

The Future of Canada's North Country

BY H. W. HEWETSON

FORTY-ONE per cent of the area of Canada lies outside provincial boundaries. If we consider in addition the vast uninhabited or sparsely-peopled regions of Northern Quebec, northern Ontario and the northern parts of the four western provinces, we can reach a figure of between seventy-five and eighty per cent of the whole area of Canada which plays little or no part in Canadian life.

A map of settled Canada would look not unlike the map of Chile. But that is not the map to which we are accustomed. We think of Canada as a country which occupies a very considerable portion of the earth's surface. We take great pride in the fact that Canada appears so large on a world map, and unconsciously this contributes to the feeling that Canada is destined to have a great future. Our large area makes our population per square mile appear trifling, and this engenders the belief that Canada could easily support many more millions of people.

But at this point it is well to stop and note the fact that over eighty per cent of Canada has less than five and a half months in the year with a mean temperature over 43 degrees Fahrenheit. And unfortunately the world has not as yet found any important use for regions with this sort of climate. The Americans have hitherto largely neglected Alaska and so have little to teach us about northern development. Vague stories have circulated to the effect that the Russians have done wonderful things in the northern parts of Siberia, but the accounts are seldom specific and are difficult to track down. And so it would seem that if Canadians are to turn their large north country into a real asset, they must rely chiefly on their own initiative.

There is, of course, no obvious means of northern development. If there were it would have been used long ago. But the first step in considering the north country is certainly to learn more about it. The great majority of Canadians are fully as ignorant of the greater part of their own country as are most Americans about Canada. School geographies are apt to treat the north very briefly, and show a tendency to perpetuate statements which may or may not have been true fifty years ago but are certainly not true to-day. Travel books of the north are relatively few, and too many of them have a tendency to exaggerate descriptions for dramatic effect. But quite a bit of authentic information can be obtained if one goes to the trouble to seek it out. There are, for example, meteorological tables available for quite a large number of northern points.

Climate

Climate, as the chief limiting factor, is the first thing to be considered. A moment's reflection will convince one that the Canadian north is much too big an area to have a uniform climate. As a matter of fact two major climatic zones can be distinguished, the taiga of the west and the polar or tundra of the east. The chief mark of differentiation between the two is the presence of trees. Trees grow to the west of a line drawn from the mouth of the Mackenzie River, southeasterly to the east of Great Bear Lake and Great Slave Lake to Hudson Bay a bit south of Churchill. The country to the west of this line, Yukon Territory and most of the Mackenzie District of the Northwest Territories, is covered for the most part with evergreen forest but has summers too short to permit the general economic activities of temperate regions where deciduous trees will grow. The eastern district, commonly called the "Eastern

EDITOR'S NOTE: Professor Hewetson is on the staff of the Department of Political Economy of the University of Alberta. During the summer of 1944 he made, on behalf of the Canadian Social Science Research Council, extensive studies of the North Country.

Arctic," includes the so-called "Barren Lands" (or, as some prefer to call them, "Arctic Prairies") of Keewatin, the Ungava peninsula of Quebec, and the islands of the Franklin District. This region, while devoid of trees and containing much bare rock, has numerous varieties of plant life, chiefly grasses, mosses and lichens.

It should be noted that Canada has no large region with a perpetual ice-cap as is found in Greenland. However, not too much is known about the more northerly islands. While posts have been established at Dundas Harbour on Devon Island, and at Craig Harbour and Bache on Ellesmere Island, apparently at the present time no human beings are living north of a line through McLure Strait, Viscount Melville Sound, Barrow Strait and Lancaster Sound. It is quite possible that most of the north may have a great development with the land north of the seventy-fifth parallel still remaining largely unknown.

A polar climate is one in which the mean temperature of the coldest month of the year is somewhere between ten to thirty degrees below zero, and in which the warmest month shows a mean temperature somewhere in the low forties. It is the very short summer season that distinguishes polar from taiga climate. Precipitation is low, but for the most part is above the ten-inch desert limit. The wettest months are in the summer, which means that rain accounts for approximately as much precipitation as snow.

