



CANADA

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CANADA'S POLICY FOR URANIUM SALES

The following statement was made to the House of Commons recently by Prime Minister L.B. Pearson:

...World requirements for uranium for peaceful purposes will increase very greatly in the years to come. Canada holds a substantial portion of the known uranium reserves of the world and in the future may well be the largest single supplier for the rest of the world. It is vital that the Canadian industry be in the best possible position to take advantage of expanding markets for the peaceful uses of this commodity.

GUARANTEES OF PEACEFUL USES

As one part of its policy to promote the use of Canadian uranium for peaceful purposes, the Government has decided that export permits will be granted, or commitments to issue export permits will be given, with respect to sales of uranium covered by contracts entered into from now on, only if the uranium is to be used for peaceful purposes. Before such sales to any destination are authorized, the Government will require an agreement with the government of the importing country to ensure, with appropriate verification and control, that the uranium is to be used for peaceful purposes only.

Canada has been a member of the International Atomic Energy Agency since its inception and successive governments have vigorously supported the principle of safeguards on uranium sales. This policy is a fundamental part of Canada's general policy to work internationally to avoid the proliferation of nuclear weapons.

COMMERCIAL ASPECTS

As to the commercial aspects of the policy, two general principles will apply, designed to facilitate exports and to ensure that the requirements of both

export and domestic consumers are met in an orderly way.

First, the Government recognizes that countries constructing or planning to construct nuclear reactors will wish to make long-term arrangements for fuel supply. Accordingly, the Government will be prepared to authorize forward commitments by Canadian producers to supply reactors which are already in operation, under construction, or committed for construction in other countries for the average anticipated life of each reactor, generally calculated for amortization purposes to be 30 years.

Second, and in addition, the Government will be prepared to authorize the export for periods of up to five years of reasonable quantities of uranium for the accumulation of stocks in the importing country.

Within the terms of the policy I have outlined, the Canadian Government will actively encourage and assist the Canadian uranium industry in seeking export markets. The commercial aspects of the policy will, of course, be reviewed from time to time in the light of changing conditions.

PURCHASES FOR STOCKPILING

Finally, in order to avoid any reduction in the current level of employment and production in the industry in Canada, the Government will purchase uranium for stockpiling to the extent that current sales prove insufficient to achieve this objective during the next five years. These purchases will be made at a price of \$4.90 per pound of uranium oxide. Purchases will be made only from companies which have previously produced uranium and will be limited, in the case of each company willing to sell at \$4.90, to the amount necessary to maintain an appropriate minimum level of employment and production for that company....

DENTAL CORPS ANNIVERSARY

The Royal Canadian Dental Corps observes its fiftieth anniversary this year.

In April 1915, military headquarters authorized the formation of the Canadian Army Dental Corps. Before that, civilian dentists who had voluntarily set up a clinic in a converted cow-stable at Toronto's exhibition grounds had been providing treatment to recruits. From this beginning, the Corps has grown in size and efficiency to today's well-equipped force of 184 officers and 331 other ranks, plus 65 civilians.

The RCDC is one of the few Canadian military organizations that do not have to adjust to integration; it has been operating on this basis since 1939.

SERVICE IN WORLD WAR I

During the First World War, the Canadian Army Dental Corps saw service in all fields where the Canadian Army was fighting. The president of the British Dental Association said in 1915 that the Canadian Army was the only one in the world that attempted to send its soldiers to the front "dentally fit" and kept them so.

At the end of the war, the Corps was demobilized, but before this every practicable effort was made to ensure that each soldier returning from overseas for release was dentally healthy. This huge task was completed about the end of 1919. Disbanded in 1920, the Corps was re-authorized in June of the following year, but its fortunes faltered between the wars and the dental needs of the army were largely administered through the Medical Corps by contracting civilian dentists.

SERVICE IN WORLD WAR II

On the outbreak of the Second World War, the CDC war organized along the lines recommended by a committee of the Canadian Dental Association to serve all three services. At its wartime peak, the Corps consisted of 40 companies, of which 18 were overseas, 14 looking after the army, three the Royal Canadian Air Force and one the Royal Canadian Navy. In Canada, 22 companies were distributed in proportion to the services concentrations.

