

general policies behind which it could mobilize the strength of all its unions, and for the first time a very large body of workers, representing many of the basic industries of the nation, and located in various centres from coast to coast, sought simultaneously the same objectives."<sup>1</sup> This reflects the growing relative power of union and federation head offices. Its effect may be to force the establishment of national policies or approximations thereof with regard to wages, hours, and the like. There are discernible patterns in some of our major strikes, for example steel. The incipient movement toward industry—wide bargaining on both sides suggest the same trend. Probably the emergence of employers' associations is part of the same piece. Developments in the United States appear to be following similar paths, and organized labour is demanding not only union security but a much greater influence in national economic policies.<sup>2</sup>

All this suggests that the weakness of labour in the old condition of small organizations and limited security may be passing. If so it has great significance for industrial relations. The steel strike

showed that labour now has the power to enforce a wage which might have important national economic influence. If anything this labour power will grow. It will draw its support from trade union members and numerical political strength. The implications for settling the conditions of work, for wage theory and the like are tremendous.

European countries, notably Great Britain and Sweden, have developed collective bargaining institutions to a greater degree than has North America. But they have usually also developed powerful labour political parties and have worked out, more or less, a division of function between the two wings of their movement. On this continent labour has stressed collective bargaining machinery and neglected political action. It is now striving for security of collective bargaining agencies. At the same time it is enlarging the scope of such agencies by including in bargaining broader issues of social and economic policy and by utilizing the power of central offices of the federations. In a sense the bargaining table is being enlarged to provide for larger people, and larger issues are being thrown on the table.

It is not possible to say how far these developments will go at the present time. They are, none the less, significant and will bear watching.

1. *The Canadian Unionist*, Vol. XX, No. 10. October, 1946.
2. See, for example, an article entitled "National Collective Bargaining" in *Personnel Journal*, November, 1946, by Solomon Backin, Textile Workers' Union of America, C.I.O.

## What Are the Possibilities of Settlement in Canada's North Land?

By H. W. HEWETSON

CANADA, according to the 1941 census, has a little over three persons per square mile. This low density is occasioned, of course, by the fact that including the unsettled parts within provincial boundaries about eighty per cent of Canada is practically devoid of popula-

tion. Thus it is with reason that the outside world looks on Canada as an empty country. Often have we been warned that our great unfilled spaces constitute a standing temptation to peoples in the overcrowded parts of the world. The lure of a great unexploited territory remains even though no people on earth has yet found any important use for arctic or sub-arctic lands. At the moment we need not fear the infiltration of large numbers of Asiatic

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.

peoples, but the future is not without its uncertainties. It may well be that the era of complete national sovereignties will pass in the not too distant future. Perhaps the U.N. or some similar organization will one day insist that if Canada is unable to make use of her north country, other peoples should at least be able to try. The fact that the great circle routes between North America and the Eastern Hemisphere cross northern Canada will undoubtedly cause the development of such things as airports and weather stations in the far north. But these things alone do not mean that the empty spaces will fill up. All in all, it would seem that the time has come for Canada to start considering seriously the possibilities of her vast northland. The neglect of the past should not be allowed to continue.

One is apt to think of settlement as taking place over a relatively short period of time, for example, a generation. But the past history of Canada does not support this view. It was nearly two hundred years after the foundings of Port Royal and Quebec that settlement began in New Brunswick and Ontario. And if it had not been for the occurrence of the American Revolution, there is no telling how long it would have been before those regions began to be peopled. The Prairie Provinces filled up faster, but this was due to the existence of railways built primarily to link the Pacific Coast with Eastern Canada as well as the proven ability of the land to grow a high-grade wheat.

Northern Canada is not crossed by any railways or highways leading elsewhere.<sup>1</sup> Nor as yet is there any proven means whereby any considerable number of people could earn their livelihood in the Far North. But certainly if we think in terms of long periods of time we need not despair. Inside of two hundred years man may well have found the means of changing climate by atomic energy. And long before that time a way may be discovered of transporting bulk freight cheaply by air.

However, it will not do to sit back and let time solve our northern problems. Beginnings should be made now. The time left for Canadians to do something about it could be brief.