Canada's taiga country does not experience the moderating influence of the sea, and shows a wider range of temperature. Winter mean temperatures are about the same as in the Eastern Arctic, but the variations from the mean are greater and much lower temperatures have been recorded. The extreme lowest on record seems to be the seventy-nine below zero recorded at Fort Good Hope in December, 1910. But the summers are much warmer than in the Eastern Arctic. July mean temperatures approach sixty at most points,

with temperatures in the nineties not infrequent. The rivers are free from ice from about the middle of May to well on in October. Precipitation, both seasonally and in amount, is very similar to the Eastern Arctic.

Economy

The economy of the Eastern Arctic has almost entirely to do with the sea. The great bulk of Canada's Eskimos live in this region, and, except for a few that go inland in the Keewatin District to hunt caribou, obtain all their food and clothing from sea mammals and fish. Density of population in this region is most usefully measured in terms of inhabitants (or fraction of a person) per mile of coast line. The white residents of the district, including fur traders, Royal Canadian Mounted Police, missionaries, signal station operators and medical men, are all located on the coast.

Almost the only economic activity of the region which is related to the outside world is the trapping of the white fox. Other furs are obtained but their value is insignificant compared to the fox. The catch varies widely from year to year and provides the means by which the Eskimo purchases white-man's goods at the trading post.

As would be expected from the maritime nature of the settlement, little is known about the interior country. The geological formations hold little promise of important minerals. However, traces of a number of useful minerals have been found, particularly on the western side of Hudson Bay, and as the country is largely unmapped and unknown it is little too early to dismiss the mineral possibilities completely.

As with the whole of the Canadian north, development of the Eastern Arctic cannot proceed faster than transportation facilities. The eastern part of Canada's north country has depended almost entirely on water transportation for its connections with the outside world. Ice, fog, shallow water and magnetic variations are only a few of the navigation difficulties. Yet, ships are able to reach

the various posts each summer, although not before 1944 has a ship traversed the historic Northwest Passage in one season. The novelty of an arctic cruise might possibly be a tourist attraction, but it must be remembered that such a trip would almost certainly be more costly than a trip to Europe. Flying can provide an all-year transportation service, except for a month during freeze-up and another month during break-up, but in addition to the above-mentioned navigational difficulties the lack of maps and the long hours of winter darkness provide further problems. The possibilities of using the Eastern Arctic for air bases on inter-continental air routes will be discussed at the end of this article.

The Western Arctic, while generally uniform as regards climate (high mountains prevent Yukon from having any share in the mild, rainy climate of the south Alaskan coast) is divided into two distinct regions by the Mackenzie Mountains. Yukon consists of a fairly elevated plateau; the Mackenzie District is low-lying with a myriad of lakes.

Eskimos are found in the Western Arctic only at Aklavik and along the coast of the Arctic Ocean. Indians form the great majority of the native population. The Indians are far more numerous than the whites in the Mackenzie District, but are in the minority in Yukon, which is another important difference between the two regions.

The Yukon

There have been two occasions when large numbers of people have entered Canada's north country, and both occurred in Yukon. The first occurred following the announcement of the famous placer gold strike in the Klondike. No one knows just how many persons "tried their luck" in this remarkable stampede, but it is fairly reliably stated that there were 35,000 people in Dawson City in the winter of 1898. It is also presumed that more gold-seekers failed to reach their objective than did. Most of these miners left the country, of course, as soon as all the readily-available claims

had been staked, but they did leave behind a permanent population of about two thousand people in Dawson with possibly another thousand along the Klondike River and its creeks. Dawson City to-day is a place with buildings and institutions suggesting a much more populous town. It has had electric light and telephones since about 1900, has two branch banks still operating and a newspaper published three times a week. While about \$250,000,000 worth of gold has been shipped outside, the people concerned are still thinking in terms of hundreds of millions more. Though The Yukon Consolidated Gold Corporation Limited (which has replaced the individual miners, and controls all the Klondike's gold output) is at present operating on a restricted basis, this is due solely to man-power shortage and not to the lack of gold in the creeks.