Dental officers and men served in every theatre of war and gave treatment closer to the front lines than those of any other country, by means of field dental kits and dental vans that often rolled almost onto the battlefield.

NEW NAME ADOPTED

Both regular and militia formations were redesignated the Royal Canadian Dental Corps on January 15, 1947. Today, members of the RCDC are employed wherever Canadian armed forces are to be found, using the most modern equipment and the latest techniques. They served in the Far East during United Nations operations in Korea and are serving now in Europe, Egypt and Cyprus.

FULL-TIME COLLEGE ENROLMENT

Full-time university-grade enrolment in Canadian universities and colleges at December 1, 1964, was 178,238, larger by 12.5 per cent than the preceding year's comparable figure of 158,388, according to an advance release of figures that will be contained in the Dominion Bureau of Statistics report "Survey of Higher Education - Part I: Fall Enrolment in Universities and Colleges", for 1963-64 and 1964-65.

Full-time graduate enrolment increased about twice as much (23.9 per cent), from 1963-64 to 1964-65, as undergraduate enrolment (11.7 per cent). The increase in the enrolment of women (18.4 per cent) was higher than that for men (10.2 per cent).

PROVINCIAL FIGURES

By province, enrolment increases from 1963-64 to 1964-65 ranged from a low of 4.2 per cent for Manitoba (owing to the raising by the University of Manitoba of its minimum entrance requirement from junior to senior matriculation for 1964-65) to 24.2 per cent for Saskatchewan. The large Saskatchewan increase was mainly accounted for by the absorption of all teacher-training in the province by the University of Saskatchewan in 1964-65.

By including full-time enrolment at all affiliated institutions in 1964-65, the Université de Montréal was largest with 25,534 university-grade students, followed by the University of Toronto (16,387), the University of British Columbia (15,217), Université Laval (14,873), the University of Alberta (12,664), and McGill University (10,808).

AID FOR AIRSTRIPS

The Federal Government will contribute \$40,000 toward the construction of two airstrips on northern Baffin Island, scene of one of Canada's richest iron-ore discoveries. The job will be done by Baffinland Iron Mines Limited, which is developing a high-grade deposit at Mary River.

One airstrip is being constructed at Mary River and the other 65 miles away at Milne Inlet, whence the company hopes to ship the ore by sea. Both will be 5,500 feet long by 150 feet wide - large enough for DC-4s and similar aircraft.

BOOST FOR ARCTIC ECONOMY

The Department of Northern Affairs and National Resources is helping to build the strips in line with its policy of encouraging northern mining development. Exploitation of the Baffin Island discovery will boost the economy of the Eastern Arctic and, in fact, all Canada.

Baffinland Iron Mines has spent about \$1 million on exploration and development of its Mary River property. So far it has outlined 135,000,000 tons of ore grading 69 percent iron - good enough for direct shipping. The company hopes to start production by 1970. This year it will begin feasibility studies covering markets, transportation, hydro-electric power and townsite planning.

NEW ARMED FORCES COMMAND

The command structure of the Canadian armed forces has been re-designed on a functional basis, in keeping with the principles and objectives outlined in the White Paper on Defence of March 1964. This is the second major step in the integration of the forces. The first was the integration of Canadian Forces Headquarters in Ottawa, which began in August 1964.

The command structure has been streamlined to reduce overhead and enable the forces to carry out their roles to maximum effect within the resources available.

Where there were formerly 11 major commands in Canada, there will now be six: Mobile Command, Maritime Command, Air Defence Command, Air Transport Command, Training Command and Materiel Command.

EXCEPTIONS TO THE RULE

The 4th Canadian Infantry Brigade Group and No. 1 Air Division, which form Canada's contribution to NATO Europe, will, because of the nature of their roles, continue to report direct to Canadian Forces Headquarters.

