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CONTENTS

The Chemical Industry in Canada	1	Ambassador from Iran	5
New Mineral Map of Canada	2	Guthrie Award	5
Broadcast Governors Named	3	The Canadian Theatre Centre	5
Oil and Gas Wells	3	Ships for the Navy	5
Manufacturing in Maritimes	4	Retail Sales Larger	6
"Roads to Resources"	4	Housing Units ..	6
Fruit Crop in 1957	4		

THE CHEMICAL INDUSTRY IN CANADA

Mr. H. Greville Smith, President of Canadian Industries Limited, and President of the Society of Chemical Industry, addressed the annual meeting of the Society which was held in Montreal recently. Part of his speech appears below:

"Before the war, new chemical processes often did not come into operation in Canada until many years after their discovery and reduction to practice in other countries. But in the period during and since the war, new processes began to be installed soon after their commercial development elsewhere, reflecting in some measure the advance of secondary manufacturing in this country.

"Thus nylon filament and yarn manufacturing facilities, using imported intermediates, were installed in Canada two years after commercial operations began in the United States; subsequently the Canadian operations were expanded by Du Pont of Canada to include manufacture of intermediates from cyclohexane. This addition was followed by plants to convert acrylonitrile to 'Orlon' fibre and to produce hydrogen peroxide by an organic chemical process, each addition coming soon after introduction of the process in the United States. The manufacture of 'Terylene' polyester fibre, developed in the United Kingdom, was undertaken by C-I-L, thus completing the production in Canada of most of the leading chemical fibres.

"The net effect has been to bring Canada up to the front line in many of the newer

chemical processes. There are, however, some omissions from the list. Owing to the limited domestic market, the less important petrochemicals are unlikely to be made in Canada, except in so far as this can be done with existing plant; conditions for manufacturing dyes in Canada are unfavourable because of the large variety of chemically unrelated products, each consumed in small quantity.

"In the United Kingdom the manufacture of dyes, pharmaceuticals and, later, synthetic resins was closely associated with the coal tar industry which, in turn, owed its existence to earlier developments in the production of iron, steel, coke and manufactured gas.

"The Canadian picture is quite different. Manufactured gas never achieved the same position in Canada that it has in the United Kingdom, hydro-electric power and natural gas being readily available in many areas. The first use for coal tar was to provide creosote for wood preservation, a highly necessary treatment for the millions of railway ties, as well as for telegraph and telephone poles right across Canada.

"The expanding electrochemical industry required carbon and graphite for electrodes and furnace linings. Coal tar pitch has proved to be the best binder for electrodes, but coke from coal tar pitch has largely been replaced for this purpose by the cheaper petroleum coke. Thus the chief products of Dominion Tar and Chemical Company made from coal tar are

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not dyes and pharmaceuticals, but pitch for electrode manufacture and building materials, creosote for wood preservation and phthalic anhydride from naphthalene for resins and paints.

"Another chapter of Canada's story was opened up by the finding of uranium. At the turn of the century, the physics and chemistry departments of McGill University witnessed the basic discoveries by Rutherford and Soddy of the Transmutation of the higher elements by radioactive disintegration. In the 1930's a source of radium was discovered by Gilbert LaBine in the far Canadian north at Great Bear Lake and a radium refinery was built at Port Hope, Ontario. These radioactive materials proved of great importance to the United States during the development of the first atomic bomb. After the war large uranium finds were made, first in northern Saskatchewan and later in Ontario, notably at Blind River between Sudbury and Sault Ste. Marie.

"The extraction of this uranium generally requires sulphuric acid and sodium chlorate. For the new uranium mines in the Blind River area additional sulphuric acid capacity of upwards of 1,300 tons a day has been provided in the last two years. Most of this acid is made from pyrites at a new plant built by Noranda Mines Limited and the remainder comes from further utilization of fumes from the International Nickel Company's smelter at Copper Cliff.

"This again points up the dependence of our heavy chemical industry on the resource industries. The annual consumption of sulphuric acid per capita in Canada has risen continuously; it was 13 pounds in 1921, 45 pounds in 1938, and is running at 175 pounds today. This compares with a present figure of 100 pounds per capita in the United Kingdom and 185 pounds in the United States.

"The growing importance of the chemical industry as a part of the Canadian economy is well illustrated in a study prepared for the recent Royal Commission on Canada's Economic Prospects in which the consumption of chemicals and allied products is compared to the gross national product. The first year for which information is available is 1926, when consumption of chemicals was 2.4 per cent of the national product. By 1938, consumption had risen to 3.2 per cent, and by 1955 it was 5.1 per cent of a greatly increased national product. The predicted value for 1980 is in the neighbourhood of 10 per cent. The chemical industry clearly forms an increasing percentage of a rapidly growing gross national product.

