

- 1911** The most remarkable achievement of Canadian tunneling is the system of spiral tunnels on the CPR line through the Kicking Horse Pass in the Rocky Mountains. The tunnels compose a gigantic figure eight, more than 1.1 miles in length, with a gain in elevation of 104 feet and a gradient of only about 1.7 p.c.
- 1921** Dr. Frederick G. Banting (later Sir Frederick Banting), working in the laboratory of Dr. J. J. R. MacLeod at the University of Toronto, and with the aid of Charles H. Best, succeeded in isolating insulin—one of the great medical discoveries of all time. In the following months, J. B. Collip found a means of purifying insulin. Use of this substance has revolutionized the therapy of diabetes and has led to a fuller understanding of carbohydrate metabolism.
- 1923-27** Wallace Rupert Turnbull of Rothesay, N.B., invented the controllable-pitch propeller, which has given aircraft more flexible performance and greater safety.
- 1927** The first transcontinental radio network in the world was set up in connection with the Diamond Jubilee of Confederation, through the co-operation of the railway companies, telegraphs, the Bell Telephone Company, and the Department of Marine. Later, after the formation of the CRBC and then the CBC, Canada had the longest radio network in the world. When Canada began, through the CBC, a television service in 1952, its growth in terms of availability to Canadian homes is claimed to have been the fastest in the world.
- 1930** The Consolidated Mining and Smelting Company of Canada installed, at Trail, B.C., the equipment with which to recover sulphur dioxide from roaster and sinter gases that formerly went to waste. The gas was used to make sulphuric acid, which in turn became the basic ingredient in the manufacture of chemical fertilizers. This was the beginning of a fertilizer plant that ranks among the largest in the world.
- 1932** Dr. L. M. Pidgeon, then a research chemist with the National Research Council (subsequently Professor and Head of the Department of Metallurgical Engineering, University of Toronto), developed a process for production of metallic magnesium, employed by one plant in Canada and five plants in the United States. By making the extraction of magnesium metal from calcined dolomite commercially feasible, Dr. Pidgeon's process terminated Canada's dependence on foreign sources for magnesium.
- 1934** Dr. Wilder G. Penfield, one of the world's great neurosurgeons, became director of the newly founded Montreal Neurological Institute where, under his leadership, many brilliant discoveries were made in the mysterious territory that still surrounds the functioning of the human brain.
- 1934** Food scientists and technologists from industry, the universities, and three Federal Government laboratories, working under the auspices of the Canadian Committee on Food Preservation, started work on the design of refrigerated railway cars, which proved to be quite superior to earlier types. As a result, Canadian railways now operate cars capable of maintaining temperatures of 5°F. with little spatial variation within the car; moreover, the new design eliminates mechanical equipment that would increase maintenance costs and require skilled servicemen at frequent check-points across the country. The group was also successful in applying the 'jacketed' or 'cold-wall' principle to refrigeration in trucks, trailers and freighters.
- 1934-59** The world's first bush aircraft, the *Norseman*, designed and manufactured by Robert Noorduyn at Montreal, was especially useful in opening up the Canadian North; *Norseman* aircraft are favoured by aviators across the world for performance over rugged country. Other Canadian aircraft that achieved world reputation in northern flying, especially for their short take-off and landing ability, are the *Otter*, the *Beaver* and the *Caribou*.
- 1939** Dr. W. R. Franks and his colleagues invented the antigravity suit designed to prevent blackout in fliers when making tight turns or when pulling suddenly out of a power dive. As Wing Commander Franks, the inventor became Director of Aviation Medical Research for the RCAF. Experiments leading to the development of this rubber suit containing fluid to counteract the forces of gravity became invaluable in the subsequent design of various space suits.
- 1945** T. R. Griffith and J. L. Orr (now Research Adviser to the Deputy Minister, Department of Industry) of the National Research Council obtained a patent on the prevention and removal of ice or frost from aircraft parts. The electro-thermal de-icing method developed by these inventors and their associates is now in use on many major airlines and has contributed significantly to flight safety and efficiency.
- 1947** At Chalk River, Ont., the NRX nuclear reactor went into operation. It was then, and so remained for several years, the most powerful research reactor in the world. Canada has continued to play a leading role in reactor design, not only for research but also for the production of radioactive isotopes and for the development of nuclear power.
- 1949** The world's first aluminum highway bridge at Arvida, Que., was designed and built by Aluminum Company of Canada engineers. Today, Canadian-developed processes permit increasing use of aluminum in heavy construction around the world.