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RESEARCH AND DEVELOPMENT IN CANADIAN INDUSTRY

The following address was given by the Minister of Industry, Mr. C.M. Drury, at the official opening on June 8 of the new Research Centre of the Steel Company of Canada at Burlington, Ontario.

...Invention and innovation are two of the main driving forces of a modern industrial economy, and scientific research and development are the basic elements of those driving forces. It is most important, therefore, that an environment be created which will encourage a maximum of useful research and development activity in Canadian industry. It is equally important however, that the barriers to the implementation of the successful results of such research be minimized or overcome to the greatest extent possible. There is little point in undertaking research programmes involving product and process development, if other factors prevent the results being exploited to the greatest extent possible.

The Federal Government has, in recent years, introduced a series of programmes and activities to help and encourage Canadian industry to increase its research activities and to exploit the results in a meaningful and profitable manner. I am sure that the Government's concern that Canada should not lag in this key field reflects the attitude of all forward-looking industry in the country.

INADEQUACY OF INDUSTRIAL RESEARCH

We must not make the mistake, however, of minimizing the magnitude of the task before us. A comparative analysis of the research and development activities of Canadian industry indicates that it currently sustains a research activity level of only 1½ per cent of net output as compared to about

2½ per cent for Sweden, about 3 per cent for Britain and 6 per cent for the United States. If Canada is to keep pace with these technological leaders, we must target for an R & D activity equal to 3 per cent or more of output. The attainment of this target by 1970 will require a growth rate for industrial R & D of 3 per cent *per annum*. That is double the present long-term rate and implies an industrial R & D expenditure of the order of \$500 million *per annum* by 1970.

One of the major responsibilities assigned to the Department of Industry was to develop and administer programmes which would help Canadian industry to expand its technological activities. I might say that there has never been the least doubt in my mind that industry itself is in the best position to gauge, and to undertake, those technological tasks which are most likely to lead to more efficient production processes and to the development of better products. This is the best way to improve the productivity of our industries and to increase the generation of wealth in our economy.

AN INCREASINGLY COMPLEX ACTIVITY

The pursuit of technological improvement has become an increasingly complex activity in recent years. Not only must those engaged in these tasks keep abreast of a wide field of rapidly changing technology but, increasingly, they must be aware of the most effective processes for the selection, evaluation and control of research projects. They must, of course, relate their work to the research of other companies, since the ultimate competition for sales is often won or lost in the research department. With the freeing of interna-

tional trade, of which the "Kennedy round" of GATT negotiations is the most recent step, the scope of competition has become increasingly broad. Canadian products and processes are in direct competition with a wide range of items, developed in a multitude of countries. The researcher must, therefore, cast his eyes over a very wide horizon. He must be aware not only of developments in his particular field but also those which are evolving in other product lines which may introduce a new competitive element for his company....

The Department of Industry's scientific programmes have been developed to help Canadian firms in these tasks. Our first step in this direction was the establishment in 1965 of the Programme for the Advancement of Industrial Technology, whereby the Department will share with a firm the financial risk of developing new products or processes involving technical innovation. Since then, PAIT has supported close to 80 new products representing a total development effort of \$31 million.

RESEARCH AND DEVELOPMENT INCENTIVES

More recently, the Department has sponsored the Industrial Research and Development Incentives Act, which replaces the general incentive previously provided under the Income Tax Act. This incentive is regarded as the cornerstone for all of our programmes for stimulating technical innovation by encouraging the introduction of advanced technology into industry where it can be exploited directly for economic purposes. Based on our present projections, we estimate that, in its first full year of operation, this programme will contribute some \$30 million toward the cost of research and development undertaken by Canadian industry. This would be equivalent to about 10 per cent of the current industrial R & D expenditure. Moreover, by converting to a grant system, many new or growing firms, whose profits may be small, will be included. As a result, it is anticipated that the number of firms able to take advantage of this incentive will be more than double those which would have received benefits under the Income Tax Act.

These and other scientific assistance programmes provide risk capital to induce new or small firms to engage in research and development; to foster projects involving high technical risk; to enable established firms to expand their R & D activities; to help obsolescent industry diversify into more sophisticated forms of production; or to support co-operative R & D programmes.

