

# ALCOHOL AND GASOLINE WAS THE SUBJECT OF A DEBATE STATEMENT BY HON. MR. HANSON

When the estimates of the Department of Trade and Commerce were under consideration in Parliament a short time ago, Mr. A. M. Carmichael, two gallons of alcohol. Their proposal as outlined in this report is mixing alcohol produced from wheat with gasoline as a motor fuel, declaring that it would greatly benefit the farmers of the western provinces. Hon. R. B. Hanson after briefly discussing the matter offered to bring it to the notice of research council. Hansard reports the debate as follows:

MR. Carmichael: I wish to bring to the attention of the minister a matter of a different nature which, strictly speaking, possibly should not be considered as coming under this item. It should have been taken up under the vote for the research council, but it so happened that that vote slipped through here one evening, because of the enthusiastic speed of the official opposition, and some of us did not get a chance to discuss it.

Some hon. members: You must have been asleep.

MR. Carmichael: I said "enthusiastic speed", which is not disparaging. Perhaps the matter I am going to bring up will have a soothing effect on the official opposition; it is the question of using wheat to make alcohol. After all the turbulence we have witnessed perhaps this is a good time to bring in this matter for the good effect it may have.

Some hon. members: Speak for yourself.

MR. Carmichael: There is a great deal of wheat in store at the present time; in fact our surplus is becoming rather alarming in quantity, and of course the west keeps on producing wheat, so that people are led to cast about for various ways of taking care of this surplus. I know the best way is to sell it and ship it overseas, but in recent years markets have not been available, and during the past few years the price of wheat has been very low, so perhaps, this is an opportune time to raise this question, and with the minister's consent I will endeavour to place some facts before the committee.

## Motor Fuel

There is a very great deal of gasoline used in Canada for motor fuel purposes. According to my information, based on statistics for 1932 and 1934, approximately 500,000,000 gallons of gasoline are used in Canada every year. Practically all the raw material used for making that refined gasoline is imported. In 1934 we imported crude and partially refined petroleum oil to the extent of 1,063,539,693 gallons, at a cost of over \$25,000,000. That amount of money went out of the country, chiefly to the United States, Colombia, Dutch West Indies, Peru, Venezuela and Trinidad. The first cost, of course, went to these various countries, while a small share, amounting to a little over \$300,000.00 went to our government in duty. In addition, in that year there were 15,108,093 gallons of refined gasoline imported, at a total cost of \$1,706,796, coming chiefly from the United States and Dutch West Indies. So it will be seen that there have been large expenditures for motor fuel purposes most of the money going outside Canada, and in addition in 1934 we had to import tetraethyl lead, which is mixed with gasoline to do away with what are referred to as the knocking quantities in gasoline. We imported 1,398,928 pounds of tetraethyl lead, at a cost of over \$1,000,000.00; this came entirely from the United States. In 1934, therefore, we paid out to other countries something over \$27,000,000 in addition to \$793,000.00 in duties to this government, or a total of over \$28,000,000.00 for this purpose.

## Money Goes Out

I am giving these figures, Mr. Chairman, to show what large sums of money go out of our own country in order to supply us with our gasoline requirements. The question of making alcohol from what has been investigated very thoroughly. I have here a report of the national research council dated May, 1934, in which they give a detailed account of their investigations in connection with this matter. They tell us that one bushel of wheat will produce approximately 2.5 gallons of alcohol. That would mean ten per cent mixture of alcohol with our gasoline. That would mean ten per cent of 500,000,000 gallons, or 50,000,000 gallons of alcohol, which might very well be mixed with our gasoline for motor fuel purposes. To produce that 50,000,000 gallons of absolute alcohol would require 25,000,000 bushels of wheat. Now if it can be shown that that alcohol can be produced at a cost that is not too exorbitant, it, will perhaps appeal to us that it would be something at least worth trying.

## Conversion Cost

This gentleman who operates under the national research council has given us the conversion cost, that is the cost of converting wheat into alcohol and he takes care to include every little detail. In the first item he has overhead, depreciation taxes and return on investment, and the cost per gallon under that item is 4.5 cents. The second item is operating charges, labour, fuel, water, chemicals, barley, and so on; that comes to 6.5 cents. The total cost is 13 cents per gallon. You will notice that he takes in every detail, even allowing for a return on the investment, and of course we know that in recent years a great many concerns have been carrying on without any return at all on their investment. He also points out that in a large plant, and under favorable conditions, this cost of 13 cents per gallon might be reduced by two or three cents. He points out that no allowance has been made for by-products such as yeast or carbon dioxide, which if sold would reduce that cost of 13 cents.