To simplify the present discussion somewhat, the tundra country will be left out of consideration. These treeless Arctic "Barrens" extend north of a line drawn from about the mouth of the Mackenzie River, southeastward through Great Bear Lake to about Churchill on Hudson Bay. East of the Bay the tundra extends southward to an irregular line crossing Ungava and reaching the Atlantic through Labrador. This vast northern region has no month in the year when the mean temperature gets as high as fifty degrees. Its economic possibilities are largely unknown. The white men who at present live at the various fur posts scattered throughout this region are those who are content to come into contact with the outside world no more than once a year.

However, there are many thousands of square miles in northern Canada which are not tundra. The exceptions include most of the Mackenzie District and Yukon Territory. Added to this we may include the northern halves of the four western provinces, most of northern Ontario and a large area of Quebec's north woods.

### Agriculture

Settlement of new regions is apt to be thought of primarily in terms of agriculture. At the present time farming in the north must be placed in the questionable category. It is true that the first settlers in eastern Canada who came prepared to till the soil, were faced with many uncertainties. They were facing a very different climate, with other conditions totally unlike anything they had previously experienced. Yet, in the course of time, most of the fundamental difficulties were solved and an agriculture producing most of the crops known in northwestern Europe flourished. A northern agriculture at the moment would

<sup>1</sup>The Alaska Highway is a partial exception to this.

be faced with probably even greater problems than first encountered in eastern Canada. However, agricultural research is being prosecuted more vigorously to-day than two hundred years ago, and it is not improbable that a northern experimental station could solve many of the problems in a comparatively short period of time.

What are the conditions in the non-tundra country of the north which bear on agriculture? The soil is not of the Prairie black loam type, but rather a somewhat acidic podzol not so very different from that prevailing over most of eastern Canada. This would eliminate a few crops, but would still leave a great many including most of the vegetables. However, it will be realized that no comprehensive soil survey has ever been made in the north. The above description applies in general to the great river valleys. Less is known about the soil away from the rivers, but it must be admitted that in these regions a great deal of bare rock is exposed.

### **Climature**

The climate is the more serious limiting factor for agriculture. The short growing season makes impossible the growth of plants requiring a long period of growth before maturity. Thus Fort Simpson (Lat. 62 degrees) is about the farthest north that there is a reasonable expectation of any of the grains ripening before the first fall frost. The length of the growing season, however, is offset in part by the long hours of sunlight in the summer. Thus, fast growing plants like vegetables mature practically as far north as the Arctic Ocean. These vegetables of the far north typically grow to a much larger size than in more temperate climates but they are apt to be deficient in taste.

Precipitation in the north is light, but the coolness of the region makes the rate of evaporation slow, so that there is a great deal of standing water. Further moisture for plants is obtained from the permafrost below ground. The ground

is permanently frozen about two feet below the surface. But above this level it melts during the summer, and so water is provided for the roots of the plants. The tillage of the ground over a period of years gradually lowers the permafrost level.

At the present time a commercial agriculture is carried on at very few points in the north. Most of the enterprises are around Dawson City in Yukon Territory. At this place there is also a number of greenhouses. In the Northwest Territories the outstanding venture in commercial agriculture is at Browning's Farm, situated on the banks of the Mackenzie about half way between Fort Providence and Fort Simpson. Vegetable gardens are to be found around most of the settlements where white men live, but the products of these are for their owners' use.

In the present state of our knowledge the possibilities of a large northern agriculture are not bright. The products which can certainly be raised, vegetables and small fruits of the berry type, are low in value in proportion to their bulk and cannot bear much in the way of transportation costs. Consequently their markets must be local. Big mining camps will bring numerous market gardeners, but agriculture cannot be the mainstay of the people. Browning's Farm is successful, but a few more of this kind would quickly saturate the present market.

Animal raising has some interesting long-run possibilities. With the possibility in the future that the meat supply for the civilized world will have to come from more and more remote sources, the north should have a prominent place in years to come. The reindeer and the musk-ox are two northern animals that could well be raised in very large numbers if there were sufficient demand for their meat. The University of Alaska is doing some interesting experimental work along these lines.