CANADIAN INDUSTRIAL FORECAST ATTRACTIVE

With the incentive programmes now available to Canadian industry, the future outlook for industrial research and development is highly favourable - indeed, we believe it is to be as attractive as anywhere in the world. In the final analysis, however, the success or failure of these programmes depends upon the response of industry to the technology challenge and its willingness to assume the risks of innovation and to exploit the resulting opportunities....

SOVIET FORESTRY VISITORS

A delegation of eight Soviet forestry scientists arrived in Ottawa on June 12 for a month's tour of federal, provincial and industrial forestry establishments in New Brunswick, Quebec, Ontario, Manitoba and British Columbia. The visit, sponsored by the federal Department of Forestry and Rural Development, is the first phase of a reciprocal arrangement that will see Canadian forestry personnel tour the U.S.S.R. in 1968.

The visitors are travelling in two groups of four, one viewing and discussing forest-insect and disease problems and research, the second visiting forest fire protection and research facilities.

NEW SILVER AND GOLD MINE

Mr. Arthur Laing, Minister of Northern Development, has welcomed a recent announcement that the Arctic Mining and Exploration Ltd. is to open a silver and gold mine, which will produce 200 tons a day, 40 miles south of Whitehorse in the Yukon.

Of special interest for the encouragement of other smaller operations in the same area, is the company's intention of constructing a mill with a capacity of 300 tons of ore a day and making some of this capacity available for custom milling.

The mine, which will provide employment for 100 to 120 men, will go into production next summer, by which time \$1,700,000 will have been spent on exploration, development and construction.

STRATFORD SINGERS REHEARSE

A large group of professional singers were welcomed recently by David William and Jean Gascon, directors of the Stratford Festival, when they gathered on the stage of the Avon Theatre to start rehearsals for the eight-week opera season that opens on July 7.

Sylvia Fisher of London, England, will make her Stratford debut as Lady Billows in *Albert Herring*. Miss Fisher has been featured frequently with the Royal Opera Company, Covent Garden, and has sung in concerts and operas throughout the world. Mary Munroe of Dayton, Ohio, who has appeared recently with the Metropolitan Opera National Company and other major companies, will sing Fiordiligi in *Così fan tutte*. Cornelis Ophthof, a native of Holland in his fourth season at Stratford, will sing *Guglielmo* in the same opera. Mr. Ophthof came to Canada some years ago and, among other interesting activities, made an operatic tour of Australia with Miss Joan Sutherland. Czech-born Jan Rubes, a familiar figure at Stratford, will play the role of Don Alfonso. Gregory Dempsey, a member of the Sadler's Wells Opera Company, will play the title role in *Albert Herring*.

SEALING SEASON SHORTENED

Mr. H.J. Robichaud, the Minister of Fisheries, announced recently that the legal season for the taking of harp and hooded seals in the "Front" area, off Canada's east coast, would be shortened by five days next year to give further protection to older, breeding seals. He said a recommendation to this effect had been approved a week earlier at the annual meeting in Boston, at the International Commission for the Northwest Atlantic Fisheries.

Canada, Denmark and Norway, the countries involved in sealing in the Northwest Atlantic, are all members of ICNAF. Other recommendations approved by the meeting call for an expanded programme of research on seals in the "Front" area, consideration of additional regulations from both the conservation and humane points of view, and discussions on international inspection and possible joint enforcement procedures.

Mr. Robichaud said that, for a number of years, Canada had urged that the Atlantic seal fishery be brought within ICNAF's sphere of responsibility, and that this had finally been achieved last year. However, he emphasized, even while the formalities in attaining this were under way, the individual countries concerned, particularly Canada and Norway, were carrying out programmes of research as well as studying other aspects of the seal fishery.

The Minister said that the recommendation to terminate the seal fishery next year on April 25, instead of April 30 as in previous years, was an important step in providing additional protection for older seals. Also approved by ICNAF was a recommendation prohibiting the taking of adult seals in whelping patches. Mr. Robichaud pointed out that this prohibition had been observed by Canada, Denmark and Norway for a number of years under a "gentleman's agreement"; in effect, it was now confirmed by the Commission.

Mr. Robichaud added that two other provisions under the "gentleman's agreement" would continue to be observed by the three countries. These consist of a prohibition against the use of helicopters or other aircraft in sealing operations on the "Front" and a requirement that seal pelts be removed from the ice to the base of operations within 24 hours from the day the seals are killed.