## Wheat

Now take the matter of wheat prices. In recent years the price of wheat has been very low, and that is what opens up the thought that we might use wheat to advantage for this purpose. From the bulletin I have here I find that over the four years, 1931, 1932, 1933, 1934, the average price of wheat in Saskatchewan and Alberta was as follows:

	Saskatchewan	Alberta
	cents	cents
1931 .....	38	36
1932 .....	35	32
1933 .....	47	45
1934 .....	59	55

So we see that the price of wheat has been extremely low in those four years. The research council has taken the three years, 1930, 1931, and 1932, and they have given us the average price in those years of No. 1 northern and No. 5 wheat. The price of No. 5 in 1930 averaged 51 cents; 1931, 46 cents; 1932, 39 cents. They point out that No. 5 wheat is very useful for the making of alcohol; in fact, it does not need to be a high grade wheat. The lower grade serves fairly well, while it does not produce as much alcohol per bushel. I think it would be fair to assume that the average price of No. 5 wheat would be 50 cents a bushel in view of wheat prices have been over the past few years. We find that in the province of Manitoba the use of alcohol in the way suggested a ten per cent mixture would increase the price of motor fuel by 2.7 cents per gallon; in Saskatchewan it would increase the price by 2.5 cents per gallon, and in Alberta by 3 cents per gallon. They point out that the domestic freight rates are so high for wheat moving to British Columbia that it might be cheaper to manufacture the alcohol in Alberta and ship it to British Columbia, and so they do not give any price for that province. In Ontario allowing for the shipping of the wheat from the west to the east, the increase in price would be 3.9 cents per gallon, and in Quebec and the maritimes it would be practically the same. Taking the average for the various provinces we find that the increase in price would be about three cents per gallon for a motor fuel with a ten per cent mixture

of alcohol added to the gasoline. Let us take that figure and consider what it would mean spread over the whole dominion. In British Columbia it would mean an increased cost to the purchasers of motor fuel of \$1,170,000; in Alberta, an increase of \$902,000; in the Saskatchewan, an increase of \$714,000; in Manitoba an increase of \$700,000; in Ontario an increase of \$826,000; in Quebec, \$3,276,000; in the Maritimes, \$1,260,000. So that the total increase in the cost of the total quantity of gasoline consumed in one year would be \$16,282,000. That may look like a large sum of money to put upon the shoulders of the users of motor fuel, but when we remember that approximately half of that \$16,000,000 odd goes into the pockets of the farmers of Canada and the balance into lake and rail freight, elevator charges, manufacturing costs, freight on alcohol, and so on, it does not look so terribly extravagant, because a few minutes ago we pointed out that over \$28,000,000 was being sent outside the country for the purpose of supplying us with our motor fuel.

## Some Benefits

I want to give some of the benefits that would come from a mixture of alcohol with our gasoline. Perhaps one of the most important benefits is obtained from the anti-knock qualities of gasoline when mixed with alcohol. That is the reason the refiners of gasoline have to import tetraethyl lead to mix with gasoline to eliminate the knocking properties which gasoline naturally has. By mixing absolute alcohol with the gasoline it is not necessary to use tetraethyl lead. In fact we are told by these research men that the use of alcohol has a better effect on the gasoline than the use of tetraethyl lead.

## To Reduce Carbon

Another advantage would be that it would reduce the formation of carbon in the engine, reduce the oil consumption of the engine, and give a longer life to the valves and the engine part in general due to the smoother operation. While we have no absolute figures or estimates on these points, that is the conclusion of the research council as to the effect of mixing alcohol with gasoline. Also, Mr. Chairman, it would reduce our imports considerably, thus helping our trade balance. Another important point in its favour is that it would tend to give an impetus to the distilling business in Canada. In 1933 we had eighteen distilleries in Canada, which produced a little over 3,500,000 gallons of absolute alcohol.

The Chairman (Mr. Gobeil): I do not wish to interfere with the hon. member's remarks, but unless he has the consent of the committee he is certainly out of order.

MR. R. B. HANSON (York-Sunbury): I agree, Mr. Chairman, that the hon. member's remarks are out of order, but he was good enough to write me a letter saying that he intended bringing this matter up. I have no objection, and with the consent of the committee I would ask that he be allowed to proceed.

MR. BEAUBIEN: I have no objection to the hon. member proceeding, but I hope the minister will show the same courtesy to the rest of the members.

## A Courteous Minister

MR. HANSON (York-Sunbury): I shall be courteous to everyone.

MR. CARMICHAEL: The minister is very good natured and I thank him for it.

MR. DUFF: It is not only the minister who is going natured. Before the hon. member proceeds I think he owes hon. gentlemen on this side an apology, as he can proceed only with their consent. We shall be glad to make the consent unanimous if an apology is forthcoming.

MR. CARMICHAEL: I shall be glad to accommodate the hon. member for Antigonish-Guysborough (Mr. Duff). I am ready to apologize or do anything else in order to keep going.

