

control, and if necessary for the government to intervene as operators themselves. There is a very determined policy of spending to the best advantage of the largest number of people the money that can be raised from Dominion or Provincial revenues. There is no hesitation in eliminating exploitation or discrimination. All these things are expressions of a basic Socialist and Co-operative philosophy and are of course a part of the most success-

ful experiment yet made in the British Empire to keep a government in close touch with the people who elected it to power. The continuous and vigorous series of annual conventions of the C.C.F. membership and the broadcasting of the debates of the Legislature are the finest guarantee of democracy offered to any electorate in Canada or perhaps in the world to-day.

Alberta: Towards Diversification in Industry

By HU HARRIES

ALBERTA has long been recognized as a potentially rich industrial area, but only in recent times has there been important development of its latent capacity. The war years provided the necessary stimulus to enterprise throughout the province.

The first gains came as a direct result of increased agricultural activity to meet the heavy demands of home and foreign markets. A great sales volume in grain, meat, milk and specialty products encouraged a gradual expansion in processing facilities. This movement eddied through the economy and caused a secondary expansion in the service industries and allied lines.

At the same time, an unprecedented exploratory program in the oil industry began to show results. The opening of the vast northland, with its untold mineral wealth, and the resumption of lumbering on a large scale prompted further developments. Power production was augmented as an increased demand became evident. Local fabricating plants sprang up, while improvements in roads enabled the tourist industry to make rapid strides.

These are the fundamental factors

which are contributing to a broadening of Alberta's industrial structure and a sound diversification of enterprise.

Agriculture

Industrialization deriving from agriculture was based at first on wheat and livestock. Prior to 1939 the production of flour, table cereals, butter, cheese and canned meats was firmly established, as was also seed warehousing. After that date, development centred on specialty lines.

Sugar production in the irrigated areas in the south has expanded rapidly. More than 700 million pounds of beets are processed annually, providing enough sugar for Western Canada. As an addition to the earlier mills at Raymond and Pitcher Butte, a third and larger plant has been brought into operation at Taber, while a fourth is now being planned for Brooks. When current construction on new irrigation projects is completed, the resulting increase in the supply of beets will permit greater production by the four mills.

Vegetable canning and freezing are new industrial phases of Alberta agriculture. The first plant to process vegetables was erected only ten years ago. Today there are four large concerns operating at Lethbridge, Taber, Magrath

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and Brooks. Their products reach markets as far west as Vancouver and as far east as Fort William.

At present, some 54% of the canned vegetables consumed in Western Canada are tomatoes—a demand which is satisfied from Ontario, British Columbia and United States sources. During the past three seasons, new varieties of tomatoes which mature at an early date have been grown successfully at Brooks and Taber. When production reaches a commercial scale, a vast new market will be opened to the Alberta canning industry.

Similarly, there is a large and expanding trade in fresh and stored vegetables. During the past ten years, farmers' co-operatives in the irrigated sections have built eight centrally located storage cellars to provide facilities for a year round service. Both urban and rural Prairie customers are depending more and more upon Alberta for their supplies of potatoes, beets, carrots, parsnips and other storable vegetables.

As a result of war-time market restrictions there has also been a marked growth and diversification in seed production. The older companies have expanded and new ones have been created to handle the increased quantities of legume, grass and vegetable seeds produced in the province. Particularly significant has been the establishment of **trade in high-value vegetable seed on a commercial basis.**

Until recently industrial alcohol was not manufactured in Alberta. Today a large plant in Calgary, using Alberta grain, is turning out the first of many thousands of gallons of industrial and beverage alcohol for domestic and foreign markets.

During the war a plant was established at Calgary for the manufacture of nitrogen compounds for explosives. Its peacetime output has been directed to the fertilizer needs of Canada and the export market. Since 1945 it has operated at full capacity converting the natural gas of nearby oilfields, the hydro power of

the mountain dams, and the surplus sulphuric acid of the Consolidated Mining and Smelting Company at Trail, B. C., into high-grade nitrogen fertilizers. It is of interest that the peak power requirements of this huge plant are equal to the total demand of the city of Calgary, which has a population in excess of 100,000.