"In terms of constant dollars, the value of chemical production in 1955 was four times that for 1938, but the effect of the application of chemistry to the economy is far greater. Chemical processes are penetrating into other industries not usually included in the definition of the chemical industry. The

petroleum refining industry, for example, once primarily a distillation operation, now comprises a highly complex series of chemical operations in which new gasolines are manufactured by synthesis from the products of cracking crude oils. A more unusual example, perhaps, is the food industries which not only are consuming more chemicals for processing and packaging, but are becoming the source of a variety of chemical products.

"The role of chemicals in Canadian exports should not be overlooked. At first sight it might well appear that the chemical industry makes but a small contribution to exports--actually some four per cent of total exports in 1957. Such a conclusion, however, would be mistaken. A large part of chemical production is consumed by the great export industries--pulp and paper, base metals and uranium for example--and hence chemicals play a vital part in the export of products derived from Canadian resources. Without chemical treatment, a much larger proportion of our resources would be exported in crude form with consequent loss to the economy.

"The early growth of the chemical industry in Canada was clearly linked with the rapid expansion in hydro-electric power development and with the production of minerals and forest products. Although some important wartime additions to the industry have continued in operation, the discovery and opening-up of large domestic oil and gas reserves, and most recently the new uranium developments, have provided the stimulus for much of the new chemical growth that has taken place since 1945.

"Looking ahead to the year 1980, the Gordon Commission has forecast that the consumption of chemicals will continue to grow at much the same rate. Undoubtedly the industry will show the effects of an expanding domestic market as population and secondary industry increase, but its growth is still likely to be governed to a considerable extent by the development of the resource industries of Canada, and by the degree to which their products are exported in more highly manufactured form."

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NEW MINERAL MAP OF CANADA

The eighth edition of the mineral map of Canada, in colour, giving a comprehensive picture of the industry up to the end of 1957, and showing current producers, potential producing regions, and main geological divisions, has been issued by the Department of Mines and Technical Surveys.

Over 230 mines and 130 oil and gas wells, with the names of operating companies, are indexed, province by province, on the map. Among the new producers listed are the copper-zinc-silver mines at Manitouwadge in Northern Ontario, the nickel-copper mine at Rankin Inlet, Northwest Territories, the gas wells in

the Peace River area of British Columbia and Alberta, and the oil producers in the Kaybob and Virginia Hills areas, northwest of Edmonton.

The routes of Canada's four major fuel pipelines are shown. Since the publication of the seventh edition of the map, two of these, both gas lines, have come into operation: Westcoast Transmission over the full length of its line, and Trans-Canada into partial operation. The latter line is scheduled to reach Montreal before the end of 1958.

Bar diagrams are used to illustrate the value of Canada's principal mineral products during 1957. Crude petroleum had the highest unit value, followed in turn by nickel, copper, iron ore and gold. Uranium, which was tenth in 1956 placed sixth in 1957, and made one of the most outstanding advances of the year, increasing in value by over \$90,000,000 to \$130,911,234.

A table outlines, by provinces, the value of mineral production under the categories of metals, fuels and industrial minerals. Bar diagrams summarize the annual value of the industry's production from 1939 to 1957.

Seven inset maps show the locations of iron blast furnaces, ferro-alloy plants, and non-ferrous metal smelters and refineries, as well as important potential producing areas throughout Canada. Among these are the Mystery-Moak Lake area of Northern Manitoba, where the world's second largest nickel mine is being developed toward production, and the vast iron-ore areas of New Quebec-Labrador.

A copy of the map, number 900A, may be obtained free, with a charge of 25 cents for each additional copy, from the Mines Branch Publications Distribution Office, Department of Mines and Technical Surveys, Ottawa or from the Publications Distribution Office, Geological Survey of Canada, Ottawa.

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BROADCAST GOVERNORS NAMED

The names of Canadians who will serve on the new Board of Broadcast Governors and on the Board of Directors of the Canadian Broadcasting Corporation were announced on November 11 by Mr. Nowlan, Minister of National Revenue.

The Board of Broadcast Governors will regulate all sound and television broadcasting in Canada. The three full-time members are Dr. Andrew Stewart, Chairman; Mr. Roger Duhamel, Vice-Chairman and Mr. Carlyle Allison, Permanent Member.

