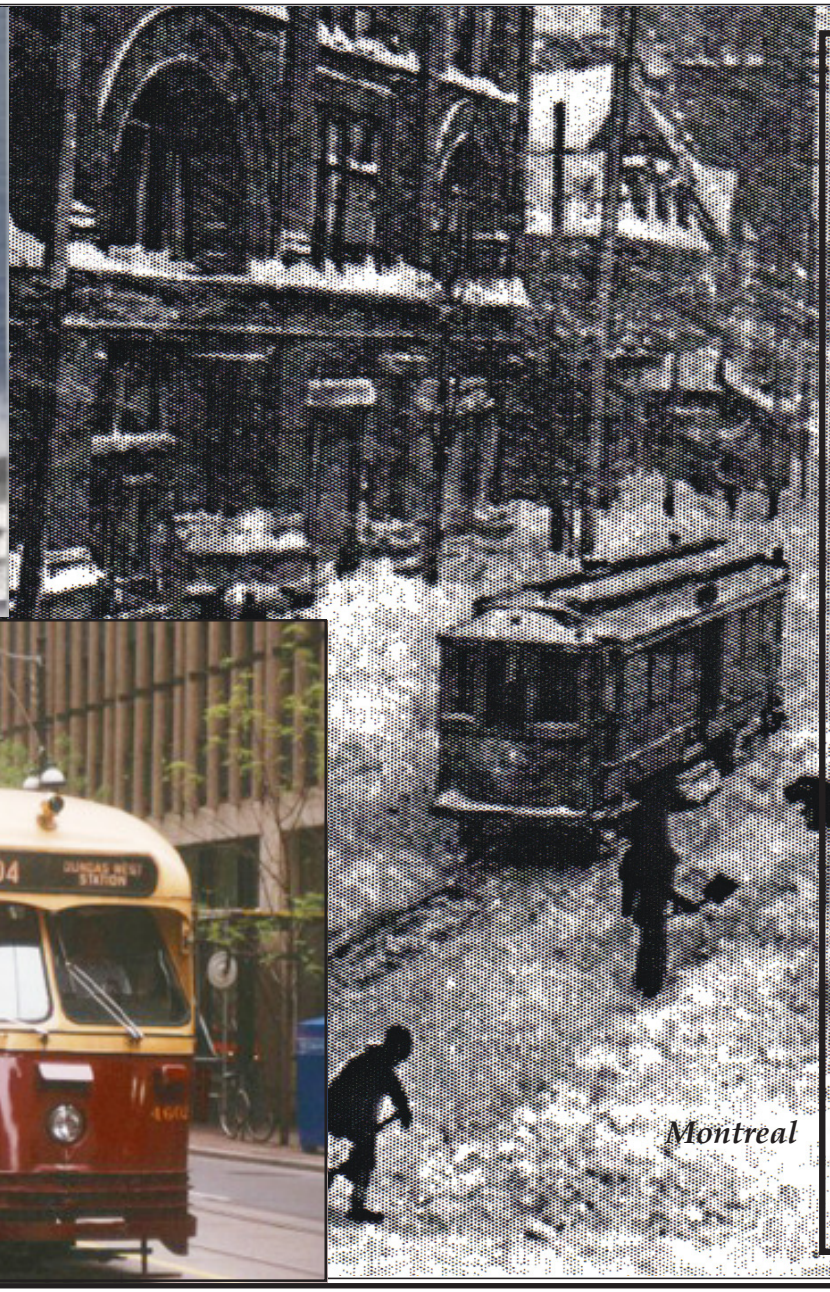
Born in Colchester, Ontario to former slaves, he traveled to Scotland at age 15 to learn mechanical engineering, allowing him to pursue work when he returned. But the only jobs available were on the railroad, where he became a fireman and oiler in Michigan.

Because of his training, McCoy was able to identify and solve engine lubrication and overheating problems on the trains. His lubrication device used steam pressure to pump oil when it was needed, allowing the trains to reach their destination on time.