RESEARCH PROGRAMME ESSENTIAL

In considering the need for additional regulations, the Minister said, it was imperative that there should first be a thorough and objective programme of research to determine what is required in the way of controls. While a good deal of research on seals has been conducted in the "Front" area, it was felt by the ICNAF panel on sealing that this activity should be expanded. As a result, the Commission approved the recommendation that seal scientists from Canada, Denmark and Norway meet in Hamburg next autumn to consider research requirements and formulate a coordinated programme to provide the data required for determination of population estimates and sustainable yields. At the same time, senior officials of the three countries will meet to give serious consideration to sealing regulations, taking into account both conservation and humane factors, and they will also discuss international inspection as well as possible enforcement procedures.

Mr. Robichaud said that his discussions with the Norwegian representatives were most cordial and promising. Regarding the use of humane methods in taking seals, he added, Norway intended to adopt similar regulations to those of Canada and both countries would co-operate closely in the formulation of these regulations and in their enforcement in the "Front" area.

STUDENTS' HOUSE WING BEGUN

On June 15, Mr. Paul Martin, the Secretary of State for External Affairs, laid the first stone of a new wing of the "Maison Canadienne", which is one of the residences at the famous Cité universitaire in Paris.

Last December, the Canadian Government granted \$500,000 to build the new annex, which, when completed will offer accommodation for 126 students.

In a brief address on this occasion, Mr. Martin observed that the centre "which facilitates the growth of new friendships between Canadian and French students and between Canadians themselves, is also a good place for the development of a better knowledge among the young people of the numerous countries represented in the Cité universitaire.

"There is a universal need to come to this great capital and benefit from the centre of French university life," he declared. "It is a tribute to French

culture, to this indefinable synthesis of intellectual and moral qualities which brings an extra dimension to the life of twentieth-century man...."

The Minister concluded in the following words: "There was a time when the burden of putting into effect ideas such as the one which brought about the creation of this House were left by the governmental authorities to private initiative. That time is over and governments should now contribute financially to the continuation of certain particularly worthy projects. I now have the honour and the pleasure of representing the Federal Government, which wished to associate itself with this work by giving to present and future generations of students a building that will meet present requirements. It is, therefore, a great pleasure for me to lay the first stone of the new wing of the Canadian Students' House, which will enable twice as many students to contribute to a cause that is particularly dear to me, the development of cultural and intellectual ties between France and Canada."

MEDICAL HELP TO VIETNAM

One of Canada's programmes to help Vietnam's Ministry of Health is a pilot project to combat poliomyelitis, which in 1966 struck down more than 1,700 persons in Saigon. The project should provide protection for all children from the age of six months to 12 years. Under the external aid programme, Canada has supplied 540,000 doses of trivalent oral Sabin vaccine - enough for 250,000 children. The vaccine, which is produced in Montreal, was the first of its kind to reach Vietnam.

HOSPITAL FACILITIES

Canada is also providing Vietnamese health officials with ten emergency hospital units valued at \$70,000 each, which formed part of the national medical stockpile assembled by the Emergency Health Services of the Department of National Health and Welfare. Packed in colour-coded boxes for easy distribution, each hospital unit has 200 beds and equipment to set up three operating-rooms, receiving and recovery rooms, general wards, X-ray facilities, a pharmacy, a central supply-room and a laboratory.

At a ceremony marking the arrival of the first emergency hospital unit in Vietnam, Dr. Tran Lu Y, South Vietnam's Minister of Health said: "The unselfish and humanitarian aid of Canada has aroused a deep affection among the Vietnamese people."

HOUSING FOR MINERS

Mr. John R. Nicholson, the Minister of Labour, announced recently that the Central Mortgage and Housing Corporation, the Ontario Housing Corporation, Falconbridge Nickel Mining and the International Nickel Company would co-operate in a housing programme to meet the acute need for accommodation in Sudbury, Ontario, created by expanded mining activities. "I have attended several meetings in Sudbury," Mr. Nicholson said, "and as a result of my visit I have concluded that the total number of units started this year will have to double the 400-unit per annum average rate of the past few years to accommodate the influx of workers and their families resulting from the rapid expansion of mining and smelting operations now taking place in the area."

During the next two years, mining is expected to produce new employment for some 4,000 workers and, though many will be drawn from the Sudbury area, others will come from elsewhere and the rate of housing production must be increased to accommodate them.