Dr. Stewart, whose special field has been economics, is the President of the University of Alberta, and has served on several Royal Commissions. Mr. Duhamel is a lawyer who has been the editor of French-language newspapers in Montreal and a contributor to various periodicals. Mr. Allison, also a newspaperman, has been the editor-in-chief of the Winnipeg Tribune since 1951.

The other Board of Broadcast Governors are the following:

Joseph F. Brown, B.A., M.A., British Columbia; Dr. Mabel Connell, Saskatchewan; Dr. Emyln Davies, Ontario; Dr. Eugène Forsey, M.A., Ph.D., Ontario; Edward A. Dunlop, Ontario; Dr. Guy Hudon, Q.C., Quebec; Yvon Sabourin, Q.C., Quebec; Mrs. R.G. Gilbride, Quebec; Dr. Colin MacKay, B.A., LL.B., D.C.L., LL.D., New Brunswick; Roy Duchemin, B.A., LL.B., Nova Scotia; Lt. Col. J. David Stewart, D.S.O., Prince Edward Island; Robert Furlong, M.B.E., Q.C., Newfoundland.

Mr. Nowlan also announced the appointment of Mr. J. Alphonse Ouimet, until now General Manager, as President and General Manager of the C.B.C., and of Mr. Ernest L. Bushnell as Vice-President and Assistant General Manager.

The nine new Directors of the Canadian Broadcasting Corporation are:

Mrs. Gertrude Alexandra Carter, British Columbia; Mrs. C. Armstrong, Alberta; Dr. W.L. Morton, B.A., B.Litt., M.A., F.R.S.C., Manitoba; Mrs. Kate Aitken, Ontario; Charles Leeson, Ontario; Raymond Dupuis, Q.C., Quebec; Robert L. Dunsmore, B.Sc., Quebec; R. Whidden Ganong, New Brunswick; Dr. C.B. Lumsden, Nova Scotia.

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OIL AND GAS WELLS

The Minister of Northern Affairs, Mr. Alvin Hamilton, has announced that he had authorized the grouping for exploratory purposes of ninety-seven oil and gas permits jointly held by two independent Canadian oil companies in the Yukon Territory. As a result, it is expected that during the next five years some \$8 million will be spent in drilling five or more deep test wells. The proposed wells are in the vicinity of the Eagle Plain and Peel Plateau Reservations where an intensive oil exploration programme has been underway in recent years.

While drilling is not expected to commence until early in 1960, the companies will begin at once to move in supplies for this large-scale operation. Mr. Hamilton estimated that the rig, drill pipe, casing, helicopter fuel and the supplies needed for the maintenance of drill crews would total some 3000 tons.

The movement of this material will involve a 2,000-mile road haul from Edmonton to the first drill site. The final stage will be over the proposed new development road to be built by the Department of Northern Affairs extending northward from Flat Creek for two hundred miles. At present, there is nothing more than a winter tractor trail over this route.

"The announced intention of these two Canadian oil companies to proceed with a major drilling programme", the Minister said, "is an important step forward in the utilization of Canada's northern resources and underlines the value of the government's development roads programme."

MANUFACTURING IN MARITIMES

The gross value of factory shipments of the manufacturing industries of the Atlantic Provinces increased 10.6 per cent to \$845,867,000 in 1956 from the preceding year's \$765,167,000, all four provinces recording gains. The number of establishments fell to 3,381 from 3,565, but employees rose to 65,774 from 64,782, salaries and wages to \$178,708,000 from \$164,917,000, and material costs to \$464,478,000 from \$402,817,000. This information is given in a recent release of the Dominion Bureau of Statistics.

Factory shipments in Nova Scotia, the largest manufacturing province of the four, rose to \$384,398,000 from \$331,130,000 in the preceding year, followed by New Brunswick with its total climbing to \$313,281,000 from \$294,829,000. Newfoundland was next with shipments valued at \$123,691,000 versus \$115,579,000, and Prince Edward Island at \$24,497,000 versus \$23,629,000.

Value of factory shipments of the six leading manufacturing industries of Nova Scotia: primary iron and steel, \$51,321,000 (\$43,561,000 in 1955); fish processing, \$40,787,000 (\$47,212,000); pulp and paper, \$22,022,000 (\$21,084,000); shipbuilding, \$20,868,000 (\$20,065,000); sawmills, \$19,319,000 (\$23,057,000); and butter and cheese, \$11,624,000 (\$11,423,000).