Administration of the militia, aid to the civil power, civil survival and provincial representation will be provided by small regional offices reporting direct to Canadian Forces Headquarters. Initially, there will be four regional offices and 12 subordinate district offices, but the final number and disposition is still under study.

OPERATIONAL COMMANDS

The largest of the new functional commands will be *Mobile Command*, composed of the 1st and 3rd Canadian Infantry Brigade Groups, the Special Service Force and tactical air units. Its role will be to maintain combat-ready land and tactical air forces capable of rapid deployment under circumstances ranging from service in the European theatre to peace-keeping operations of various kinds. The location of Command headquarters is under study.

Maritime Command will consist of maritime sea and air forces on the Atlantic and Pacific Coasts. Its primary responsibility will continue to be anti-submarine operations, but with added versatility that will include the provision of "sea-lift" in support of *Mobile Command*. Command headquarters will be in Halifax, Nova Scotia, with a Deputy Commander in Esquimalt, British Columbia, to facilitate local direction and control.

The role of *Air Defence Command* will be one of providing, as in the past, the combat-ready air-defence forces required to meet Canada's NORAD commitments.

NON-OPERATIONAL COMMANDS

Upon *Air Transport Command* will fall the task of providing the strategic airlift of men and materiel necessary to give the forces the mobility required by their prescribed roles. The headquarters of the command will remain in Trenton, Ontario.

Training Command will be responsible for conducting a personnel selection and classification system, and for providing individual training at the basic, elementary and advanced levels. Headquarters will be located in Winnipeg, Manitoba.

Materiel Command will provide the logistics "back-up" for the forces. It will be responsible for the procurement, warehousing, distribution, and major repair and overhaul of materiel. Headquarters will be located in Rockcliffe, Ontario.

The three operational commands - *Mobile*, *Maritime* and *Air Defence* - and the *Brigade and Air Division* in Europe will be responsible for operational training of assigned forces and the operation of immediate support services attached to them.

The new command structure, which reflects the major commitments assigned to the forces by the Government, is the product of careful study by the Defence Staff. Major field commanders of all services have been consulted in detail on the plan, which is four months ahead of schedule.

STAMP TO HONOUR SIR WILFRED GRENFELL

A special postage stamp to honour the centenary of the birth of Sir Wilfred Grenfell, author and medical missionary to Newfoundland and Labrador, was issued by the Canada Post Office on June 9.

Sir Wilfred, who was born at Parkgate, near Chester, England, in 1865, brought a hospital ship to Labrador in 1892 and devoted the rest of his life to the welfare of its inhabitants. He founded hospitals, nursing stations, orphanages, co-operative stores and industrial and agricultural centres. In 1912, he opened the King George V Seamen's Institute in St. John's. He was a prodigious author, writing more than 20 books, mostly about Newfoundland, and Labrador. His work has been continued by the International Grenfell Association which operates health and welfare stations at a score of places in Northern Newfoundland and Labrador.

The stamp, of the five-cent denomination, will be printed in green and will show Sir Wilfred at the

helm of a ship navigating the ice-infested waters off the Newfoundland coast. It has been designed by the Canadian Bank Note Company Limited based on photographs obtained from the International Grenfell Association.

NWT SEEKS TOURISTS

East is East, and West is West, but the North is something special. Bringing this message to world travellers wherever they may be found is the special task of the Northwest Territories Tourist Office.

In May, the first of a proposed series of travel displays was set up by the NWT Tourist Office at Toronto's International Airport, and early this month a similar display was installed at Uplands Airport in Ottawa. The aim of both is to show the travelling public "what to see where and how to get there".

ARCHITECTS OF FEDERAL BUILDINGS HONOURED

Winners of national awards for excellence in the architecture of federal public buildings were announced recently by Public Works Minister Lucien Cardin. Firms from Vancouver and Toronto were selected for the first design awards made by Mr. Cardin.

Two of the four designs chosen were by the Vancouver firm of Thompson, Berwick and Pratt. The other firms chosen are Gardiner, Thornton, Gathe and Associates of Vancouver for their design of the St. Mary's Indian Residential school of Mission City, British Columbia, and Short & Moffat and Partners of Toronto for their design of the Sir Alexander Campbell Post Office Department headquarters at Ottawa.

