

BAY ROUTE IMPORTS UP: General cargo imports via the Hudson Bay Route, this year, mainly for Saskatchewan destinations, were up more than 50 per cent from those of 1955, with total imports amounting to 2,314 tons in the 1956 shipping season.

W.J. Hansen, Saskatchewan Trade Services Director, said six main groups of commodities accounted for 78 per cent of the import tonnage: window glass, liquor, pipes and fittings, machinery, chemicals, and telephone materials. Other imports included biscuits, bicycles, bone meal, building materials, castings, chinaware, confectionery, curling stones, footwear, hardware, linoleum, office furniture, textiles, tiles, toys and soap.

"The wide assortment and range of imported merchandise attained in 1956 is favorable to increased tonnage of imports via the Bay Route in the 1957 shipping season," Mr. Hansen said.

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CANADA-INDIA REACTOR: At a picturesque site looking out over the Arabian Sea, about seven miles from the heart of Bombay, work is going ahead rapidly on the Canada-India Reactor (CIR), an NRX type reactor being built as a joint Indo-Canadian enterprise in which the costs and responsibilities are being shared by the two countries.

The first major atomic project in the field of international assistance to be undertaken by any of the countries most advanced in the development of atomic energy, the CIR reactor was offered to India by Canada under the Colombo Plan in April 1955 and the offer was accepted shortly thereafter.

"This close collaboration in a highly complicated field between the scientists and engineers of two countries, geographically as far removed as Canada and India", said Prime Minister Nehru, "is a symbol of the manner in which the world has shrunk through modern technology, and a token, I hope, of the peace, understanding and co-operation which will one day spread throughout the world."

"Our joint endeavour in this matter is another reminder that the origins of atomic science have been international and its development for peaceful purposes requires the kind of friendly co-operation between nations which so happily exists between India and Canada", said Prime Minister St. Laurent.

Twenty-seven members of India's Department of Atomic Energy arrived at Chalk River in September 1956 to study the NRX reactor for a year in preparation for operation of and for performance of experiments with CIR when it is completed in 1958. Other Indians are expected to visit Chalk River from time to time.

Various modifications are being made to the NRX design, such as a system for passing the ordinary water coolant through a heat exchanger from which heat will be removed by sea water. (The latter cannot be used directly as the coolant because of its corrosiveness and

because the salt and other materials in it would become radioactive if they entered the heart of the reactor). Such design work is being carried out by Shawinigan Engineering Company, Limited in Montreal.

The reactor building, which is to be air conditioned, is a hermetically sealed steel shell 120 feet in diameter and 135 feet high. It is surrounded by an annular shaped building containing the control room, auxiliary equipment and offices.

Like NRX, the CIR reactor will provide facilities for fundamental research, the production of radioactive isotopes, and the performance of experiments related to the development of atomic power.

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ISOTOPES AT WORK: Radioactive isotopes are now widely used in medicine, agriculture and industry. While their applications in medicine cannot be given a monetary value, it is clear that radioactive isotopes have an economic potential of many millions of dollars in agriculture and industry.

Some medical applications are: phosphorus-32 to treat various blood conditions; iodine-131 to diagnose various thyroid states and to treat hyperthyroidism and thyroid cancer; iron-59 to determine the status of the red blood cell formation function of the bone marrow; and cobalt-60 to irradiate tumours.

The efficient use of fertilizers is determined by the use of radioactive isotopes. Crop yields may also be increased through the development of insecticides and fungicides with the aid of isotopes. Other agricultural applications include use of radiation in plant breeding and the irradiation of produce in an effort to develop means of sterilizing or pasteurizing it.

A very wide range of applications of radioactive isotopes in industry is developing rapidly. These include control of the thickness of various sheet materials (paper, plastic, metal) as it is made in high-speed machines; control of ore processing; detection of flaws in welds and castings; induction of chemical reactions by radiation; and the logging of petroleum bore holes.

Radioactive isotopes produced in the reactors at Chalk River are distributed by the Commercial Products Division of Atomic Energy of Canada Limited which is located in Ottawa, Ont. The division carries out various development programmes leading to new uses for isotopes and in its shops manufactures a variety of equipment associated with these uses. Such equipment is supplied to users not only in Canada but also in many parts of the world.

Three types of Atomic Energy of Canada Limited therapy units used in the treatment of cancer, known as the "Eldorado", "Theratron" and "Theratron Junior", have been installed in clinics in Canada, United States, United Kingdom, Italy, Switzerland, France and Brazil. Several other countries have ordered units.