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THE PETROLEUM INDUSTRY IN CANADA

In a survey published by the Department of Mines and Technical Surveys it is pointed out that in 1956 the Canadian petroleum industry continued the rapid growth which was initiated by the Leduc, Alberta discovery of February 1947.

Prior to the drilling of the Imperial Leduc No. 1 well, oil production in Canada was only 19,000 bbl. a day from about 400 wells, and oil reserves had just reached the 72 million bbl. mark. At the end of 1956 there were 10,587 wells in Western Canada; the year's average daily production amounted to 469,959 bbl.; and liquid hydrocarbon reserves had grown to 3,129 million bbl. The size of the industry in 1956 could also be measured by such statistics as annual production - 172,005,206 bbl., oil pipeline mileage - 5,807 miles, petroleum refinery capacity - 700,050 bbl. per day, and domestic demand for all oils - 719,697 bbl. a day.

The increasingly large supplies of Western Canada crude oil have enabled Canada to improve its oil self-sufficiency position during the past ten years from less than 10 per cent to over 65 per cent, in spite of a three-fold increase in domestic demand for petroleum fuels.

The Province of Alberta continues as the major crude oil producer. In 1956, Alberta's output constituted 83.7 per cent of the Canada total compared with 87.3 and 91.3 per cent in 1955 and 1954, respectively. Saskatchewan's increase in production gave this province a 12.2 per cent share of total Canadian produc-

tion, compared with 8.8 per cent and 5.6 per cent in 1955 and 1954, respectively. Manitoba, at 3.4 per cent, showed little change from the levels of 3 per cent and 2.2 per cent reached in 1955 and 1954. The other established crude oil producing provinces - Ontario, Northwest Territories and New Brunswick - continued to account for less than 1 per cent of total Canadian crude oil production. A small output for British Columbia was recorded in its first year as an oil producing province.

Value of production, at the well-head, was \$408,367,230 in 1956 compared with \$305,640,057 in 1955 and \$19,575,682 in 1947. Crude petroleum retained first place in value among mineral commodities, its value being \$110 million higher than that of copper which was in second place in Canada's mineral industry in 1956.

A number of important oil discoveries were made, but the year's increase in liquid hydrocarbon reserves of 372,685,000 bbl., after allowing for 1956 production, was due in considerable part to further growth of the Pembina field of Alberta and the enlargement of new fields in southeastern Saskatchewan. Drilling activity reached an all-time high of 3,359 holes in 1956, 70 per cent of these being completed successfully as oil wells.

MARKET EXPANSION

Market expansion in 1956 consisted of a 13 per cent growth in domestic demand and a three-fold increase in crude oil exports. The gain in crude oil exports, from 14.8 million

(Over)

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bbl. to 42.9 million bbl., was partially offset by the increase in crude oil imports from 86.7 million bbl. to 106.5 million bbl. Refined petroleum product imports of 37.3 million bbl. showed only a very minor change from 1955.

Oil field production potential during 1956 was greatly in excess of actual production and bigger market outlets for Canadian crude oil continued to be an important objective of the industry. Important export markets are being developed in the States of Washington, Minnesota, Wisconsin and Michigan. Montreal, with one-third of Canada's refinery capacity, has not come within the orbit of western Canada oil supply although plans were completed in 1956 for extension of the Inter-provincial pipeline to Toronto. Three-quarters of the foreign crude oil imports delivered to Montreal and Halifax in 1956 came from Venezuela and the remainder from the Middle East, United States and Trinidad.

Canada, with 3 per cent of total world production was eighth largest oil producer in the world in 1956 following United States, Venezuela, U.S.S.R., Kuwait, Saudi Arabia, Iraq and Iran. Canada's oil industry recorded a 30 per cent increase in production in 1956 compared with 14½ per cent for Latin American countries, 6 per cent for Middle East countries and 5 per cent for the United States.