The second influx of people into Yukon is only now on the ebb. Like the first it has been made up largely of Americans and consisted chiefly of United States army personnel, the contractors and workers on the Alaska Highway, and the people catering to their wants. Again, no exact figures on the number of persons involved have been released but a good guess might be that about 40,000 people have seen at least some of Yukon for the first time as the result of the war. The second "invasion" of Yukon has been in the southern part of the territory, centering on Whitehorse. Whitehorse, a town of about eight hundred people before the war, has as its chief reason for existence, aside from some copper mining carried on intermittently in the past, the fact that it is the terminus of a railway from Skagway, Alaska, and the transfer point to the river steamers going north. The Americans should leave Whitehorse a more important place than they found it. The chain of modern airports, the Alaska Highway, the pipe line and the large refinery are only some of the tangible things that will be left behind.

A third part of Yukon, which has been productive enough to support some eight hundred people, is the Mayo district.

In this region traces of almost all known minerals of any importance have been found, but actual mining has been confined to silver and lead. Here the transportation problem assumes major proportions. Because of the long and costly haul to the outside world, mining can be conducted profitably only when prices are high enough. Gold is valuable enough to stand high transportation charges, but the other minerals are not. Better and cheaper transportation is the most essential requirement in the development of Canada's north country.

Yukon has large resources of many different minerals. But what are the possibilities of industries other than mining? Furs are important, of course, but trapping cannot support any very large population. Agriculture is by no means non-existent. Because of the long hours of summer sunlight, vegetables and other quick-growing plants can reach enormous sizes, and there is a lot of land on which they can be grown. But there is no agricultural product that it would pay to ship outside. Markets must be looked for locally. While trees are very numerous, the fact that the ground is permanently frozen about two feet below the surface causes them to be shallow-rooted and generally too twisted to make good timber. Yukon's wood is used only for fuel at present. Abundant coal and other materials used in industry suggest that certain kinds of production are physically possible, but again there is no obvious product that it would pay to ship to the outside world.

Yukon, of all Canada's northern regions, has the largest tourist industry and the promise of a still bigger one. The trip by sea from Vancouver to Skagway, the picturesque 110 mile-journey by rail to Whitehorse, and the modern steamers down the Yukon River make up a most delightful tour through scenery of the "grand" type with the old romance of the Yukon in the background. The trouble is that such a trip is expensive and possible only to those who can get a two or three months' vacation. Now, Yukon has the Alaska Highway and the

tourist business takes first place in discussions of its post-war possibilities.

The MacKenzie District

The Mackenzie District is probably Canada's best northern region for the trapping of fur-bearing animals. Some of the trading posts of this district have been operating from as long ago as 1800. However, it was not till after the First Great War that any other possibilities became known. The Mackenzie District is the one part of Canada that can truly be said to have been opened up by the aeroplane.

While explorers from the remote past had reported various mineral occurrences, the beginnings of exploitation did not take place until 1920. In that year two oil wells were drilled beside the Mackenzie District about fifty miles north of Fort Norman. Because of the lack of a market these wells remained capped until recently. In 1930 the event took place which drew the attention of the whole world to Canada's Northwest Territories—the discovery of pitchblende deposits at the eastern end of Great Bear Lake. The fact that Canada has become one of the two important sources in the world of the very rare and very valuable elements, radium and uranium, is of tremendous importance, not merely to the country but to the outside world as well. And it may be noted that there is a lot of silver occurring with the pitchblende. In 1935 followed the discovery of gold in the Yellowknife area on the north side of Great Slave Lake. Yellowknife is now the largest centre of population in the Northwest Territories and a place of tremendous bustle and enthusiasm. Whether or not it is "the richest gold field in Canada" only the future will tell, but at least conservative financial interests have shown enough faith in it for the one bank to grow to three just this past fall. Yellowknife is the centre for prospecting work over a wide area and many interesting finds other than gold have been reported.

