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Changes in the Fuel Situation in Canada

By Dr. Charles Camsell.

The President:—We are to be honored today by an address from a very distinguished Canadian geologist and explorer. To many years of scientific study at Canadian and American universities he has added an unrivalled experience in exploration and practical geological work throughout the Dominion. His appointment as deputy minister of Mines at Ottawa and the many honors that have been granted him by foremost scientific societies are ample evidence of the great respect and confidence with which his opinions and advice are regarded on scientific and economic questions associated with our mineral resources. I assume that with his extensive knowledge of mining in Canada he has not failed to investigate the full possibilities of the nickel situation and that during the last few weeks he has shared in the general prosperity which, so far as I can learn, seems to have smiled on everyone except myself. Dr. Camsell is speaking to us today on a question of great concern to us, both nationally and individually, and I have great pleasure in asking him to address us.

Dr. Camsell:—The subject that has been assigned to me today might be considered by many of you as threadbare and that everything that can be said of it has been said. To some extent this is true, but when one studies the coal situation of Canada intensively, as I have had to do, one is constantly coming across new angles to it and one realizes that the condition is never a stable one and that changes occur in it from year to year. In other words the situation in 1928 is vastly different from the situation in 1922 when the Dominion Fuel Board was created, and

the situation five years hence will probably be different from the situation now. This is my justification for presenting this subject to you today.

There are certain fundamental factors at the basis of our fuel problem. Certain of these factors are constant and incapable of change, others can only change with the growth of the country, and even at the risk of going over ground with which you are already familiar I must state them in order that my argument may proceed in logical order.

As is well known, the basis of our fuel problems is that, in spite of the fact that we have in Canada enormous resources of coal, the location of the fields is such that they are in areas remote from our greatest concentrations of population where the consumption is greatest.

We have important resources in coal in the Maritime Provinces and again in Western Canada, but for a distance of nearly two thousand miles, in the portion of Canada where our greatest density of population lies, there are no coal fields and we are dependent on supplies being brought from the nearby fields of the United States. In times of strike in these fields difficulty has been experienced in securing supplies and there was shortage and frequently considerable hardship. How to make the position of Eastern Canada more secure was the problem.

Previous to 1923, while there were occasional Parliamentary enquiries into the situation, no continuous study was given to the problem until the creation of the Dominion Fuel Board by the present Minister of Mines. It was immediately apparent to the Board that the most serious situation lay with a supply of fuel for domestic purposes for Ontario and Quebec. The industrial fuel problem was not so acute. In the latter case our supplies were drawn from probably the greatest bituminous coal field in the world, where supplies are almost unlimited and complete stoppage of production never takes place because of the existence of both union and non-union mines.

On the other hand our domestic fuel supplies were being drawn from only one source in Pennsylvania, where supplies were limited, strikes frequent, prices high and market demand in the United States great enough to absorb

the whole production. Eastern Canada was at that time dependent almost 100 per cent. on Pennsylvania anthracite for house heating and we were importing from four and a half to five million tons annually. The substitution of an alternative fuel for Pennsylvania anthracite in Ontario and Quebec was the major problem with which we were faced in 1923. In other words the problem in 1923 was a *consumer's problem.* Let me indicate briefly how this problem has been met and what is the present situation in Ontario particularly insofar as the consumer of coal is concerned.

THE PRESENT SITUATION:

As a result of five years continuous application to this problem and an active campaign of education and propaganda and the co-operation of the public, our situation has very greatly improved—the public mind has been eased and there is now little or no nervousness with regard to supplies of domestic fuel. Imports of United States anthracite have been reduced by thirty per cent. and the use of substitutes generally increased. Instead of using nothing but Pennsylvania anthracite our people have gone very largely to the use of coke, British anthracite, low volatile coal, fuel oil and gas.

SUBSTITUTE FUELS FOR UNITED STATES' ANTHRACITE:

The use of coke in Ontario and Quebec for domestic purposes in 1923 was about 270,000 tons. In 1927 this had grown to about 1,000,000 tons.

Previous to 1922 there were no importations of anthracite from Great Britain. In 1922 this movement started to St. Lawrence ports as a result of representations made by the Dominion Fuel Board, and it has grown year by year until last year about one hundred and thirty-five ships entered the port of Montreal carrying over three quarters of a million tons of anthracite from the British Isles. This is not, as has been described by one of our economists, a transient movement, but one that is going to be permanent because it is based upon sound economic principles namely, traffic conditions on the Atlantic and a freight rate across the ocean of about $1.50 per ton against

a rail rate of $4,50 from the Pennsylvania fields to Montreal.

Another alternative, domestic fuel, the use of which is growing rapidly, especially for the heating of large buildings, is the so-called smokeless or low volatile coal of West Virginia. In 1923 we used for domestic purposes about 190,000 tons, while in 1926 our consumption had grown to 500,000 tons.