There was a slight decrease in geophysical activity in Western Canada during 1956. In 1947, a total of 161 crew-months accounted for all seismic work done; subsequently, steady increase in seismic work took place and by 1952 crew-months totalled 1,923; since then there has been some reduction in activity with the 1955 and 1956 totals being 1,495 and 1,397 crew-months, respectively. Gravity work is carried out on a much smaller scale: 41 crew-months were worked in 1947; in 1955 and 1956 the totals were 103 and 87. There is very little, if any, magnetometer work being done now in Western Canada. Thus total geophysical work, which reached a peak of over 2,000 crew-months in 1952, declined rather sharply.

Geological survey work was actively continued during 1956. Federal and provincial government survey parties were in the field in Alberta, British Columbia and in the Territories. Most major oil companies with holdings in these regions also had one or more parties in the field. The complex structural conditions of the Foothills and eastern margin of the Rocky Mountains must, in the final analysis, be worked out by geological methods. Geophysical techniques, which find their most widespread employment on the Plains, have limited use in western Alberta and north-eastern British Columbia in the areas of tight folding and extensive faulting. Approximately 32 surface geological parties were in the field in Alberta during the summer, with 18 others in British Columbia and 8 in the Territories.

NEW CADET CORPS: The first Canadian cadet unit ever to be formed overseas has been established in West Germany, the Department of National Defence announces. It is the latest addition to the 50,000 member Royal Canadian Army Cadet Corps. Ranging in age from 14 to 18 years, its members are the sons of Canadian soldiers serving in Germany with Canada's NATO land formation, the 2nd Infantry Brigade Group.

Designated as the Canadian Army Germany Cadet Corps, its 62 members are drawn from the student body of a high school in the Soest married quarter site. All are volunteers. The new organization, which came into being a few months ago, is run along the same lines as Army cadet organizations across Canada.

Although they are the smallest cadet organization in the Canadian Army, the new group can lay claim to a number of unique factors. Their fathers are all soldiers of the Regular Army; they are the only cadet unit administered by Regular Force instructors, and they are the only such organization sponsored by a component of the Regular Army.

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AIR SAFETY: A "push-button" installation is now on order to help air traffic controllers handle the increasing number of planes flying the nation's airways, it has been announced by the Department of Transport.

Called the "Altitude Assignment Apparatus" it is a system of "traffic" lights mutually operated by air traffic control centres and airport control towers to provide joint altitude control of airway traffic at specific points. Airport control towers are responsible for traffic direction within a 25-mile radius after which air traffic control centres take over.

At present, traffic control centres and airport control towers relay altitude availability information to each other by telephone. Under the proposed new system, this information will be transmitted by controllers pushing buttons to activate green, amber and red lights on indicator panels at the center and the tower. The lights will show at a glance what altitudes are available for aircraft at certain "fixes" on the airway.

The installation is expected to add to the safety and efficiency of air traffic control by reducing the time spent in telephone communications and enabling the controllers to concentrate on their essential task of traffic direction. At busy airports where planes have often to be "stacked" at various altitudes to await their turn to land, the additional equipment will prove a real boon to controllers, it was stated.

Installations are on order for Montreal, Ottawa, Winnipeg, Goose Bay, Edmonton, Gander and Vancouver. They are expected to be operational at all points by the year-end.

MORE SCALLOPS: New possibilities for Canadian scallop draggers off the Atlantic coast have been opened up by the discovery of two previously unknown scallop beds, it was announced August 7 by Fisheries Minister J. Angus MacLean.

The new beds are on the southern part of St. Pierre Bank, east of Cape Breton and south of the islands of St. Pierre and Miquelon. They were located in July by scientists of the Fisheries Research Board of Canada, who have been directing exploratory fishing on a vessel chartered by the Industrial Development Service of the federal Department of Fisheries. The beds are described as small but promising, and are in from 24 to 26 fathoms of water. The larger of the two is about 12 square miles in extent, the smaller about four square miles. Commercially profitable catches of good-sized scallops, with large, firm meats, have been made.

Although the new beds are smaller than those found by Research Board scientists on northern part of St. Pierre Bank in 1954, the concentration of scallops is as high as has been found anywhere, holding promise of good fishing immediately. There are also good numbers of small scallops both on the newly discovered beds and in the area west of the old bed on the northern part of the bank, indicating continued good fishing in these areas in 1959 or 1960.