Toronto



Montreal

Transportation Inventions

Selling a Solution

Hydrofoil Boats

WHEN THE AMERICAN DEPARTMENT OF WAR CALLED for submarine chasers, in 1908, telephone inventor Alexander Graham Bell proposed that the US build hydrofoils as they could skim across mine-infested bays the same way a skitterbug moves across a pond.

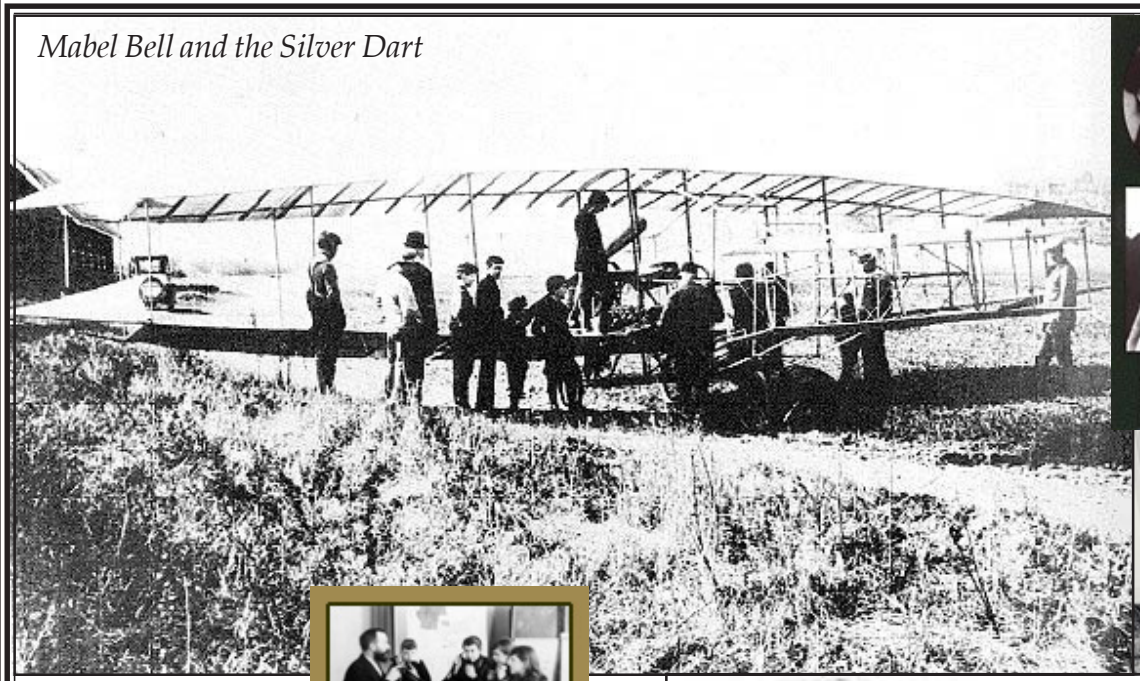
Streetcar

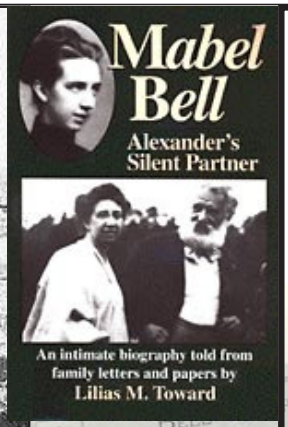
IN 1883, THE TORONTO Industrial Exhibition asked John Joseph Wright, a local electrical engineer to work with an American contractor to motorize a Grand Trunk flatcar. Given no credit for the device, Wright went on to win praise for building the first electric railway.

Flight Suit

WILBUR ROUNDING FRANKS invented the Flying Suit in 1941. The device was widely used in research in aerospace medicine and in Canadian aviation. As part of the WWII effort, the RCAF used the flying suit to prevent blackouts among combat pilots.