In addition to the smokeless coals for domestic use, a million tons of bituminous coal are used for the heating of larger buildings such as schools, churches and apartments which a few years ago were heated to quite a large extent with American anthracite.

During the last fifteen years, we have reduced our importations of American anthracite into the Maritime provinces by nearly half. In 1913 the Eastern areas imported 184,000 tons, while the figures for 1926 show only 96,000 tons.

The change from Pennsylvania anthracite to these three fuels has been accomplished without any disturbing factors, or without change in our furnaces. But the most gratifying feature of this change has been that as a result of greater efficiency and the lower price of these fuels it has been accompanied by a saving to the people of Ontario and Quebec of about $17,000,000 in fuel bills, in the four years 1923-1927.

Another change—the extent of which we have not yet been able to estimate in detail—is the growth in use of fuel oil for house heating. This growth, we know, has been enormous in the last five years but there is a question how far this will go because of some uncertainty as to the future of the oil business, not so much in connection with supplies, but in connection with prices.

The use of gas for heating houses is only commencing in Eastern Canada, but among heating engineers this method of heating is considered to be the most efficient way of using coal and as time goes on will come more and more into use as cheaper and more efficient methods of converting coal into gas are developed.

Another fuel, which unfortunately in this country has had a distressing history, but which in Europe is used to

the extent of several million tons annually, is peat. All that I intend to say about this is that although we have enormous resources of peat we have not been able to use these owing to the difficulty of developing an economical and satisfactory method of manufacturing this into a fuel. I feel confident in saying, however, that these difficulties have now been overcome and one plant has been in operation all summer and a second will be producing next year in the province of Quebec.

Another phase of the domestic fuel problem of Ontario, and one to which a great deal of prominence is and has been given in the public press, is the question of Alberta domestic coal for the Ontario market. How far this movement will go is entirely up to the people of this province and the producers in Alberta, but I would urge upon fuel dealers and consumers here to give it a fair trial.

The progress that has been made so far towards the solution of our fuel difficulties has been mainly along the direction of substitution or the adoption of alternative fuels for United States anthracite. Another method of improving the fuel situation is by the insulation of houses, processing of coal.

As a result of these changes the problem of a supply to the consumer of coal has been removed and no difficulty is now being experienced by anyone in obtaining supplies. Our position however is not yet ideal. Complete fuel independence must be the aim.

Today the problem with which we are faced has been shifted from the consumer's shoulders to those of the *producer* of coal and in that respect our problem has dropped into line with the problems of most of the coal producing countries of the world. Nearly everywhere we find a condition prevailing which is the result of a capacity on the part of the mines to produce more coal than the market can absorb.

What is the reason for this? Let us examine the situation in two of the greatest coal producing countries of the world, namely, Great Britain and the United States.

As a result of the policy adopted during the war and as a result also of having enormous coal fields easily opened up the United States coal industry is geared to produce a

maximum of seven hundred and fifty million tons of coal annually, but the average yearly demand is now only a little over five hundred million tons.

The British coal industry is capable of producing about three hundred and fifty million tons, but only about two hundred and sixty million tons can be sold. The result in both cases is price cutting, and financial loss to the producer but cheap coal to the consumer. The result also is hundreds of thousands of miners out of work in both countries.

In Canada the same condition exists in varying degree.

In Alberta where our great coal fields lie we have the industry equipped to produce about fifteen million tons and a market of seven million. In Nova Scotia the capacity to produce is thirty per cent. greater than the market requires. New Brunswick's capacity to produce exceeds the market by nearly fifty per cent.

In most other coal producing countries similar conditions prevail and the only country where I can find an expanding coal producing industry is in South Africa where production has increased several hundred per cent. since the war.

What are the causes of this condition?

Why should this condition exist, because after all demands for heat and power have not lessened? They are on the other hand increasing, especially in Canada and the United States.

There are several causes, some of which are peculiar to this country; others are common to the whole world.

Apart altogether from a shrinkage of coal demand due to the cessation of hostilities ten years ago, there are three main factors which produced a lessening in the markets for coal. These are: (1) Increased efficiency in the use of coal; (2) Increased development of hydro-electric energy; and (3) Increased use of fuel oil.

(1) As an illustration of the first factor the United States railroads in 1921 used one hundred and ninety-seven pounds of coal to produce the power to haul one thousand tons one mile. Today the same power is produced from one hundred and forty-eight pounds. The annual savings to the railways of the United States in coal by the increased efficiency in burning is forty-two million tons.

Or take the case of the generation of electrical energy from coal. In 1921 it took 3.2 pounds of coal to generate one K.W. hour of electrical energy. Now the average amount used is 1.8 pounds, with some plants going below one pound of coal. This means a further shrinkage of thirty million tons annually.