RENTAL HOUSING PROJECTS

To meet the additional demand, most of which will be in a form of rental housing, said Mr. Nicholson, he was instructing the CMHC to make funds available for 200 rental housing units. "In addition," he said, "funds will be provided under the National Housing Act to Ontario Housing Corporation for the production of 100 rental units and the two major mining companies will be asked to provide funds directly or

obtain funds from private lenders for a further 150 units. I expect that 800 starts during 1967 will head off a housing shortage which may otherwise occur."

ONTARIO LAND USE STUDY

The Federal Government and the Province of Ontario have agreed to continue a basic fact-finding inventory that will show the relative productivity of land for forestry, wildlife and recreation purposes. Under the Canada Land Inventory Programme a sum of \$695,000 has been provided by the Federal Department of Forestry and Rural Development to enable the Ontario Department of Lands and Forests to proceed with this important work.

Data gathered by modern aerial and ground methods will be mapped and, using electronic scanners, will be stored in a "bank" ready for use when needed. Employment of such modern technological methods will permit the making of decisions on land use under the various programmes, ARDA (Agriculture and Rural Development Act) and FRED (Fund for Rural Economic Development).

NEW ATLANTIC FERRY

The *Frederick Carter*, a new railway-car and transport-truck ferry to be operated by the Canadian National Railways between North Sydney, Nova Scotia and Port aux Basques, Newfoundland, was launched recently at Lauzon, Quebec. The Minister of Transport, Mr. J.W. Pickersgill, was present, as well as senior representatives of his Department, of the Canadian National Railways and of the shipbuilding firm.

The vessel, named after a former Prime Minister and Chief Justice of Newfoundland, was built at a cost of \$10,750,000. The twin-screw vessel is expected to be ready for service by next autumn.

CENTENNIAL MILITARY HISTORY

As one of its centennial observances, the Department of National Defence will publish a 270-page history entitled *The Armed Forces of Canada, 1867-1967*.

For the first time, the story of Canada's Navy, Army, and Air Force from Confederation to the present day is told in a single book, designed to appeal to a wide readership. Edited by Lieutenant-Colonel D.J. Goodspeed, the senior historian of the Canadian Forces directorate of history, the centennial volume contains 250 photographs, 35 in colour, some of which are reproductions of paintings in the National Gallery of Canada.

An outline of the campaigns that constitute the military story of Canada, including encounters with the Iroquois, the Anglo-French struggle for North

America, the defence of Quebec in the American War of Independence, the War of 1812 and the Fenian Raids is provided in the Introduction.

Most of the book deals with the post-Confederation period — the two Red River expeditions, the Nile *Voyageurs*, the South African War, the First and Second World Wars and the Korean War, as well as the shifting scene during periods of peace. Chapters are devoted to the development of the Canadian Armed Forces in the nuclear era that has prevailed since 1945, and to Canada's part in international peace-keeping operations.

ORPHANS SAIL TO EXPO

A small group of orphaned children will sail this month from Charlottetown, Prince Edward Island, to the Montreal World Exhibition aboard the Canadian Coast Guard Ship *Tupper*. Arrangements for the trip were made by the federal Department of Transport and the provincial command of the Royal Canadian Legion when it was learned that the *Tupper* was making an official visit to Expo '67 as part of the DOT's centennial programme. The Legion undertook this project so that some at least of the children in Prince Edward Island's orphanages might enjoy the same privileges as the many Canadian schoolchildren who have made and are making sponsored visits to Expo '67.

Although Coast Guard ships do not usually carry passengers, the Transport Department decided that the *Tupper* could accommodate a few children with a matron in charge of them.

The ship, named after Sir Charles Tupper, one of the Fathers of Confederation, will take three days to sail to Montreal where, during a seven-day stay at Expo, it will be open to the public.

HOUSING AID TO PAKISTAN

Mr. Paul Martin, Secretary of State for External Affairs, recently announced the award of a final contract that completed one stage of Canada's participation in a refugee-housing scheme in Lahore, Pakistan. The contract covers two 150-kilowatt diesel-electric generating plants at a total estimated cost of \$49,597. Road construction machinery, a crushing plant, conveyors, lumber and a water distribution system were supplied by Canadian companies under earlier contracts.