The two designs by Thompson, Berwick and Pratt are the Fisheries Research Board's technological station and the Agriculture Department's science service laboratory, both on the University of British Columbia campus at Vancouver.

AIM OF AWARDS

The design awards programme was conceived and initiated by Mr. Cardin's predecessor, Mr. Jean-Paul Deschatelets. It is intended to recognize outstanding examples of Federal Government architecture executed for the Department by registered Canadian architects. It also aims at promoting public interest in the design of federal buildings.

The programme is the second measure introduced this year by the Works Department to promote public interest and encourage excellence in public architecture. In February, it was decided to devote a percentage of building costs to incorporating fine art work into the design of new federal structures.

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SYMPOSIUM ON FOOD POISONING

Toxic factors in foods, poisons that can harm humans if not carefully controlled in the processing or preparation of foodstuffs, were reviewed and discussed during a two-day symposium held recently in Ottawa. The symposium, sponsored by the Food and Drug Directorate of the Department of National Health and Welfare, was attended by governmental delegates from the United States, Britain and Canada, as well as representatives of the commercial food processors and the universities.

SUBJECTS OF DISCUSSION

Discussion ranged from naturally-occurring toxic factors in plants and the use of food additives and pesticides to levels of radioactivity in foods.

Dr. F.M. Strong of the University of Wisconsin reviewed the occurrence of toxic substances found naturally in various foods. He discussed a compound known as *beta-amino-propionitrile* (BAPN), a toxic factor found in the flowering sweet-pea. When fed to growing rats or chicks, BAPN produces skeletal defects, hernias and aortic ruptures. Dr. Strong emphasized, however, that there was no evidence

that BAPN or other compounds capable of producing similar damage to the connective tissues of the body occurred in human foods. Dr. Strong also noted that severe hypertensive crises might occur in human patients receiving tranquilizers after eating aged cheese. Apparently, tranquilizers reduce the ability of patients to "detoxify" substances known as *pressor amines*, which are found in several varieties of aged cheese. Cycad plants, which are widely used in tropical and subtropical areas as sources of starch, contain highly toxic substances normally removed by soaking the seeds in water before use.

EFFECTS OF FALLOUT

Dr. P.M. Bird, Chief of the Radiation Protection Division, Department of National Health and Welfare, discussed the public-health aspects of radioactive fallout from nuclear-weapons tests. He stressed that there was no evidence that present levels of radioactivity in foods constituted a hazard to human health. He said that Canadian results in this field appeared comparable to those obtained in the United States and Britain. Dr. Bird mentioned that a unique food-chain cycle found in the Canadian North was resulting in significantly higher levels of radioactive cesium in caribou than in beef. This particular aspect is being studied further.

Dr. F.S. Thatcher, Chief of the Microbiology Division of the Food and Drug Directorate, pointed out that a main cause of food poisoning was toxins produced by bacteria. Food poisoning from eating foods contaminated with *staphylococcus* bacteria had probably been experienced in some form by nearly every family, he said.

Dr. B.L. Oser, President of Food and Drug Research Laboratories Incorporated, New York, discussed problems related to the use of food additives. He pointed out the complicated nature of food laws and made a special plea for informative labeling on foods, to inform consumers properly of the composition of food products.

EFFECTS OF PESTICIDES

Dr. O. Garth Fitzhugh of the United States Food and Drug Administration presented evidence that the presence in the human diet of small amounts of a variety of pesticides and other chemicals used in food production or processing was not a health hazard. He stressed the necessity for adequate testing of pesticides and pointed out some of the difficulties in extrapolating animal data to humans.

Dr. R.A. Chapman, Director of the Canadian Food and Drug Directorate, traced the development of food laws in Canada from the relatively primitive controls over elementary aspects of food sanitation and adulteration that existed 90 years ago to present legislation giving broad protection against a wide variety of hazards, including those resulting from modern food-production and processing techniques. He pointed out that, during the previous 10 to 15 years, there had been marked increases in the use of chemicals in food production and processing. This had necessitated new regulations under the Food and Drugs Act to protect consumers against health hazards and fraud.

