formed at Chalk River to expedite the production and shipping of the rapidly-increasing number of isotopes required by industry, medicine and research.

In 1954, a new building was completed at Tunney's Pasture in Ottawa, and the sales, administration and isotope-production groups were brought together for the first time. By 1955, CP employed 175 people located in the two buildings in Ottawa. The radium group had moved up from Port Hope and the isotope group had moved down from Chalk River.

The range of cobalt-60 teletherapy units expanded into Theratrons (rotational machines) and Eldorados (stationary machines). The various models produced began to use up the alphabet. The Eldorado Model A was followed by the Theratron B, Theratron Junior, Caesatron (a unit employing a caesium-137 source, used primarily for head and neck treatment), Theratron F, Eldorado G, Eldorado Super G, Theratron CII, and a new generation of units: the Theratron's 60 and 80 and Eldorado's 6 and 8. The later group of units proved to be particularly popular and several hundred were sold to other countries. Current production includes the new sophisticated Theratron 780 and Eldorado 78.

Each successive unit reflected the current advances in technological design. In 1968, the Therasim, a teletherapy simulator used in the preparation of precise treatment prescriptions, was added to the line. This was followed by the TP-11, a computerized treatment-planning system capable of preparing, in seconds, complex, highly-accurate, teletherapy-treatment plans.

Accelerator production

In the late Sixties, it was realized that CP's competitors were making considerable gains in the cancer-treatment market by offering medical linear accelerators. These are high-voltage therapy units employing electron and photon beams rather than gamma rays, as in cobalt-60. In order to offer a complete teletherapy line of equipment, Commercial Products decided to enter this new and highly-complex field. Having little previous experience with medical accelerators, CP in 1972 decided to make a development, production and marketing agreement with CGR-MeV, a company with considerable accelerator expertise based in Paris.

Cancer patterns in Canada, 1931-1974

Cancer is the leading cause of loss-of-life-expectancy for Canadian women and the third most frequent cause for men, according to *Information on cancer patterns in Canada from 1931-1974*, a report released on May 20 by Health and Welfare Minister Marc Lalonde.

Breast cancer, the most frequently occurring type among Canadian women, is responsible for about 3,000 deaths a year and 23 per cent of the loss of female-life expectancy due to cancer. Lung cancer, the most frequent type in Canadian men and the third most in women, was responsible for all of the large increase of the cancer death rate for Canadian men during the past 25 years. Cancer of the large intestine ranks second in frequency for both sexes.

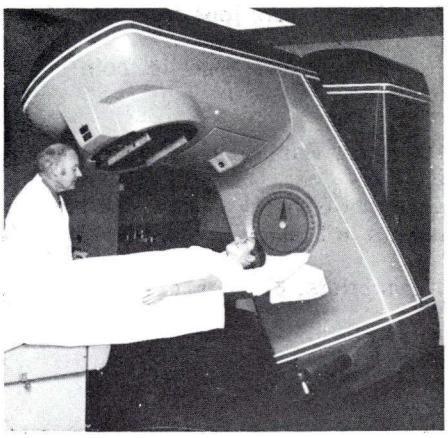
The first AECL-manufactured linear accelerator, the Therac 6, was installed in November 1975 at the London Clinic of the Ontario Cancer Foundation, Victoria Hospital – a case of history repeating itself. Today CP is shipping and installing medical accelerators to customers in many parts of the world.

On the ground that "the more people investigating gamma irradiations, the greater likelihood of commercial processes evolving", AECL introduced the Gammacells in 1958. These are self-shielding units that can be installed in unshielded laboratories. The Gammabeam version employs an exposed source for panoramic irradiation and requires a shielded room. Some 321 Gammabeams and Gammacells are now serving research projects in 41 countries.

Mobile irradiator

In 1961, CP placed on the road a mobile irradiator equipped with 40,000 *curies* of cobalt-60, intended primarily for the irradiation of potatoes but subsequently used to irradiate a number of different foods. It was employed for extensive field tests in the Maritimes and Ontario, and was also leased to the United States Department of Agriculture for test irradiation of fruit and vegetables in the Fresno, California area. Cobalt-60 irradiation inhibits sprouting in potatoes and decay organisms in other foods, thereby increasing their "shelf-life". These tests led to the sale of irradiated potatoes in Canada for a short time – a first for any Western country. The irradiation of foods proved feasible as a process, but economic reasons, particularly in Western countries, rule out its use at present.

The experience gained with the mobile irradiator served AECL well in the design of an automatically-controlled irradiation facility for the sterilization of disposable medical products. Early units were installed at San Angelo, Texas, for Ethicon and at Upper Hutt, New Zealand, for Tasman Vaccine Laboratory Limited. The units are used to sterilize nearly 200 items, such as sutures, blood kits and bandages, after they have been packaged for shipping. They have made rapid inroads into a sterilization field previously dominated by the ethylene-gas method. Forty-four plants round the world supplied by AECL constitute over two-thirds of all such facilities in existence. The larger units now being installed have a capacity of up to two million *curies* of cobalt-60.



Commercial Products' Therac 6, the first linear accelerator for cancer therapy, was installed in the London Clinic of the Ontario Cancer Foundation, Victoria Hospital, in November 1975. Today CP is installing medical accelerators in many parts of the world.

Since the late Forties, CP has become a world leader in the supply of bulk radioisotopes to the pharmaceutical industry. It is interesting to note that at that period CP sold iodine-131 for medical purposes at $1.00 a *millicurie* but today, owing to increased effi-

(Continued on P. 6)