(2) On the second point, namely, increased use of hydro-electric energy, the situation is best illustrated by conditions in our own country. In the last ten years power demands have grown in Canada enormously. In spite of an increase in population coal consumption for all purposes, however, was about the same in 1926 as it was in 1918 and has only increased slightly in 1927. In fact the per capita coal consumption has decreased in thirteen years by 21 per cent., or from 4.2 tons per capita to 3.3. Growth in power demands in that period has been met almost entirely by expansion in hydro-electric development, for, in 1918 we had an installed capacity of 2,375,412 h.p. and in 1927 this had grown to 4,777,921 h.p.—an increase of over two and a quarter million horse power. This has robbed the coal industry of a market in Canada of about fourteen million tons of coal.

Our present hydro-electric plants have an installed capacity equivalent to twenty-seven million tons of coal. Actually those installations are displacing some seventeen million tons of coal annually.

(3) As far as fuel oil is concerned this also is a serious competitor of coal. In the United States alone there are used some four hundred and thirty-seven million barrels of oil and this is equivalent to one hundred and nine million tons of coal and represents a loss to the coal producing industry of about that figure in dollars.

The consumption of fuel oil in my own city of Ottawa displaces about forty thousand tons of coal which would otherwise have to be used for heating purposes.

How does the coal mining industry propose to meet these conditions? The result of all these factors is that the coal producing industry generally is in bad shape and a great deal of thought is being given to rectification. As a cure

for these ills plans are being proposed or put into effect in Germany, Britain and the United States; and solutions are expected from the application of one or more of their plans. In Germany what is known as rationalization is being applied. In the United States mechanization and in Britain trustification or nationalization.

None of these methods are yet being applied in Canada but if applied they must be applied by the industry itself. Government cannot help very much in any of these directions. Government, however, with the approval of Parliament has taken certain steps to meet on the one hand the condition of the producers and on the other hand the demand of the public for greater fuel independence. The point of attack in the Government's action is the fact that we import half of our fuel supply from outside the country. Last year out of a consumption of thirty-five million tons we imported nineteen million. The export trade cannot be greatly expanded so that we have to look to the enlargement of the market at home.

With a view to extending the markets for Canadian coal Parliament in 1927 passed an act called the Domestic Fuel Act which was designed to encourage the production of domestic coke from coal mined in Canada. Under this Act the operators of new by-product recovery coke-ovens may be paid an amount not exceeding one dollar per ton of Canadian coal used, provided the total quantity of Canadian coal used is not less than seventy per cent of the total coal used. A plant at Halifax has contracted with the Government to secure the benefits of this Act.

Another important step was the passage of Orders-in-Council last spring whereby reduced freight rates on coal were applied on coal from the Maritime provinces and Alberta into Ontario and Quebec.

In the case of the eastern movement of coal brought by water to St. Lawrence ports they get a rail rate from those points inland of one-fifth of a cent per ton mile below the prevailing rate and that fifth of a cent is paid by the Government to the railways. Already under this plan some two hundred thousand tons of Canadian coal have gone into markets formerly supplied by foreign coal.

In addition, after navigation closes on the St. Lawrence

reduced rates apply on all rail movements from Sydney, Springhill, Minto and other coalfields to points in the province of Quebec. This policy is to apply for three years and its object is to ascertain what a reasonable freight rate should be.

The western coal movement is one with which you are more familiar in Ontario. Under this the normal freight rate per ton of coal of $12.70 is reduced to $6.75 on coal carried from Alberta points to Ontario points, and the rate is in effect for three months from April 15th to July 15th during three years.

The object of this movement also is to determine by actual test what a reasonable freight rate should be and one that would be fair to the railways. It would also give the people of Ontario an opportunity to try out the use of Alberta coal for house heating and so create a sentiment in its favour if the Board of Railway Commissioners should fix upon a rate that would permit this coal to come east and compete with the coal now being used in this province.

Owing to the short time in which the Alberta producers had to prepare for this trade and the difficulties of organizing the machinery for it, only about 32,000 tons of Alberta coal were brought down in 1928, but it is confidently expected that the movement will be greater next year.

The policy underlying all these actions on the part of the Government is highly commendable and everyone agrees that the objects to be attained are worth striving for, namely, 1st reduced coal rates, then greater fuel independence, increased work for our coal miners in the east and the west, and more satisfactory returns for those who have their money invested in our mines.

The policy, however, cannot be carried out without the sympathetic co-operation of the consumers of coal in these two provinces of Ontario and Quebec and the plea that I make today to coal-dealers as well as to consumers is that they give the plan a fair trial by using Canadian coal whenever possible and as much as possible.