Oil and Gas

One of the brightest chapters in this report on current business expansion centres about the development on Alberta's petroleum resources.

Prior to 1936, natural gas reserves had been proved over large areas of the province, but until that year, when Turner Valley's Royalite "blew in" with crude oil, the outlook was not promising from a commercial point of view. With the discovery of that crude pool, production rose rapidly to the peak year of 1942 when ten million barrels of oil were brought to the top.

After 1942, as the Turner Valley field declined and new areas at Taber and Princess failed to fill the gap, Alberta production fell off. One cold day in February, 1947, this trend was dramatically reversed. Imperial Oil Limited brought in its Calmar wildcat—Leduc No 1—to mark the discovery of a vast new oil reserve: the Leduc field was born. Just what that discovery, with its partner field at Woodbend, means to Canada may be realized from the authoritative statement that within three years Alberta will be exporting oil to the United States. In the short space of two years, production has jumped to an estimated annual output of 30 million barrels and Alberta has become a net exporter instead of an importer.

As this article goes to press, there is another startling announcement from Imperial Oil: an entirely new field has been struck at Redwater. Early estimates place this find on a par with Leduc which means that a pool of over 200 million barrels has been uncovered.

The effect of oil discoveries on industrial development in Alberta is highly significant. When the original Turner Valley field was opened, Imperial Oil established a large refinery at Calgary. Just prior to the war the British American Oil Company also erected a plant at that city. Together, these two refineries, using home and imported crude, supplied Alberta's petroleum needs. When the Leduc field's potential was definitely ascertained, Imperial Oil commenced refinery operations at Edmonton with facilities for handling 11,000 barrels of crude oil daily. Originally, this ten-million-dollar plant was built at Whitehorse in Yukon Territory by the American Government for war-time purposes; after the war it was dismantled, shipped to Edmonton and there rebuilt with additions. The same company has also announced its intention to construct later a grease and lubricating oil plant costing over \$4 millions. Thus, refineries may be described as the initial consequence of oil discovery.

Supply firms, all types of equipment distributors and, to some extent, manufacturers have been drawn to Alberta as a result of oil development. Since Leduc was discovered, Edmonton has seen no less than forty new companies in these categories open for business within its boundaries. A substantial but less spectacular increase has also taken place in Calgary. These firms may be regarded as permanent acquisitions. In addition, numerous exploratory and developmental companies have arrived on the scene while ten large American oil firms have opened Alberta offices and organized field staffs.

In 1948 over 10 million feet of oilwell will be drilled in the province. For Imperial Oil, the biggest operator, the cost of drilling and ancillary activity will be in excess of \$54 millions. The National Employment Service of Canada reports that some 4,000 men are directly employed in the Alberta oil industry.

Besides oil, Alberta has vast reserves

of natural gas. During the past year, plans have been advanced to permit exploitation of these reserves for consumers outside the province. One group is seeking a charter to pipe fuel to Saskatchewan and Manitoba for industrial and domestic use. A somewhat larger scheme promoted by Americans would distribute natural gas from Alberta to the Pacific Northwest states. Realization of these proposals depends on the outcome of a study of gas reserves in the province by a Royal Commission; it is presumed that the report will advise the Government on the policy to be adopted.

The natural gas resources of Turner Valley are being utilized today by a propane plant. This project, recently brought into operation, will enable Alberta to market a "bottled gas" for domestic use in the Prairie and also in the Pacific Northwest. At the moment the plant is geared to produce 10,000 gallons a day, but the full rated output is considerably higher.

One petroleum resource which has not been developed commercially as yet is the McMurray tar-sand deposit. This vast reserve, covering 30,000 square miles beside the Athabaska River and reported by the United States Bureau of Mines to contain 250 billion barrels of oil, presents a challenge to technical ingenuity. Work undertaken by the Provincial Government has resulted in the establishment of a pilot plant which experts believe will accomplish the task of separating the oil from the sand. Only time will prove whether they are right. If they are, then the industrial development which will follow will be tremendous.