HEAVY CARGOES: Cargoes loaded at Canadian customs ports in 1956 for foreign countries rose to a new high of 49,373,132 tons, 25 per cent above the previous peak in 1955 of 39,502,714 tons, according to part I of the Dominion Bureau of Statistics' annual shipping report. Loadings at Atlantic and Lower St. Lawrence River ports rose 29 per cent to 31,932,402 tons from 24,719,979. At Great Lakes and Upper St. Lawrence River ports loadings increased 21 per cent to 7,695,678 tons from 6,359,084, and at Pacific Coast ports loadings were up 16 per cent to 9,745,052 tons from 8,423,651 in 1955.

Cargoes unloaded from foreign countries also established a new record in 1956 with a total of 40,554,312 tons, an increase of 13 per cent over the 1955 figure of 35,880,782 and almost 5 per cent above the previous record of 38,756,206 tons reached in 1952. In the Atlantic and Lower St. Lawrence River area unloadings totalled 13,974,752 tons as compared with 13,050,607 in the preceding year, an increase of 7 per cent. In the Great Lakes and Upper St. Lawrence area unloadings increased 15 per cent to 24,061,174 tons from 20,944,184. An increase of 33 per cent was recorded in the Pacific area where cargoes unloaded rose to 2,518,386 tons from 1,885,991.

As in previous years, the largest part of Canada's waterborne commerce was with the United States and the United Kingdom. The two

countries combined accounted for 73 per cent of the total cargo tonnage loaded and unloaded. Cargoes loaded for United States ports during 1956 totalled 25,936,408 tons, almost 6,000,000 above 1955 loadings of 20,215,464. Freight loaded at Atlantic and Lower St. Lawrence River ports destined to the United States increased to 15,227,876 tons from 11,684,328, up 30 per cent, at ports on the Great Lakes and Upper St. Lawrence River cargoes for the United States were up 21 per cent to 7,549,689 tons from 6,249,965, while at Pacific ports cargoes for the United States rose to 3,158,854 tons from 2,281,171. Cargoes originating in the United States and unloaded in Canada totalled 28,304,156 tons compared with 25,165,319 in 1955, an increase of 12.5 per cent.

Shipping between Canada and the United Kingdom also increased. Cargoes loaded in Canada for United Kingdom ports were up almost 11 per cent to 10,326,649 tons as against 9,312,079 in the preceding year, and unloadings rose to 1,387,594 tons from 1,274,649.

FESTIVAL FIGURES: Seventy-eight thousand people attended plays at the Stratford Shakespearean Festival during the first half of this year's ten-week drama season, according to figures released by the box office manager.

Average attendance in the Festival's new theatre was 89 per cent of capacity during the five-week period, and the box office took in \$253,500 in admissions. In 1956, 62,000 people attended performances during the first five weeks in the former Festival tent, for an average attendance of 81 per cent and a box office total of \$217,600. Attendance in the theatre during the fifth week this year totalled 17,038, for an average of 88 per cent and a box office total of \$53,661. A special matinee performance of "Twelfth Night" drew 1,960 people and netted approximately \$6,000 for the Tyrone Guthrie Award Fund which benefits promising theatrical students.

The first three concerts of Stratford's third annual music season, which opened on July 31, drew 2,720 people, for an average attendance of 91 per cent and a box office total of \$7,222. The Festival Concert Hall has a seating capacity of 986 as compared to the Theatre's 2,196.

MONT-TREMBLANT MEETING: The finance ministers of Commonwealth countries will meet at Mont-Tremblant, Quebec, beginning September 28 for a four-day conference. At this meeting, announced by Prime Minister Diefenbaker, the ministers will discuss Canada's proposal for a full-scale Commonwealth trade and economic conference to be held in 1958.

The Commonwealth ministers will come to Canada from Washington after attending a meeting of the World Bank.