I was referring to the good effects which might be expected to accrue from the use of alcohol in gasoline and the last one I mentioned was the benefit which the distilling business would gain. We have eighteen distilleries which produced 3,500,000 gallons in 1933, and if provision were made for the production of 50,000,000 gallons, there would be a great impetus to the business as well as an

increase in pay-roll. There would also be provided a new domestic market for 25,000,000 bushels of wheat as well as for a considerable quantity of barley. There is another important point to be kept in mind. We are told that the reserves of gasoline are not inexhaustible and that as they gradually decrease there would be a rise in the price of gasoline. Some authorities predict that this will come about within the next ten years. I should like to give certain facts in connection with other countries. At the present time England is erecting a plant for the hydrogenation of coal to produce gasoline for fuel. It is expected that 30,000,000 gallons per year will be produced. This fuel will cost from 16 to 18 cents per gallon while gasoline cost only six cents per gallon delivered in British ports. In order to assist the coal industry the British government is bonusing this hydrogenation process to the extent of eight cents per gallon. This will encourage the use of British coal to produce a fuel within the country rather than to be dependent upon imports.

There are eleven countries in which motor fuel containing alcohol is being marketed. Germany is making alcohol from potatoes and molasses and mixing it with her motor fuel. France is making it from cane and beet molasses, while Italy is making it from molasses and grapes. Sweden is producing alcohol from sulphite liquor; Czechoslovakia is producing it from potatoes and molasses; the Philippines use molasses in this process while Latvia uses potatoes. Australia, Cuba and South Africa use molasses in the process. Hungary is producing alcohol but I have not the product they use. The use of alcohol varies from ten to twenty-five per cent. There are several other countries considering the use of alcohol in their motor fuel, such as Brazil, Chile, Austria, Ecuador, Poland and the United States. The products to be used include molasses, potatoes and corn. India and the Irish Free State are providing government assistance for the production of motor alcohol.

Having placed these facts before the committee, the minister and the government—and for that matter the official opposition, which hope in the not distant future to be returned to power—I should like to suggest that this matter be considered and carried beyond the experimental work being done by the national research council. This council has done excellent work in bringing these facts before the public and I commend to any hon. member who may be interested the reading of this book. I suggest that a further step be taken and that alcohol be manufactured on a larger scale. Perhaps this may not be done to the extent of producing 50,000,000 gallons, but I think it should be tried out in order to test the facts brought out by the research council. If the advantages are such as are pointed out in this book it may be that none of us would object to paying three cents more per gallon for our gasoline when we obtain a fuel of a superior quality. When the refineries commenced using tetraethyl in their gasoline they charged the customer two cents per gallon extra because of its superior quality. If the mixing of alcohol will provide a fuel of a superior quality, an extra charge of three cents per gallon will not be of much importance. I thank the minister and the committee for giving me the opportunity of placing these facts before them.

## Mr. Hanson

MR. HANSON (York-Sunbury): MR. Chairman, I shall not detain the committee very long in continuing this discussion. As I am reminded by the hon. member for Antigonish-Guysborough (Mr. Duff), it has often been said that gasoline and alcohol do not mix. However, we are not using that statement in the same sense as the hon. member for Kindersley (Mr. Carmichael). This whole matter was the subject of an investigation by the national research council and a memorandum has been prepared on the possible utilization of grain alcohol in motor fuel in Canada. The first finding was that the manufacture of alcohol from wheat offers no technical difficulty. Second, they found that the use of such alcohol in admixture with gasoline for motor fuel in technically possible, as demonstrated by its continued sale for this purpose in France, Germany and other countries. Third, alcohol cannot be made as cheaply as gasoline by any process known at the

present time. For this reason the blending of alcohol with gasoline is found to increase the cost of motor fuel. Four, other things being equal, the addition of ten per cent of alcohol would be expected to increase the cost of motor fuel by at least three cents per gallon on an average for all Canada. This figure is based on the use of No. 5 wheat at a price of sixty cents per bushel at Fort William, approximately the present price. About 25,000,000 bushels of wheat would be required annually. Five, the addition of alcohol to gasoline improves the anti-knock qualities and lessens carbon formation. These advantages are partly offset by certain unfavorable characteristics. Six, in order to produce a fuel alcohol required for a ten per cent blend, it would be necessary to increase the capacity of the distilling industry. Seven, it is believed that motor fuel made by the hydrogenation of Canadian coal would be considerably cheaper than motor alcohol made from wheat costing sixty cents per bushel. I shall be glad to direct the attention of the officials of the research council to the speech of the hon. member for Kindersley and ask them to look into the matter with a view to having further investigations made.

MR. DUFF: Is it not true that cars in which alcohol is used to go faster than those using gasoline?

MR. HANSON (York-Sunbury): I am not an expert and I do not know.

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