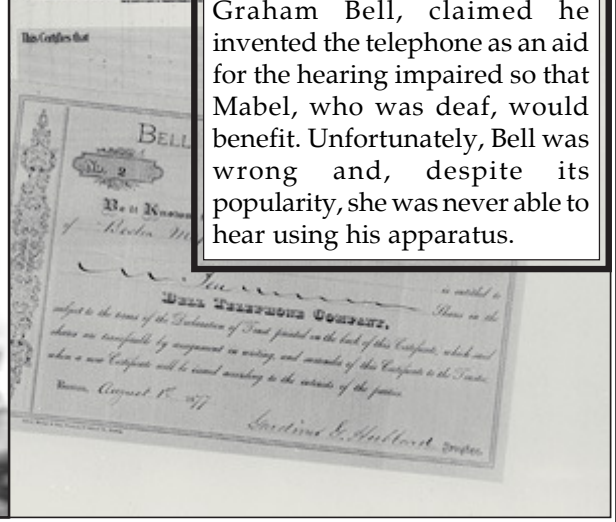
Mabel Bell and the Silver Dart





Baddeck Bay, N.S.

Maria Montessori



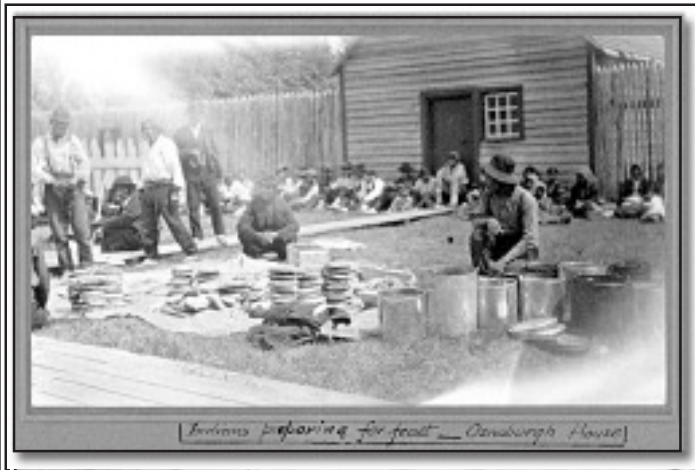
Mabel Hubbard Bell

Pilot and Educator

MABEL HUBBARD BELL BECAME CANADA'S FIRST WOMAN pilot in 1909 when she tested the *Silver Dart* in Baddeck Bay, Nova Scotia. Before that, she was active helping women become university faculty members in Boston and was a founder of the Home and School Association of Canada.

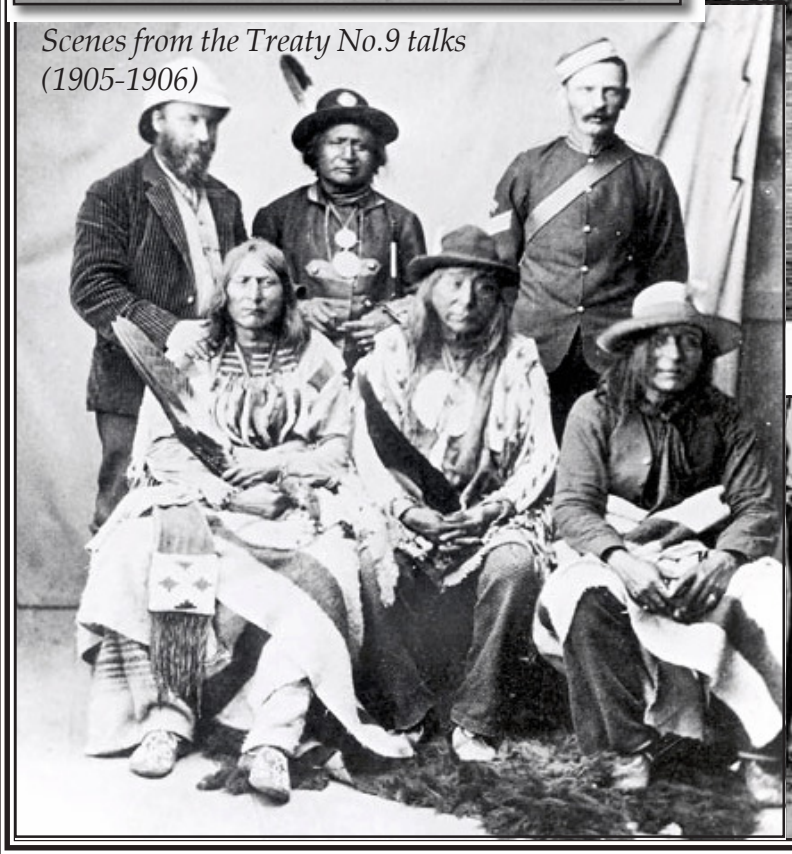
Instrumental in starting the first Montessori school in Canada (1912), Mabel Bell later opened a school in Washington, D.C., founded the Montessori Education Association and became its president and started a magazine *Freedom for the Child*.