Pulp and paper was New Brunswick's leading manufacturing industry with shipments valued at \$101,358,000 (\$94,403,000 in 1955), followed by sawmills at \$22,372,000 (\$20,752,000), and fish processing at \$17,866,000 (\$19,923,000). Pulp and paper was also Newfoundland's top manufacturing industry with shipments valued at \$68,085,000 (\$62,616,000), and fish processing next at \$18,279,000 (\$17,445,000). Two leading manufacturing industries in Prince Edward Island were butter and cheese with shipments valued at \$4,989,000 (\$4,956,000), and fish processing at \$4,271,000 (\$4,072,000).

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"ROADS TO RESOURCES"

Formal agreement has now been reached between the Federal Government and the Government of British Columbia on the construction of the Stewart-Cassiar Road. This information has been announced jointly by Mr. Alvin Hamilton, Minister of Northern Affairs and National Resources, and Mr. W.K. Kiernan, Provincial Mines Minister.

The British Columbia Agreement is the first to be signed under the new federal-provincial "roads to resources" programme.

Both governments will contribute to the cost of the 255-mile road, which will open to development the resources of a large and comparatively inaccessible region of north-western British Columbia. Exploratory work

carried out by the Geological Survey of Canada indicates that the area has a rich mineral potential.

The Stewart-Cassiar Road, Mr. Kiernan said, will also be of considerable benefit to the asbestos mining operations at Cassiar by very substantially reducing transportation costs for equipment moving in and for the shipment out of the mining product. In addition the road will provide access to tidewater for much of the area east of the Alaska Panhandle.

Mr. Hamilton revealed that active negotiations are under way on roads to resources programmes in eight other provinces, and four provinces, he said, are close to signing formal agreements with Ottawa. In general the roads to be constructed in Western and central Canada will open up new mineral areas, whereas in the eastern provinces more emphasis has been placed on the development of the forestry, fishing and recreation resources.

Work on the Stewart-Cassiar Road is already under way, and the target date for its completion is the spring of 1963.

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FRUIT CROP IN 1957

Farm value of Canadian fruit production in 1957 totalled \$39,700,000, an increase of 2 per cent over the preceding year's \$38,734,000, the Dominion Bureau of Statistics reports. Receipts from sales of apples were lower as were those for pears, strawberries, grapes and blueberries, but receipts were larger from sales of peaches, cherries, apricots and raspberries.

Average prices for the 1957 crops were lower than in the preceding year for all fruits except sour cherries which sold at a higher price, and grapes and raspberries which were unchanged. Lower prices reflected larger crops of all fruits except pears, strawberries, grapes and blueberries.

Estimated values of individual crops: apples, \$14,881,000 (\$16,048,000 in 1956); pears, \$2,161,000 (\$2,853,000); plums and prunes, \$925,000 (\$896,000); peaches, \$6,116,000 (\$4,384,000); apricots, \$450,000 (\$194,000); sweet cherries, \$1,717,000 (\$823,000); sour cherries, \$1,867,000 (\$1,253,000); strawberries, \$3,698,000 (\$4,240,000); raspberries, \$3,008,000 (\$2,407,000); loganberries, \$162,000 (\$53,000); grapes, \$2,832,000 (\$3,293,000); and blueberries, \$1,887,000 (\$2,290,000).

Value of Ontario's commercial fruit crop in 1957 was \$18,187,000, slightly above the preceding year's \$18,116,000. In British Columbia the crop value rose to \$12,323,000 from \$10,559,000, but the value for Quebec fell to \$4,995,000 from \$6,023,000, Nova Scotia to \$2,734,000 from \$2,467,000, New Brunswick to \$1,127,000 from \$1,177,000, and Prince Edward Island to \$239,000 from \$344,000. Value for Newfoundland rose to \$99,000 from \$48,000.

AMBASSADOR FROM IRAN

The Department of External Affairs announced on November 12 that His Excellency Mahmood Esfandiari presented to the Governor General his Letter of Credence as Envoy Extraordinary and Minister Plenipotentiary of Iran to Canada. The ceremony took place at Government House.

The Chief of Protocol, Mr. H.F. Feaver, presented the Minister to the Governor General. Mr. R.M. MacDonnell, Deputy Under-Secretary of State for External Affairs, Mr. Lionel Massey, Secretary to the Governor General, and Mr. J.F. Delaute, Secretary to the Governor General (Administrative) were in attendance on the Governor General.

Mr. Esfandiari was born in 1916. During his career he has served in various capacities in Stockholm, Berne, and Geneva. Prior to his appointment to Ottawa, Mr. Esfandiari was Chief of the Division of Personnel and Budget in the Ministry of External Affairs in Tehran.