Mining

By far the greatest part of Canada's coal reserves lie in the Province of Alberta. All classifications of coal have been located, although anthracite has not been discovered so far in commercial quantities. An official estimate places

the total of known reserves at 46.5 billion tons.

The industrial development which might be expected as a result of these tremendous reserves has not materialized. As yet, Alberta coal is only a potential resource; even within the province, it is utilized only to a limited extent, since natural gas is available in abundance. The Eastern market has never been successfully exploited, primarily because of distance. Lately there has been a substantial increase in this direction, however, under contracts arranged with Oriental buyers. Some 400,000 tons have been ordered for Japan alone over the next eighteen months.

Undoubtedly it will only be a matter of time until this potential wealth finds a commercial outlet as a fuel and as a raw material for industrial use. A recent suggestion that the interchange of Ontario's Steep Rock iron ore and western coal could overcome transportation difficulties merits the closest study.

The fact that Alberta contains large deposits of sodium chloride (common salt) has long been known. Some years ago a plant to process this material was erected at Waterways, the terminus of the Northern Alberta Railway near McMurray. Recently another plant, owned by several Alberta oil companies, was built at Lindbergh, just northeast of Edmonton. When this second plant is in full operation, it will be able to supply a large part of the southern Prairie market with all types of salt.

The mining and manufacture of clay has been an important Alberta industry for many years. Five large plants at Medicine Hat and nearby Redcliffe turn out a variety of products, ranging from sewer tile to teacups and whiskey bottles. In the past decade there has been a marked expansion in this industry, with the construction of new kilns and the opening of new domestic and foreign markets.

In addition to the progress based on resources within the province, the pros-

pecting and developmental work carried on by mining companies in the Northwest Territories has been reflected in the pace of Alberta business. The finds of gold at Yellowknife and the feverish activity around the deposits of radium on Great Bear Lake have been important for the transportation and service industries of Edmonton. In the volume of freight that it originates, for example, the airport at Edmonton exceeds all others in Canada.

Lumbering

Lumbering in Alberta until recently was considered a marginal proposition. With the gradual retreat of the forest frontier in other areas, however, the picture has now altered. During the war and post-war periods there has been rapid development.

The total forest cut in Alberta has tripled since the 'thirties. Today the annual value of production is very nearly \$20 millions. The greater part of the output is spruce, which originates in the far west and northwest section of the province.

The main product of the industry is sawn lumber, which is cut by portable mills and loaded directly on railway cars for shipment to the market. Thus, commercial utilization of accessible forest resources is limited in the range of its operations. Consideration has been given to the establishment of pulp and paper plant at Red Deer, but to date construction has not begun. The future still holds substantial hope, however, that diversification in the forest products industry may be realized.

Power Development

Alberta is well endowed with resources for the production of hydro-electric power. All the rivers in the province—of which five are of a considerable size—originate high on the eastern slopes of the Rockies. As they tumble down to the Prairie, dropping some 2,000 feet

within Alberta, they provide ample energy reserves for power generation. Out of an estimated maximum potential of over one million hp., hydraulic stations are producing about 100,000 hp. at present.

The most recent development has taken place on projects at the Minnewanka and Spray Lakes, where new installations have added about 20,000 hp. to current output.

Expansion has also continued in the development of electrical energy by the use of coal and gas. Within the past ten years, Edmonton has almost doubled the output of its coal-burning plant, while other cities and towns have been adding new units to existing capacity. As the demands of industry require additional power, it is for the most part just a matter of installing more generators and boilers.

Whether the initial generative energy is derived from harnessing the rivers or from burning fuel, the accessible supply of electric power in Alberta is almost unlimited.

Manufacturing

Since 1939 there has been a notable increase in manufacturing within the borders of Alberta.