Canada has given Pakistan \$2,250,000-worth of construction material and equipment to build new housing for thousands of displaced persons who have been living in sub-standard accommodation in the Lahore area. The majority are Moslem refugees who left their homes in India following the partition of India and Pakistan almost 20 years ago. Local labour and material costs of the project are being met by counterpart rupee funds, realized from the sale of industrial commodities and food supplied by Canada to Pakistan under the aid programme.

SIMPLE BUT ADEQUATE HOMES

Long rows of simple but adequate homes have been built on a three-thousand acre new town-site on the outskirts of the ancient city of Lahore, near newly-created industrial estates. The planned development project centres on shopping, municipal and community services. The target date for completion of the 10,000 homes, accommodating some 50,000 people, is 1970. As groups of new-town dwellers move into their homes, the land they are now occupying in Lahore will be redeveloped to accommodate new industries and buildings.

NEW SCHOOL-LIBRARY LIST

A new school-library list which contains about 2,500 titles has been prepared by the Department of Indian Affairs and Northern Development and the Canadian Government Printing Bureau.

Nearly 500 of the books were chosen to stimulate the Indian student's interest and pride in his culture and history. With titles like *Stories of the Iroquois* to *Indians of North America*, they retell the history of the Indians as well as describing their traditional clothing, handicrafts and legends.

"A new school-library list is expected to be a boon to Indian students in their studies," Indian Affairs Minister Arthur Laing said. "The fact that the list will be available to Indian and non-Indian students should help both to understand one another better."

Each title contains essential bibliographical data such as classification numbers, names of authors, titles, publishers and approximate school-grade levels.

Teachers at Indian schools across the country will find the list invaluable in selecting books for their libraries, since it offers a balanced collection of titles suitable for various curricula. Mr. Laing added that special attention would be given to the development of school libraries and to the training of teachers in school-library work.

RCA SALE TO COLOMBIA

Mr. Robert Winters, the Minister of Trade and Commerce, recently announced the sale of Canadian telecommunications equipment and related services to Colombia.

The sale, worth \$800,000, will be financed through the Export Credits Insurance Corporation, which administers the Canadian Government's long-term export-financing programme; it is the first financed sale under this programme to a buyer in Colombia. The purchaser is Empresa Nacional de Telecomunicaciones, the communications agency of the Colombian Government. RCA Victor Company, Ltd., of Montreal, will supply the equipment and services to modify the existing Colombian VHF telecommunications network, which was originally supplied by RCA Victor.

The project will provide an improved facility on an interim basis. Plans are proceeding for a much larger programme involving the rehabilitation and expansion of Colombian national long-distance telephone services. The World Bank has recently agreed to provide \$16 million to help finance the larger programme.

In making the announcement, Mr. Winters congratulated the exporter on obtaining the order. "Such sales he said, "are helping to establish a world-wide reputation for Canadian equipment and design, so that more and more capital goods importers are looking to Canada to supply their needs." He said he hoped the sale would lead to further mutually beneficial relations between Canada and Colombia.

This is the thirty-ninth long-term financing agreement signed under the Export Credits Insurance Act and brings the total amount of contracts signed to \$332 million, projects having been financed in 14 countries. To May 31, 1967, disbursements totalled \$223 million, and repayments \$45 million.

ARCHITECTURAL SCHOLARSHIPS

The winners of seven travelling scholarships offered annually by the Central Mortgage and Housing Corporation to students of Canadian schools of architecture were announced recently by CMHC President H.W. Hignett. The awards are made available to students planning their final year of architectural studies, on the basis of scholastic achievement and interest in housing.

This year's winners represent: the Nova Scotia Technical College, Halifax; Laval University, Quebec; McGill University, Montreal; the University of Montreal; the University of Toronto; the University of Manitoba and the University of British Columbia.

The purpose of the tour is to enable students to see environmental architecture in some major cities in North America. Following the tour, the students will work in the Architectural and Planning Division at Central Mortgage and Housing Corporation's head office in Ottawa for about eight weeks. Afterwards they will be required to submit a paper on the tour and their work.

Mr. Paul Martin, Secretary of State for External Affairs, recently announced the award of a final contract that completed one stage of Canada's participation in a refugee-housing scheme in Lahore, Pakistan. The contract covers two 150-kilowatt diesel-electric generation plants at a total estimated cost of \$42.5 million. Road construction machinery, a crushing plant, conveyor, lumber and a water distribution system were supplied by Canadian companies under earlier contracts.

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