Her husband, Alexander Graham Bell, claimed he invented the telephone as an aid for the hearing impaired so that Mabel, who was deaf, would benefit. Unfortunately, Bell was wrong and, despite its popularity, she was never able to hear using his apparatus.



Indians preparing for feast — Osnaburgh House

Bark Canoe of the Cree Indians in Hudsons Bay.



Scenes from the Treaty No.9 talks (1905-1906)

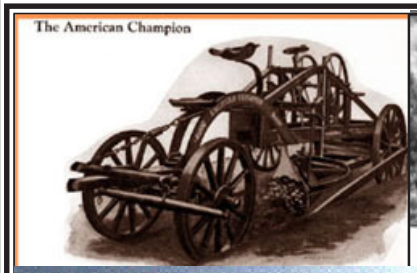
Land Claims

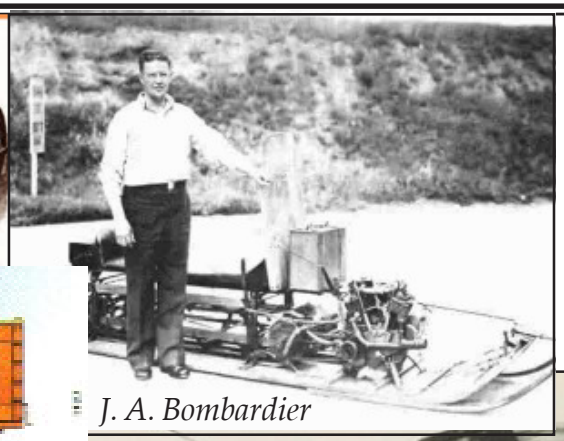
A New Kind of Treaty

THE GOVERNMENTS OF QUEBEC AND CANADA AND THE Crees of James Bay signed in 1975 a treaty dealing with land issues dating back to the 1800s. It was the first modern day treaty and, for the first time, provided a mechanism to settle outstanding issues in an equitable manner.

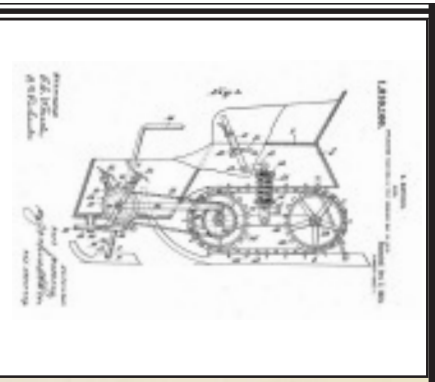
The area is now home to 15,000 Crees and the James Bay hydro-electric project, one of the largest in the world. The land was transferred in 1898 by Ottawa to Quebec jurisdiction on condition that Quebec recognizes the rights of the Native residents.