Fishing also should not be overlooked. The recent surveys by the government experts from Ottawa suggest that the big

northern lakes could provide millions of pounds per year without being depleted. At present fish are shipped from Lake Athabaska in northern Alberta-Saskatchewan to New York and Chicago where they command premium prices. A beginning was made in 1946 in Great Slave Lake. Because of refrigeration and transportation difficulties the probability is that this industry will remain in control of large companies. And its seasonal nature may mean that its employees will live in the north only during the summer months. Nevertheless, it would seem that this should be a growing northern industry. It should not be forgotten that fish is the principal article in the diet of the northern Indian, and that living "off the country" in the north means depending mainly on fish.

What of the many trees in the north? Because of the permafrost they are shallow-rooted, somewhat stunted, and apt to be twisted. Their present use is simply as fire-wood. Lumber for construction purposes is imported, although at one time a number of mills were in operation around Dawson City. Perhaps, the greatest possibility here is in the pulp and paper industry, for the species of trees in the north are the same as those now used. But there would seem to be little purpose in this industry moving so far away until the forest resources nearer at hand are becoming depleted.

### Trapping

The two primary industries which have accounted for most of the north's productivity are trapping and mining. Furs have been taken out for over one hundred and fifty years, but the chances of trapping supporting a larger number of persons than at present are slim. The number of pelts taken over the years shows no upward trend. In fact, if rigorous government conservation measures had not been taken, it is probable that the annual catch would be noticeably dwindling. Even under the best conditions, the individual trapper needs hundreds of square miles of exclusive

territory, so that it is obvious that this industry cannot support any sizable population. Northern trappers make quite comfortable incomes, but the industry to be successful must be confined to the few.

Beginnings have been made in fur farming in Yukon Territory. It would seem as though natural conditions would be suitable for a considerable development of this branch of the fur industry.

### Minerals

Aside from furs, certain minerals have been the only products of the north valuable enough to bear the heavy transportation costs to the outside. Canada's northland is undoubtedly extremely rich in minerals. The finds to date are encouraging a very great amount of prospecting activity at the moment, but no one believes that the resources of the north have as yet been more than scratched. Mining, too, is the one industry that can attract settlers in large numbers within a short space of time. Unfortunately, it must be remembered that mining also produces ghost towns. However, in the north most mining camps are centred in large mineralized areas, and would seem to be good for a number of years to come.

The Klondike gold rush beginning about 1896 was the first important mining development in northern Canada. By 1898 it has been estimated as many as forty thousand people were in Dawson City or on the neighboring creeks. Claims were staked the whole length of the Klondike River and up its many tributary creeks. But the yields of the individual miner with his crude panning methods began to decline before long. The district began losing population about 1900 and continued to do so until around the end of the First World War. Since then the population has been about stationary, with something more than a thousand people in Dawson City and about as many more in the district, which extends about fifty miles. But Dawson City has been left with more of the

amenities of civilization than any other place in the Canadian north, and indeed more than most towns of the same size elsewhere in Canada. And gold bricks are still shipped regularly out of the Klondike. But the mining is all in the hands of one large company, the Yukon Consolidated Gold Mining Corp., which owns eleven massive dredges. These operate during the summer months, scooping up the mud from the creek bottoms. And the opinion has been expressed that it will take about a hundred years before the gold begins to play out. But there is no chance for the individual miner with his hand equipment, and the company cannot employ enough to build Dawson City up to its one-time population.

Gold, mostly in the quartz form, has been found at many other places in Yukon. Numerous companies have been floated to develop these finds, but none have got into production. However, the future is not without possibilities.

The second important region of mining activity in Yukon has been in the Mayo district. From here during the inter-war years silver-lead ores were shipped out in the years in which prices were attractive. This is of interest as the one example of the less valuable metals being able to stand the transportation costs to outside markets.

Up to about fifteen years ago some copper was mined in the vicinity of Whitehorse. From here a 110-mile rail journey to tidewater eased the transportation difficulty greatly.