IRON ORE RESERVES: Sufficient exploration has taken place in Canada to indicate very clearly that Canadian resources of iron ore are tremendous according to the Department of Mines and Technical Surveys. Not only does Canada possess large reserves of direct-ship- ping iron ore, but also vast resources of low grade iron-bearing material of concentrating grade. Iron formation, for instance, extends in an almost continuous belt from 150 miles north of the Gulf of St. Lawrence to the nor- therly tip of the west coast of Ungava Bay. The quantities of low grade iron-bearing ma- terial of concentrating grade contained in this belt can be measured in terms of billions of tons. It is meaningless to place an arithmetic figure on the actual amount of iron material present because the figure would amount to little more than a guess based principally on visual estimates supported by a relatively small amount of diamond drilling. And these are not the only deposits of low grade iron in Canada. There are a number of large deposits of low grade iron in Ontario, each one of which can be measured in many millions of tons.

Even the deposits of direct-ship- ping iron ore, currently being mined in the vicinity of Schefferville, Quebec and Steep Rock, Ontario, contain at least a billion long tons of iron ore. At the moment, all that is drilled off and calculated mathematically amounts to about 3/4 of a billion long tons, but no one who knows these deposits believes that this is the total amount of ore present. At Wabana, New- foundland, it is virtually impossible to cal- culate accurately the amount of ore contained in these large submarine deposits. Estimates have ranged all the way from 4 billion tons to 10 billion tons. At the current rate of pro- duction, these deposits, which have already been mined for nearly 60 years, will last for another 840 to 2400 years depending on which estimate one chooses to select and assuming an anticipated extraction rate of 60 per cent.

What shortages of iron ore that there are in this continent are regional shortages only, such as exist in the Pacific coast of Canada. There is no absolute shortage of iron ore either in Canada or on this continent as a whole. There is, in fact, an absolute abun- dance sufficient to supply both our domestic and export market for generations to come.

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1957 APPLE CROP: First estimates place Can- ada's 1957 apple crop at 12,718,000 bushels, 2.4 per cent larger than the preceding year's revised total of 12,424,000 bushels, according to the Dominion Bureau of Statistics. This year's apple crop in Nova Scotia is estimated at 1,950,000 bushels; New Brunswick, 375,000; Quebec, 2,080,000; Ontario, 2,738,000; and British Columbia, 5,575,000. Revised estimates for 1956: Nova Scotia, 2,206,000 bushels; New Brunswick, 275,000; Quebec, 2,820,000; Ontario, 2,992,000; and British Columbia 4,131,000 bushels.

FISHERIES COMMISSIONERS: Fisheries Minister J. Angus MacLean has announced the reappoint- ment of three Canadian members of the three- nation International North Pacific Fisheries Commission. They are J.M. Buchanan and R. T. Hager of Vancouver, B.C., and James Cameron of Madeira Park, B.C. Their terms as commis- sioners, which expired on June 30, are now ex- tended for another two years.

Deputy Minister of Fisheries George R. Clark, Canada's fourth commissioner, is chair- man of the commission, the membership of which is made up of representatives of Canada, the United States and Japan.

Under the Commission's programme a wide- spread investigation of the fish resources of the North Pacific Ocean is being conducted with particular emphasis on salmon and king crabs.

Headquarters of the Commission are at the University of British Columbia, Vancouver. The 1957 annual meeting will be held in November in that city.

NEW MINISTER NAMED: Mr. Paul Comtois, who was elected Progressive Conservative member of Parliament for Nicolet-Yamaska, Quebec, in the recent general election, has been named Min- ister of Mines and Technical Surveys.

Prime Minister Diefenbaker, who announced Mr. Comtois' appointment on August 8, also said that Mr. Douglas Harkness, M.P. for Calgary East and Minister of Northern Affairs and National Resources, had been named Min- ister of Agriculture. Mr. Harkness will retain the Northern Affairs and National Resources portfolio until he has completed certain negotiations which he has undertaken.

Eight parliamentary assistants were also named by the Prime Minister.

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BREAKFAST FOODS: Selling value of factory shipments from Canada's prepared breakfast foods industry climbed 8.3 per cent in 1956 to a record \$30,968,000 from 1955's previous high of \$28,584,000, according to the Dominion Bureau of Statistics' annual industry report. More establishments (18 versus 17 in 1955) em- ployed more people (1,374 versus 1,262) and paid out more in salaries and wages (\$4,752,000 versus \$4,139,000). Cost of materials was also greater (\$12,399,000 versus \$10,497,000) and value added by manufacture (\$18,704,000 versus \$17,639,000).