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GUTHRIE AWARD

Miss Ottilie Douglas of Winnipeg Manitoba, and Mr. Louis Mark Negin of London, Ontario, are the winners of the Tyrone Guthrie award for 1958. Miss Douglas received a grant of \$1,000 to enable her to study theatrical cutting and costume design in London while Mr. Negin was awarded \$750 to study stage design in France. Mr. Negin came East in 1955 to work on "Tambourlaine" and has been set designer for the London Little Theatre for the past two years.

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THE CANADIAN THEATRE CENTRE

The Canadian Theatre Centre, founded in 1956, is an organization whose purpose it is to collect, exchange and disseminate information concerning all aspects of the theatre in Canada, and to promote education in the field of the theatrical arts.

It held its first annual meeting recently with an attendance of thirteen people from different parts of the country.

The centre will concentrate its main efforts during the coming year on the complete listing of:

1. all Canadian theatres with information on their condition and technical equipment;
2. impresarios and others concerning themselves with theatrical productions in all parts of Canada;
3. firms capable of providing technical equipment, such as costumes, lighting, accessories etc;
4. all other information of interest to theatrical, operatic or ballet troupes wishing to tour the country.

The Canadian Theatre Centre hopes to achieve its aims by co-operating with government and public agencies, institutions, corporations and individuals, both in Canada and abroad. It will become affiliated in the near future with the International Theatre Centre of UNESCO and is already officially recognized as a co-operative organization by the Canadian National Committee for UNESCO.

The executive-secretary is Mr. Jean-Louis Roux, 1237 rue Sanguinet, Montreal, Quebec.

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SHIPS FOR THE NAVY

The Minister of Defence Production, Mr. Raymond O'Hurley, has announced the allocation of six Destroyer Escorts of the improved Restigouche Class for construction in Canada.

The following shipyards will participate in this programme; Canadian Vickers Limited, Montreal, P.Q.; Victoria Machinery Depot Company Limited, Victoria, B.C.; Yarrows Limited, Victoria, B.C.; Burrard Dry Dock Company Limited, Vancouver, B.C.; Davie Shipbuilding Limited, Levis, P.Q.; Halifax Shipyards Limited, Halifax, N.S.; Marine Industries Limited, Sorel, P.Q. Each shipyard will build one ship with the exception of Victoria Machinery Depot Company Limited and Yarrows Limited who will share construction of one vessel.

Fabrication of the hull of the lead ship, being built in Canadian Vickers Limited, has commenced. Construction of the follow ships will commence at three-monthly intervals, during the period July 1959 to July 1960. Their completion will be over the period 1962-1963. This schedule of construction is such as to ensure the orderly delivery of components, almost all of which are of Canadian manufacture, and the most economical construction of the ships.

Cost of the ships, including all such equipment as armament and electronic gear, is estimated at \$26 million per ship. Contracts which will be of the target-incentive type will be placed at a later date and in conformity with the building schedule.

This programme is an expression of present Navy requirements. However, it is recognized that constantly changing defence concepts may, over the next several years, impose a change in this requirement. If that should occur, other arrangements would be introduced in the light of the circumstances.

RETAIL SALES LARGER

Department store sales in September increased 7.1 per cent to an estimated \$119,-601,000 from the year-earlier total of \$111,-663,000, making January-September sales 4 per cent greater than a year ago at \$889,135,000 versus \$854,721,000. August 31 stocks (at selling value) were down 2.6 per cent from last year at \$314,662,000 versus \$323,026,000.

Sales were greater this year than last in September and January-September in all regions. Gains were: Atlantic Provinces, 8 per cent in the month and 4.8 per cent in the nine months; Quebec, 3.4 per cent and 1.8 per cent; Ontario, 4.9 per cent and 3.6 per cent; Manitoba, 4.9 per cent and 4.4 per cent; Saskatchewan, 16.5 per cent and 5.3 per cent; Alberta, 12.7 per cent and 10.5 per cent; and British Columbia, 10 per cent and 2.2 per cent.

HOUSING UNITS

Starts on the construction of new dwelling units climbed 33 per cent in January-September to an all-time high total of 117,832 units from last year's comparable total of 88,525, and were 11 per cent above 1955's previous peak of 106,207 units, the Dominion Bureau of Statistics reports in an advance statement. Nine-month completions increased nearly 22 per cent to 96,006 units from 78,824 a year ago, and were 6 per cent greater than 1956's preceding high of 90,620 units.

September starts advanced almost 13 per cent to 14,198 units from 12,588 a year earlier, and completions a greater 37 per cent to 15,331 units from 11,191. Units in various stages of construction at September 30 were 20 per cent more numerous this year than last, at 93,424 versus 77,949.

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