The original oil fields at Norman Wells now form the nucleus of a third concentra-

Economic Outlook

tion of population in the Mackenzie District. The American Canol Project has been carried on here, and an oil pipe-line and road have been built from the wells through almost unknown country to the newly-built refinery at Whitehorse. Many new wells have been sunk in the district. While the activity here has been mostly American and occasioned by the war, the wells will be kept in operation if a market can be found. The Yellowknife area is now buying a large amount of fuel oil, and with Port Radium and the Yukon towns as potential users there is a good prospect that the market problem will be solved.

Mention should be made of the large deposits of native copper around Coppermine on the shores of Coronation Gulf. The existence of copper here has been known for many years, but transportation difficulties have made any commercial development impossible. However, American firms have recently been conducting extensive surveys in this area.

Aside from mining, the Mackenzie District has much the same potentialities as Yukon. Agriculture, dairying and other industries can be carried on, but seem likely to have to depend on local markets. However, the surveys of the Dominion Department of Fisheries on Great Slave Lake during the summer of 1944 lead to another possibility. The Indians have always depended largely on the fish they could catch in the various lakes, but now it is stated authoritatively that Great Slave Lake is potentially the greatest fresh-water fishing ground in North America. The Reindeer Reserve suggests a still further possibility. Stefanson long ago suggested that the time would come when the civilized world would have to look to the north for its meat. Caribou roam almost the whole of northern Canada west of Hudson Bay, and undoubtedly meat could be raised over a very large area in the north. But more southerly sources have not disappeared yet.

To sum up, it would appear as though the western part of Canada's north country has very great mineral potentialities, the Yukon's being known on the whole, and the Mackenzie District's still being prospected. But in the present circumstances mining must be confined to the more valuable minerals because of transportation costs. If cheaper transportation were available, great quantities of the baser metals would also be mined. Transportation is thus the crux of the whole development of the north. How can more economical and more efficient transportation be provided? The only answer seems to be through a Dominion government subsidy. Canada has certainly subsidized many transportation projects in the past, sometimes wisely, frequently in a spirit of foolish optimism. To undertake extensive transportation improvements in the north would be extremely costly because of the large area involved, and no steps should be taken in this direction until after a lot of careful study. But there are certain inexpensive improvements that the government should have undertaken long ago. The most important of these is probably the improvement of navigation conditions on the Mackenzie waterways system. A little dredging and blasting, and a few lights and buoys would better conditions considerably.

Mining does not suggest permanent communities, but the mineral resources of the north indicate great activity for many generations to come. Mining is the only apparent industry which can open up the north. Agriculture and other industries are physically possible, but there does not seem to be any chance that anything they could produce, could not be obtained much more economically in the outside world from more convenient sources. But if mining communities spring up and flourish in the north, these other industries should certainly grow with them.

As far as can be seen from the present, Canada's Eastern Arctic does not hold

so much promise. Undoubtedly part of the reason is that we know less about it. No one knows what scientific and technical discoveries are to come in the future, and it would not be in the Canadian spirit to deny this great stretch of country any importance at all. But any great development of this area lies in the future, and probably the distant future.

Future of Aviation

Another development has caused many people to look to the north with renewed interest. A general feeling prevails that the future is to be a flying era. Trans-oceanic journeys by air, it is asserted, will become commonplace. When we examine the possible routes on a globe, we quickly discover that all the great circle routes from North America to the Eastern Hemisphere run over Canada's arctic regions. These are the shortest routes and they at once bring Canada's northland into prominence. If distance is an important factor, as undoubtedly it is, then it would seem that with the war over all that we have to do is construct a series of strategic bases in the north and operations can begin.

So many optimistic forecasts have been made along these lines that there is no need to repeat them. It would seem to be more useful to point out one or two of the difficulties.

The impression has got abroad that such post-war long-distance flying will be cheap. But flying as we know it is not cheap. Great technical advances have been made during the war, but military aviation has advanced without regard for the cost factor. Commercial flying cannot ignore costs. Future technical developments may change the whole picture, but we cannot base plans on discoveries not yet made. Air travel, of course, can be made available to the individual at a reasonable figure with the aid of government subsidies, direct or indirect. As commercial flying was made possible in the inter-war years through various forms of disguised subsidies, it seems altogether probable that they will continue and even be increased.