Factory shipments of ready-to-serve break- fast foods increased in 1956 to 85,731,000 pounds valued at \$25,558,000 from 1955's 78,192,000 pounds worth \$23,663,000. Included in this category were: com flakes at 28,923,000 pounds worth \$8,447,000 (27,712,000 pounds worth \$8,153,000 a year earlier); wheat and bran flakes at 9,974,000 pounds worth 2,733,000 (10,177,000 worth \$2,698,000); and puffed grains at 20,900,000 pounds worth \$8,127,000 (16,039,000 worth \$6,834,000).

OUTSTANDING SECURITIES SALES

Net sales by Canadians of outstanding securities in May reached nearly \$40,000,000, the largest monthly net inflow since September 1950 when the inflows were largely the effect of expectations of changes in the exchange rate. This year's May total compares with close to \$22,000,000 in April and some \$34,000,000 in May last year, Dominion Bureau of Statistics reports. This year's May total was made up of net sales of \$11,000,000 to the United States, \$18,000,000 to the United Kingdom and \$11,000,000 to other overseas countries.

Trade in outstanding Canadian securities accounted for \$26,000,000 of the net sales balance in May. Residents of the United Kingdom were the major buyers, and the sales balance of \$18,000,000 was fully represented by Canadian common and preference stocks. This unprecedentedly large net trade in stocks with that country compared with \$12,000,000 in April being larger even than that which resulted from trading in stocks in July 1956.

Residents of other overseas countries also added to their holdings through trade in outstanding Canadian issues. The net sales balance of \$11,000,000 was nearly double the April figure. It included about \$7,000,000 of Canadian stocks but there were also net sales of Canadian bonds, principally corporate obligations. In contrast to the results of trading with overseas countries there were small repurchase balances with the United States in

respect of both Canadian stocks, and Canadian bonds, resulting in a capital export from Canada of some \$3,000,000.

During the first five months of 1957 net sales of outstanding Canadian securities to non-residents produced a net capital inflow of \$80,000,000, some \$43,000,000 smaller than for the corresponding 1956 period. The difference was more than made up by a shift in the direction of trade in outstanding Canadian bonds, etc., which changed from net sales of \$48,000,000 in the five months of 1956 to net repurchases of \$3,000,000 in 1957. Net sales to non-residents of outstanding Canadian stocks rose in the corresponding period from \$75,000,000 to \$83,000,000.

There was also a considerable change in the geographical origin of the inflows in the two periods. In the first five months of 1956 net sales to the United States amounted to \$76,000,000, to the United Kingdom \$15,000,000, and to other overseas countries \$32,000,000. In 1957 there were net repurchases of \$12,000,000 from the United States and the balance with overseas countries other than the United Kingdom remained relatively unchanged at \$32,000,000, but the net inflow from the United Kingdom reached no less than \$60,000,000.

Transactions in outstanding foreign securities led to a net sales balance or capital import of \$14,000,000. On balance this reflected entirely the sale by Canadian investors of stocks of United States corporations.

ZOO POPULAR: The only major zoo in Alberta, located at Calgary, in 1956 attracted a greater number of visitors than did two famous National Parks in the province, according to the Alberta publication.

Development of another large-scale zoo now underway in Edmonton, is expected to add impetus to this trend in popularity. This zoo will replace the almost defunct Borden Park Zoo in the central part of the city.

Officially begun in 1929, with a scant few specimens, Calgary's zoo has been expanded to more than 800 specimens representing about 275 distinct species. They include examples from many foreign lands as well as most of those native to North America.

The project now covers the whole 42 acres of St. George's Island, situated near downtown Calgary at the confluence of the Bow and Elbow rivers. Latest innovation was the opening this spring of a children's section of the zoo. Here youngsters can play with a variety of tame animals while their parents look on from a special stand outside the enclosure. Last year a ten-tank aquarium was added to house an extensive display of tropical fish. On the east end of the grounds a new flight cage for birds of prey has come into use. Measuring

100 feet in length of 36 feet in both width and height, the steel mesh structure holds the majestic eagle and his lesser consorts in open confinement.