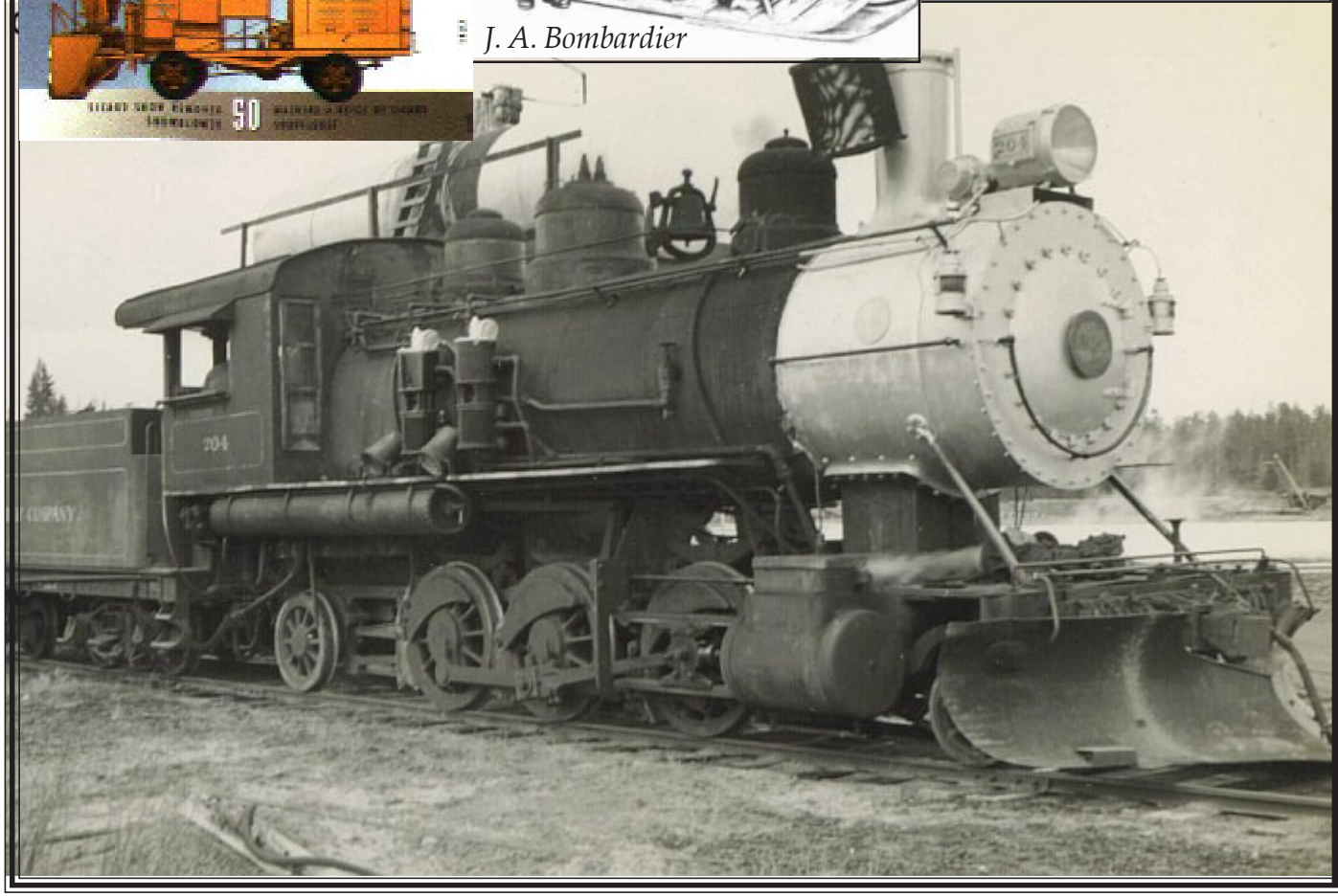
In 1971, Quebec announced its intention to build the project but was ordered by the courts to respect aboriginal claims and settle outstanding issues. The Crees received a cash settlement, royalties and an agreement to settle ongoing issues, without surrendering their treaty rights.