However, the experience with flying in the north has shown it to be much more costly than in settled areas. The two items in particular which make northern flying expensive are fuel and oil and maintenance. When gasoline, lubricants, spare parts and mechanics cannot be taken to airports by ground transportation costs mount very rapidly. Much valuable revenue space on planes is a dead loss. In addition, a great deal of freight would have to be shipped by air to the northern bases. Cargo-carrying planes are certainly possible, but their development as yet is very slight. Air transport is fast, but far too costly for the movement of goods save in exceptional circumstances.

The conclusion seems to be that northern flying is not likely to be important until it can be supplemented by efficient ground transportation. The Edmonton-Whitehorse-Fairbanks run is quite probably the initial part of a feasible route to the Orient. All these places have rail connections, and air costs could be kept within reason. In the east, at the present time, any airbase in the north could be served only by water. Ice problems leave only a small part of the year when such bases could be served.

Certain weather and physical conditions make aeroplane operation in the north difficult, but ways are being found to solve many of these problems. Temperatures colder than sixty degrees below zero, infrequent but by no means unknown, create troubles for pilots and maintenance men. The heavy fogs and poor visibility of the eastern part of the north do not help. Lack of maps, compass troubles in the vicinity of the Magnetic Pole, and a number of similar difficulties could be mentioned, but means of handling the problems they create, are gradually being evolved.

However, there is no need to become pessimistic about the future of trans-arctic inter-continental flying. But it is well to temper our enthusiasm a bit.

Canadians have always been people that talk of tomorrow. And the thing that differentiates Canada from all but

a very few countries is the existence of a vast tract of arctic country. Therefore, it would seem that if Canada is to attain her prophesied position of importance in the world, it will be through putting the north to a real use. The first step

in this direction is certainly the acquisition of more information about the north. And the time has now been reached when it is no longer creditable for the bulk of Canadians to regard the north country as *terra incognita*.

Functions of a University

By JOHN MACMURRAY

There can be no serious doubt that there is a great need to rethink and replan our university system, if indeed it can be called a system. Yet any attempt to force a systematic reorganization upon our university institutions from outside would prove impossible. It would meet with a resistance so powerful that it could hardly be successful; and if the resistance could be overcome, the result would be disastrous. Freedom is not merely desirable in the life of a university, it is a first essential. Without freedom it ceases to be a university, and the instinctive resistance to regulation imposed from without which a university exhibits if it is worth its salt has a perfectly sound and healthy basis. Indeed it might be maintained, not without reasonable ground, that under modern conditions this resistance is being dangerously undermined, and requires to be stimulated and strengthened. At any rate it may be taken as a first principle that any organization and correlation of the universities should be determined by the universities themselves, however much it is stimulated by the pressure of outside opinion.

Before any useful attempt can be made to plan a university system which will meet the needs of contemporary society, it is necessary to be clear about the functions which the universities have to fulfil. This is specially important now because for a long time our universities have been

changing their character, without adequate consideration of the consequences, in piece-meal response to pressures of a changing society. In particular the development of science and its applications has disturbed the balance of traditional university life profoundly. The proper equipment of scientific departments for teaching and research is extremely expensive when compared with the older departments, and necessarily absorbs a large part of the too limited resources which are available for expansion. At the same time this highly desirable development of science imparts an increasingly technical character to university education. So far no satisfactory method has been found for bringing scientific studies within the cultural synthesis which the older curriculum provided. This is merely one of the ways in which the organization and life of our universities has been altered by the pressure of social needs. There are many others. Together they have worked a transformation in the character of our universities, and the process will continue and even increase. In this way new functions have been and are being thrust upon the university, without regard to their effect upon its older and more important functions. What we need are the principles of a new synthesis of university life, and it is only by rethinking the functions of a university in relation to contemporary needs that these can be brought to light.

It is necessary to be clear about the radical difference between a university and a school. The whole function of a school is educational, but the education of its

EDITOR'S NOTE: John Macmurray is Professor of Philosophy at the University of PUBLIC LONDON AFFAIRS is indebted to the Editor of *The Political Quarterly* for permission to reprint this article.