

developments that will lead to reduced costs and will keep Canadian plants competitive with nuclear stations designed in other countries.

Atomic Energy of Canada Limited last year formed a special engineering division in Toronto to design a prototype power station that would use heavy water for the moderator but ordinary water to transfer energy from the fuel to the turbine. If design and development studies prove successful, it is expected that agreement will be reached with Quebec to build a 250,000-kilowatt station for operation in the Hydro Quebec system about 1971.

FOOD IRRADIATION

The world's first commercial food-irradiation plant, designed and built for Newfield Products Limited at Mont St. Hilaire, Quebec by the commercial products group of AECL, started irradiating potatoes in September to prevent them from sprouting. The commercial products group designed and installed six industrial-scale irradiators in Canada and the United States for sterilization of medical supplies, preservation of onions and potatoes, improvement of detergents and a variety of other irradiation applications. A new engineering production building, completed in 1965 near South March, outside Ottawa, helped meet the growing demand for Canadian-designed equipment for the application of radioisotopes. The commercial-products group sold 138 laboratory-scale irradiators to 26 countries and more than 500 cancer-therapy machines to 47 countries.

NWT HOSPITALS UNCROWDED

Waiting lists for hospital beds are the rule in many Canadian municipalities but not in the Northwest Territories. Dr. W.H. Frost, Chairman of the Territorial Hospital Insurance Services Board, reports that the average occupancy of territorial hospitals is about 40 per cent.

The rated bed capacity for the 11 territorial hospitals and 15 nursing stations for 1964 was 379, plus 51 for tubercular patients. The total number of hospital days for insured and non-insured patients was 67,600, with an estimated 16,000 days for tuberculosis cases. Even with the low occupancy, the patient-day cost compares with that of hospitals in the South.

PATIENT-DAY COSTS

In 1964, the Station Hospital in Yellowknife, with a 49 per cent average occupancy, operated at a net daily cost of \$27.04 a patient. A recent audit at the Fort Smith St. Ann's Hospital shows the daily cost for the first half of 1965 as \$26.03 a patient with only 29 per cent of the beds occupied. In the Northwest Territories the cost of operating a hospital and the number of beds occupied are not in direct ratio. Many of the fixed costs are not affected by occupancy. Part of the staff costs are geared to the number of patients and not the number of beds.

Ontario patient-day costs average over \$30.

Dr. Frost remarks that it is in the small and remote cottage-type hospitals, called nursing stations, that costs are highest. "The population of the NWT is 27,000," he observed. "Three hundred and seventy-nine hospital beds for this number is far above the normal. It can be reduced substantially by providing other establishments that give simpler and less costly care, i.e. homes for aged persons and for persons under treatment that does not require a hospital".

There has been a great decrease in the need for beds for patients under treatment for tuberculosis, Dr. Frost states. The sparsely-occupied buildings at Chesterfield Inlet, Fort Resolution, Pangnirtung, Fort Simpson and Rae reflect the changing picture of tuberculosis in the North.

CRASH POSITION INDICATOR

A radio message that ended a two-day search for a missing aircraft in the Canadian North proved for the first time that a National Research Council invention called the Crash Position Indicator can save lives. It consists of a crash-activated aerodynamic recovery system that is automatically ejected from the fuselage of an aircraft in the event of a crash. It delivers to safety a radio distress-beacon payload, and keeps it on the surface of land or sea, where it is oriented to send out a distress signal as far as 80 miles for many days to allow search aircraft to "home-in" to its location.

On November 21, 1965, a *Beaver* plane carrying its pilot and a passenger took off from Fort Simpson in the Northwest Territories on a flight to Nahanni Butte and thence to Hay River and Fort Smith. About an hour and a half later, the aircraft ran into a blizzard and crash-landed in a desolate stretch of country near Great Slave Lake. The temperature ranged from 10 degrees above zero to 20 degrees below. Royal Canadian Air Force search and rescue headquarters in Winnipeg were notified on November 22, by the Royal Canadian Air Force at Fort Simpson, that the *Beaver* was missing.

SIGNAL DETECTED

On November 24, flying above cloud at 8,000 feet, an RCAF *Albatross* search and rescue plane picked up and "homed-in" on distress signals from a *SARAH* (Search And Rescue and Homing) manually-operated distress beacon and the CPI automatic one. A second *Albatross* picked up only the CPI beacon signal. The maximum ranges obtained with the *SARAH* were 24 miles and, with the CPI, 32 miles. After the crash site had been pinpointed, a civilian aircraft from Hay River picked up the two survivors, who had not been injured.

The Crash Position Indicator was developed jointly by NRC's National Aeronautical Establishment and the Radio and Electrical Engineering Division. NAE developed the aerofoil crash recovery system, while REED and NAE jointly developed the