TECHNOLOGY AND ECONOMIC GROWTH IN CANADA

The following passage is part of a speech by Mr. C.M. Drury, the Minister of Industry, to the Canadian Manufacturers' Association in Toronto on June 7:

...The intensive application of science to industry has introduced a new and potent force in economic and commercial affairs. With our relatively "open" economy and the progressive reduction of trade barriers throughout the world, Canadian industry will have to face more intense competition at home and abroad. And that competition is no longer merely a contest of price — more and more it has become a battle of invention and innovation, in which scientific superiority and technical excellence are becoming major weapons. Thus, for Canada, the attainment of the desired rate of economic growth will now depend to a greater extent than ever before on the expansion of our manufacturing industry; this in turn will necessitate more effective exploitation of new technology. Therefore, in the final analysis, we must look to research and development in large measure to spark the process of industrial expansion and economic growth for the future.

STATE OF CANADIAN TECHNOLOGY

...Taken as a whole, Canadian manufacturing industry in 1963 displayed a "research intensity" of about 1.1 per cent, which was equivalent to a research and development expenditure of about one-half cent per dollar of sales. By comparison, British industry spends three times, Sweden four times, and the United States over six times as much relative to net output. While the foregoing may be largely a reflection of the subsidiary character of much of our manufacturing industry, it does not bode well for our future competitiveness in either domestic or international markets.

Since the research needs of different industries vary widely, perhaps a comparison on a sectoral basis would be more meaningful. The results of such a comparison between Canadian and U.S. industry (which is, after all, our main competitor) indicates that, disregarding defence-oriented industry, the research and development effort of U.S. industry exceeds that of Canadian industry by a factor ranging from 1.4 for paper to 5.2 for wood products. If we apply U.S. scales of research and development expenditure to the production levels of Canadian industry, we find that our total research and development expenditure would have to be four and a half times greater to match U.S. performance....

It is sometimes argued that it is not necessary for Canada to spend as much proportionately on research and development as other industrialized countries because of our extensive use of imported technology. The knowledge and skills which we have acquired from other countries have contributed greatly to the growth and productivity of our industry and to the high standard of living we enjoy today. We must continue to draw on these sources of technology in future.

However, it must be appreciated that undue reliance on imported technology can impose definite

limitations on the future viability and growth of Canadian industry. Any industry which is dependent on licensed or imported technology will lag behind the current state-of-the-art and hence forfeit the rewards which stem from technical leadership. Moreover, it is generally accepted that industry must actively engage in research and development in order to assimilate and successfully exploit new technology. The dramatic transition of Japanese industry in the last decade from an economy of "imitation" to an economy of "innovation" is an excellent example of the results which can be achieved by concerted effort.

ECONOMIC AND TECHNOLOGICAL OBJECTIVES

The Economic Council of Canada, in its first annual review, called for the attainment of a real annual growth rate for the Canadian economy of 5.5 per cent *per annum* so as to sustain a rising standard of living and to provide employment for a rapidly growing labour force (i.e. 200,000 new jobs *per annum*). This is a substantially higher average growth rate than has been achieved over any earlier period in our history. The Council identifies manufacturing industry as the key sector upon which the desired productivity expansion must be based and calls for the attainment by 1970 of "a high-education economy, a high-research economy, a high-innovation economy and a highly competitive economy".

In line with the foregoing, I believe that a three-fold increase over the current level of innovation activity in Canadian industry is essential if our manufactured goods are going to compete successfully in world markets. For these reasons, I have indicated the need for a target growth rate for industrial research and development of 20 per cent *per annum* to be sustained over a period of five years to bring us into line with other industrialized countries.