J. A. Bombardier





Snow

A Canadian Approach

Snowblower

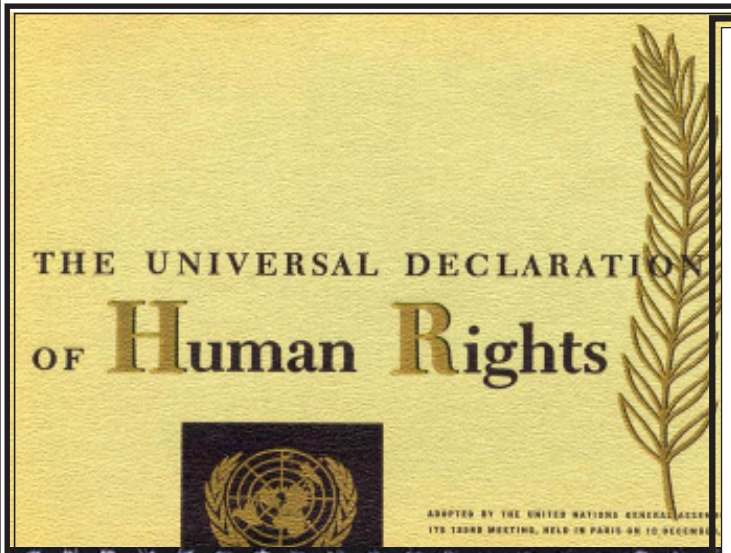
FROM SHOVELLING TO SKIING, EVERY YEAR, SNOW presents Canadians with a challenge. In 1927, Arthur Sicard presented Outremont, Quebec with a way to clear their streets quickly and reliably. His invention, the Snowblower, was a vehicle that clears and throws snow over 90 feet away.