Considerable re-arranging is slated for the natural history park which forms an integral part of the zoo proper on the west end of the island. Under supervision of the Alberta Society of Petroleum Geologists, the 42-odd "dinosaur" replicas will be arranged according to geological ages, as well as displays in the three fossil houses. A new gate has been constructed forming the west entrance to the zoo and history park. Concrete pillars simulating tree trunks support the archway replica of a Pterandon, a prehistoric flying reptile with a wing spread of 27 feet.

Administration of St. George's Island Park is handled jointly by the Calgary Zoological Society and the city parks department. Operational costs are borne almost entirely by the city. No admission charge in any form is levied on park visitors. Some expansion projects, such as the recent addition of an aquarium, are undertaken gratis by local organizations. Supplemental revenues are gained through support from private individuals and through annual provincial government grants.

Something new in zoo layout is being incorporated in the proposed long-term Edmonton development near Laurier Park. Barred cages generally will be replaced by sharply faced grottos and deep, dry moats. The riverbank tract of 107 acres of land lends itself ideally to such arrangement, say officials of the Edmonton Zoological Society. Public vantage points will be above the level of wild animal lairs in native setting. Little of the grotto and moat barriers will be visible, giving visitors the illusion that the animals are roaming loose.

Stocking and expansion of zoos is usually accomplished through a combination of purchase and trade. Most begin with the cheaper and more common specimens. As these reproduce, the surplus may be traded. During the past year, the Calgary zoo completed about 50 shipments in exchange for needed specimens. Trading was with various zoos in Canada, the United States, Denmark, England and Ireland. One of the best trading items of the Calgary zoo was white pelicans. This stately bird, native to the temperate zones of North America, is in keen demand elsewhere. Zoo workers trap the birds on a lake near Brooks, Alberta. Before such activities can be carried on, participants must be licensed both federally and provincially. There is no import duty in Canada on zoo shipments.

Chief factors in establishing animal values for either sale or trade are spectator appeal and general availability. Lions, prolific breeders in captivity and therefore readily available, sell for as little as \$100 each. Elephants, rarely known to reproduce in captivity are priced at approximately \$3,500 to \$4,500 each. Rare Siberian Tigers, by far the largest of their species, sell for about \$10,000 per pair. One current price list quotes a female gorilla weighing 12 pounds at \$5,500.

Experts predict that the North American trend of urbanization will continue to accelerate the popularity of zoos. In some Am-

erican cities zoos are now attracting more visitors than all major sports combined in their area. A rising urban population in Alberta foretells a parallel trend.

NWT COUNCIL MEMBERS: Mr. Douglas S. Harkness, Minister of Northern Affairs, announced August 9 that the Governor-General-in-Council has named the following members to the Northwest Territories Council: L.C. Audette, Chairman of the Canadian Maritime Commission, R.C.M.P. Commissioner L.H. Nicholson, C.M. Drury, a transport company president and former Deputy Minister of National Defence, and Lt. Col. H.M. Jones, M.B.E., E.D., Director of Indian Affairs in the Department of Citizenship and Immigration.

The Deputy Commissioner of the Northwest Territories, W.G. Brown, is also a member of the Council. In addition to the five government appointees, the residents of the Territories elect four members to the nine-man council.

John Parker of Yellowknife and John W. Goodall of Fort Simpson, who were elected to the previous council, have been returned by acclamation in Mackenzie North and Mackenzie River constituencies. Residents of Mackenzie Delta and Mackenzie South constituencies will go to the polls on August 19 to elect the two remaining members of the Council. Gordon Robertson, Deputy Minister of Northern Affairs is Commissioner of the Territories.

Lt. Col. Jones succeeds Jean Boucher while the remaining members served on the previous Council. Mr. Coucher, Director of Technical Services in the Department of Citizenship and Immigration, is unable to continue serving on the Council because of additional heavy responsibilities he has recently assumed in the Department. In making the announcement Col. Harkness paid high tribute to Mr. Boucher's service over the past 3 years.