INDUSTRIAL RESEARCH INCENTIVES

As a matter of national policy, the governments of most modern countries recognize an obligation to stimulate technical progress and innovation activity in their industry by various forms of direct or indirect financial assistance. Relative to gross national product, the U.S. Government financed about 20 times as much industrial research and development as Canada; Britain about 11 times, and France and Sweden about six times as much. These expenditures produce a substantial upgrading of industrial skills and technology in those countries and place their manufacturers in a very favourable competitive position.

The importance of science and technology to Canada's economic well-being has been recognized by the Federal Government in recent years and several measures have been introduced to stimulate research and development activity in Canadian industry. The most comprehensive measure for this purpose is, of course, the tax-incentive programme, whereby firms are permitted to deduct 150 per cent of any increase in their research and development

(Over)

expenditures over the 1961 base year. This programme was established for an initial period of five years and, where full advantage can be taken, effectively reduces the net cost of new corporate research and development activity to 25 cents on the dollar.

Preliminary analysis of the effects of this incentive indicates that its major effect was on capital expenditure, which rose by the remarkable figure of 140 per cent between 1961 and 1963. In the case of current expenditure, the overall rise in company-financed research and development was 43 per cent, which includes the combined effects of the tax incentive and normal growth over the two year period.

NEW INCENTIVE MEASURES

As a result of the favourable experience to date with this scheme, my colleague the Minister of Finance announced in his recent budget speech the Government's intention to continue to provide a general incentive after 1966 when the present tax provision expires. This incentive will be administered by the Department of Industry. It will take the form of a grant or tax credit equal to 25 per cent of defined research and development expenditures, and will be in addition to the normal 100 per cent deduction permitted for income tax purposes. This will greatly broaden the availability of the incentive. Other changes will be introduced at the same time to improve its effectiveness. These improvements include qualification of all capital expenditures for the bonus and the use of a three-year moving base for determining the increment on current expenditures.

The general incentive serves to create a favourable climate for the expansion of research and development activity on a broad front. However, it does not meet the needs of many situations - in particular, those which involve new, small, or growing industries or projects of considerable technical risk. To ensure, so far as it is practicable to do so, that no worthwhile development projects are abandoned for lack of financial support, the general incentives must be complemented and reinforced by specific incentives in the form of direct financial assistance. Assistance programmes for defence research and defence development have been in existence for several years and, since 1962, the National Research Council has supported an Industrial Research Assistance Programme designed to foster the establishment and expansion of research activities in industry generally.

Last Friday, I announced in the House of Commons our plans for the establishment of a Programme for the Advancement of Industrial Technology, designed to stimulate the application of science and technology to the development of new or better products and processes by Canadian industry. This programme will complement the NRC Research Assistance Programme and, subject to the provision of funds by Parliament, it is hoped that it will come into operation in the very near future.

The basic idea to this programme is to help industry help itself in upgrading its technological capability and expanding its innovation activity by underwriting development projects involving technical risk. In line with this conception, initiative for proposing projects and responsibility for their subsequent directions and execution would, of course, rest with the sponsoring firm. As with the existing assistance programmes, costs will be shared with industry. In the event of commercial exploitation of successful projects, payback will be required. In order to ensure rapid and effective exploitation of the results of the development, proprietary rights will be vested in the sponsoring firm....

The foregoing approach represents an attempt to focus the resources of Canadian industry in attacking Canada's "development gap" along a broad front. I think it will also be agreed that the future outlook for research and development in Canadian industry is highly favourable. But the success or otherwise of these incentive or assistance programmes depends ultimately upon the response of industry to the opportunities afforded....

INDUSTRIAL PRODUCTION

Canada's seasonally-adjusted index of industrial production (1949=100) advanced by 1.4 per cent in March, as all three components moved higher - manufacturing by 1.6 per cent, mining by 0.8 per cent, and electric-power and gas utilities by 1.2 per cent.

Based on the latest revised figures, these March movements yield changes from the fourth quarter of 1964 to the first quarter of 1965, on a seasonally-adjusted basis, as follows: the total index of industrial production, +2.5 per cent; manufacturing, +2.4 per cent; durables, +5.4 per cent; non-durables +0.2 per cent; mining, +3.4 per cent; and electric-power and gas utilities, +2.0 per cent.