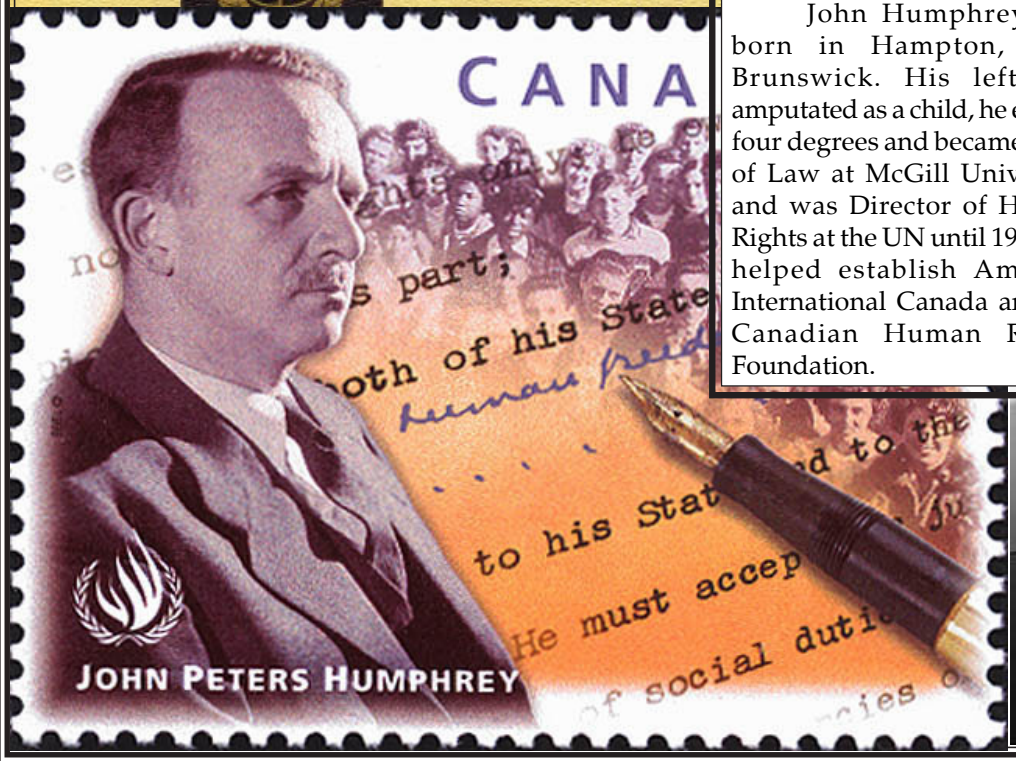
Snow Plough

RAILROADS NEED TO REMOVE snow. J.W. Elliot made a spinning device mounted on the front of the engine to throw snow away from the rails. Canadian railroads turned it down but another Ontario inventor, Orange Jull took up the cause and convinced US railroads make it standard equipment.

Snowmobile

TO TOWNSHIPPER JOSEPH-Armand Bombardier, snow was an opportunity. His mechanical inventions ranged from all-terrain to mechanized over-snow vehicles. Starting in 1942 in his shop in Valcourt, Quebec, he produced automotive devices he would market under the Ski-Doo brand.





John Peters Humphrey

Human Rights for All

JOHN PETERS HUMPHREY WROTE THE FIRST DRAFT OF THE MOST important international agreement on human rights.

Called the *Universal Declaration of Human Rights*, it was passed unanimously by the United Nations' General Assembly on December 10, 1948, a day now recognized worldwide as Human Rights Day.

John Humphrey was born in Hampton, New Brunswick. His left arm amputated as a child, he earned four degrees and became Dean of Law at McGill University and was Director of Human Rights at the UN until 1946. He helped establish Amnesty International Canada and the Canadian Human Rights Foundation.

Eleanor Roosevelt

Electronic Devices

New Ways of Talking

AT AGE 15, FREDERICK G. CREED WAS A MORSE CODE operator in Mill Village, Nova Scotia. Two years later, in Peru, he developed a teleprinter, a device that could change those electrical signals into the printed word. In 1902, the British Post Office signed on and installed its first electronic printer.

Television

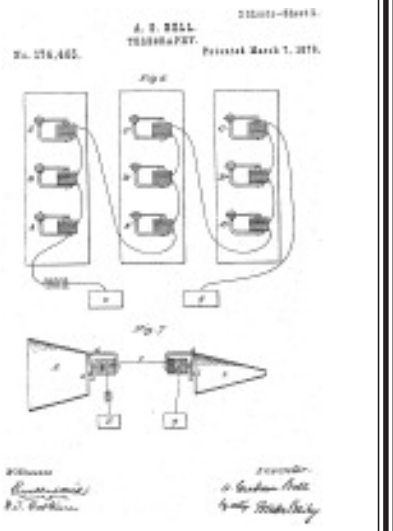
A TELEVISION SYSTEM WAS patented by Reginald Fessenden in 1927. In 1934, another Canadian, F. C. P. Henroteau invented the television camera, allowing motion photography to be seen on a remote receiver.

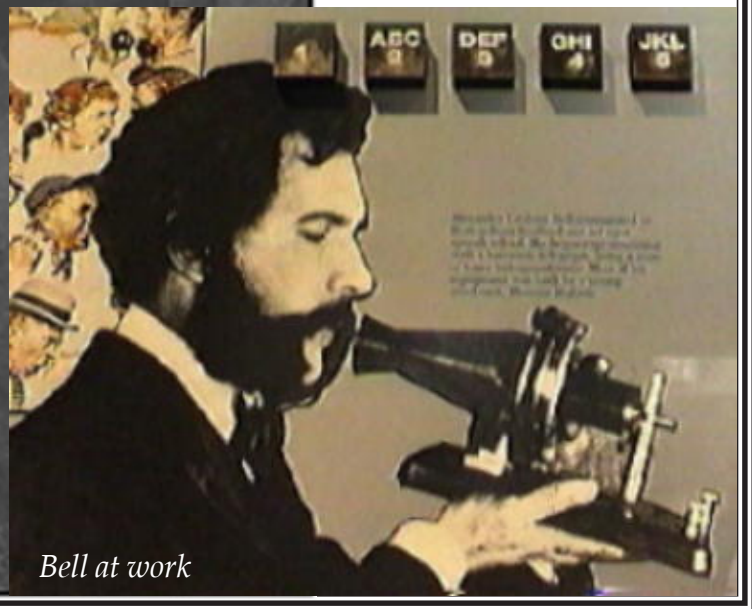
Walkie-Talkie

IN 1942, DONALD L. HINGS invented the two-way portable transmitter-receiver, the walkie-talkie.