### Oil and Pitchblende

In the Northwest Territories three major mining districts have developed, all since the late nineteen twenties and thirties. The first in point of time was the Norman Wells oilfield, situated about fifty miles north of Fort Norman on the Mackenzie River. Development was slow because of the lack of a market for the product, but with the building of the Canol pipe-line to Whitehorse the number of producing oil wells increased from

five to fifty-five. Now, with the abandonment of the Canol project, production had dwindled again to the supplying of the northern market, with Yellowknife taking the major part of the product. But there is little doubt that there is oil in abundance in the area.

Next came the discovery of pitchblende at Port Radium on the eastern side of Great Bear Lake. Canada quickly became one of the leading producers of radium, but after the mines were taken over by the Dominion government during the war the emphasis shifted to uranium. For security reasons not much information is available about this region. Nevertheless it can be said that the district is still very active.

Lastly, there is the well-known Yellowknife district on the north side of Great Slave Lake. Gold has been found over an area running into tens of thousands of square miles, and many persons are convinced that this is the greatest gold field in Canada. Very awkward transportation difficulties are encountered, but the town of Yellowknife is a rapidly growing one with at present about four thousand people and three branch banks. Present indications are that the settlement will continue to expand and should have a long life.

But the north has an abundance of other minerals. Companies are now being formed to develop the precious tantalum finds on the north-side of Great Slave Lake. Copper is present in very large quantities in the Coppermine country by the Arctic Ocean, but transportation costs make development impossible. However, copper south of Great Slave Lake may come into production shortly. Also, coal is not lacking. Coal has been mined in the vicinity of Carmacks, Yukon, for many years, but as yet has served only a local market.

While several good water-power sites as well as coal exist in the north, it is scarcely to be expected that any secondary industry of a basic sort will develop. The products of the north which will be shipped to the outside world must be

of primary types, and at the moment it would seem that mining alone is likely to bring about any considerable development in the near future.

### Go North

The climate will deter many persons from seeking their fortune in the north, but as a matter of fact the people in the territories suffer very little from the cold. The mosquitoes and other pests generally make the summer the most unpleasant season physically. Northerners enjoy most of the comforts of life of populated areas, and one misses little except the company of numerous fellow beings.

All in all, there are good livelihoods to be made in the north, but the need is for men who still retain the pioneering spirit and can do without street cars.

Many go into the north with the expectation of getting rich quickly and leaving. But a few years residence has affected many people in such a way that they never want to leave. Another point with respect to development comes in here. Many of the old Yukon sourdoughs are very much opposed to many of the possible developments that are rumoured. The country suits them as it is. That is chiefly why they live there.

## Our Ignorance of The Eastern Arctic

By M. J. DUNBAR

SCIENCE is at once cultural and material. The old division between "pure" and "applied" science will soon exist no longer. The fusion of the two divisions follows from the growing realization that our material progress cannot, for its own good, be separated from our cultural progress; that man's first hope for the future and his most significant production in the past is organized knowledge; and that no facts are bad and no knowledge is useless.

The application of this principle to the development of the Canadian North would remove the doubts and many of the difficulties there in short order. It is the purpose of this article to show that the slow development in the north and the fact that people are now beginning to talk seriously about Canada's right of sovereignty and of our responsibilities in the north, are due in the last analysis to our great lack of fundamental ("pure") knowledge. It is most urgent that this poverty of knowledge be removed.

In particular, this paper is concerned with the marine resources of the eastern

arctic region, and with the future possibilities of the use of the eastern arctic air for civil purposes. The problems of the land are great, but must be dealt with separately. We do not have the necessary knowledge, for instance, to estimate the possibilities of stock-raising (musk-ox, reindeer, sheep) in the eastern arctic. We do not know whether the plant-life and climatic conditions make possible the development of sheep-farming communities in the Ungava Peninsula or on the shores of Hudson Bay. We cannot estimate, on our present knowledge, the probable destructive effect of wolves on such an enterprise. By the same token, we are unable to give an account of the mining possibilities of Baffin Island, or of the minerals of the arctic archipelago in general.

### Marine Resources

In the sea, our position is only a very little better. We know at least which resources are declining, and we know something about the fishery potentialities of Hudson Bay. But we do not know enough at present to take really effective conservation measures, and we can do little more than speculate upon the