At Edmonton, large aircraft repair shops built during the war have been acquired by private interests for conversion to peace-time purposes. Over 1,000 workers are now employed in these plants, which together comprise the first large-scale iron and steel products industry in the province. Included in the output are tractor loaders, truck bodies, aircraft frames, decorative iron mouldings, and a wide range of specialized farm machinery. At the same site plywood canoes and boats are manufactured for northern transportation.

A number of companies have been formed for the production of various building supplies, including rock wool, plaster board and concrete brick. Sev-

eral firms have undertaken the manufacture of prefabricated houses. In addition, amalgamations and mergers have resulted in the establishment at Calgary of a large and complete plant specializing in steel structures.

Tourist Industry

The Province of Alberta has for years enjoyed a world-wide reputation for the splendour of its scenery and the excellence of its facilities for outdoor sports. After the war, a determined effort was made to develop these assets as the basis of a large-scale business.

Improved roads, new tourist accommodation, wide publicity and an increased public awareness of the value of tourism were all calculated to advance this specialized industry. Over 600 miles of paved trunk roads have been constructed since 1945. A system of grading motels and auto courts and an extensive educational campaign for the information and guidance of the operators, together have been intended to achieve satisfactory standards in these enterprises. The effects of these programs, which were based on careful study of the actual needs and desires of tourists, have been most encouraging. The revenue from the tourist trade has increased enormously over the pre-war totals and a solid foundation has been laid for future expansion.

Conclusion

This resume of the industrial development which has taken place in Alberta in the past ten years may be summarized briefly in one sentence. Measured by the yardstick of known possibilities, that development is almost insignificant; measured by previous achievement, it is highly significant.

No small share of the credit for the progress which has been noted may be given to the Government of the Province. While it professes a rather unique

economic doctrine, it has done everything within its power to advance the cause of industrialization. Large expenditures have been made to advertise the opportunities offered in Alberta, and equally large sums have been spent on developing provincial departments to handle inquiries and to make investigations and surveys. Substantial help in the form of loans by the Government's "credit houses," long-term leases and other assistance has been made available. The policy of the Government has been to encourage and aid private enterprise and it appears that this attitude has had measurable effect.

As to the future growth of industry

in Alberta it is extremely difficult to make a forecast. One point is certain, however, The inequitable share of Canada's transportation costs now borne by Alberta must be adjusted if industry is to be attracted into the province. This burden is itself a severe handicap; coupled with a carrier rate system premised on "what the traffic will bear," it becomes a veritable hobble. Granting that some day this impediment will be removed and the way opened for sound economic development throughout the nation, then the prediction of Professor Griffith Taylor that Alberta will be Canada's first province within the next hundred years may be true.

British Columbia: New Opportunities For Industry

By G. E. KENDALL

SINCE Confederation in 1871, British Columbia has been famous for its tall timber, rich silver ore and bounteous salmon catches. Now, industrialists with important capital, from the United States, Eastern Canada and across the seas, find a new meaning in B. C.'s natural stockpiles. They see here, an opportunity for the great expansion of secondary industries—those industries whose success and ultimate importance will lie with the survival of the province's primary production. The 38,000 odd immigrants who have come to B. C. in the last seven years, also see in this province, the best in working conditions. B. C.'s claims to the highest per capita wage rate and the highest per capita national income and conditions in every aspect are favourable to the working man and his employer.

With ready access to tide water, trade may pass the year-round through British

Columbia's ice-free seaports. This proximity to tide water may mean the eventual industrial greatness of British Columbia—this proximity and the hidden resource, Hydro-Electric Power.

It has been estimated that B. C. has a potential hydro-electric output of 13,000,000 H.P. equalled in potentiality only by the province of Quebec. Development of the power has been tardy but has seen great strides since the opening of the 25,000 H.P. unit of the proposed 180,000 H.P. development of the B.C. Power Commission. This expansion on Vancouver Island precipitated the operational plans of a \$7,000,000 pulp and paper mill. With some 850,000 h.p. in operation in the province, the remaining projected development, including the electrical generating project at Bridge River, will provide the thousands of horse power needed for new industry.

If estimates can be considered indicative of industrial trends, it can be said that no less than \$450,000,000 are

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