Telephone

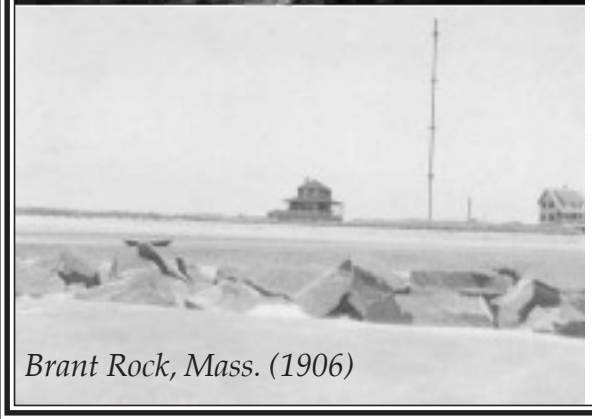
THE MOST SUCCESSFUL inventor-entrepreneur of 2-way communications was Alexander Graham Bell. His telephone, a device he claimed would help those with hearing impairments, was financial magic. After arriving in Canada in 1874, he began experiments and patented the device in 1876.



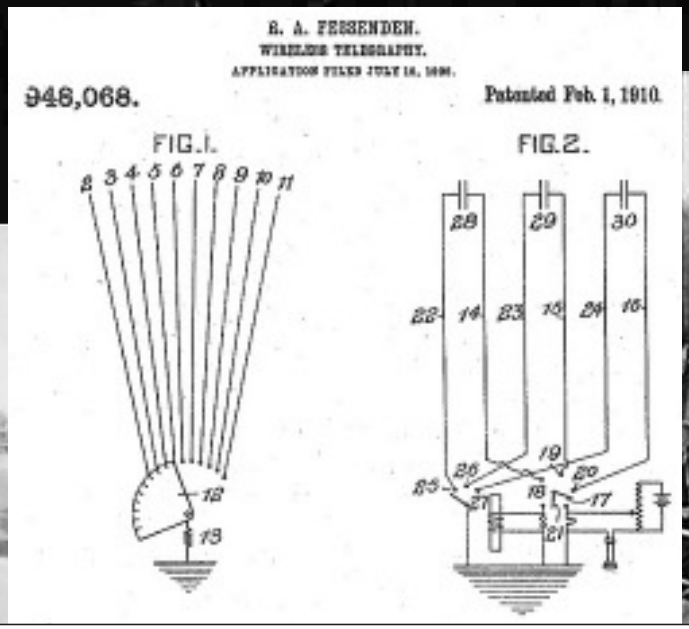


Bell at work

Reginald Fessenden and his crew (1906)



Brant Rock, Mass. (1906)



R. A. FESSENDEN.
WIRELESS TELEGRAPHY.
APPLICATION FILED JULY 14, 1906.

948,068. Patented Feb. 1, 1910.

FIG. 1.

FIG. 2.

Fessenden and Thiessen (ca. 1905)

Reginald A. Fessenden

Inventor of Radio

As an inventor, Fessenden is credited with over 250 patents, his most important was radio but the Canadian and British government support for the Marconi system left him virtually unknown. Born in the Eastern Townships of Quebec, he worked in the US and in Bermuda.

He is credited with inventing a myriad of devices including metal teabags, microfiche, tracer bullets, depth sounding (sonar), paging, turbo electric drives for ships, radar and complex measuring tools, and as an author of books on ancient civilizations.

Fessenden was also the Chief Engineer for the Toronto Power House at the foot of Niagara Falls.