The first part of a multiple day interview between Henry Ford and the Detroit Evening Journal, sometime around November 5, 1916. Believed to have been excerpted in the Western Brewer Magazine, December 15, 1916.

"Michigan has voted for state-wide prohibition, but the 60 brewing plants in the state need not be abandoned," said Henry Ford to The News today.

"Millions of dollars are invested in these plants. Economically it would be a shameful waste to have them become idle. But there is no reason for them to become so. Every standard brewing plant can be transformed, at an expense that is in no sense prohibitive, from a brewery into a distillery for manufacturing denatured alcohol for use in automobiles or other internal combustion engines.

"And then," Mr. Ford continued very earnestly, "with the world's supply of petroleum - and therefore, of gasoline - fast playing out and the day of alcohol fuel for automobiles and tractors just dawning, the present brewery properties are assured a future much more useful to the community and quite as profitable to themselves as has been their past."

Discoveries Made

By practical experimentations carried on during the last 18 months in the Henry Ford & Son laboratories and on the Ford farm in Dearborn, Mr. Ford has proved two things:

1.– That denatured alcohol can be used successfully as a fuel for the gas engine in automobiles and tractors.

2.– That denatured alcohol can be manufactured and marketed at a price that will permit its general use as a gas engine fuel.

After a long study of breweries and their methods by Mr. Ford and his engineers, he has come to the conclusion that all a standard brewing plant needs, to be transformed from a brewery into a distillery, is the addition of a continuous still. And, with the raw material on every hand, the same amount of labor, no tax and an unlimited market, the denatured alcohol business will be fully as profitable for the brewery as the manufacture of bee.

There is no government tax on denatured alcohol.

Mr. Ford's demonstrations are considered the beginning of a revolution in the use of liquid fuels in industry. They were conducted by J. B. Dailey, Ford research engineer, under Mr. Ford's personal supervision.

To Extend Experiment

So successful have been the small laboratory tests and the use of alcohol thus produced in cars and tractors on the Ford farm that Mr. Ford will shortly erect a larger experimental still for producing denatured alcohol on a large scale, demonstrating its possibilities as a new industry in Michigan.

"The opportunity for the Michigan brewer, along this line is unlimited." Mr. Ford said in his talk today. "In brewing, the process involves mashing, cooking, malting, fermentation and rectifying. In the manufacture of denatured alcohol, the process involves mashing, cooking, fermentation and distilling. Rectifying, or the process of removing certain elements injurious to the body is not necessary, because the product is not to be drunk, but used as fuel.

"By far the greater part of the brewing apparatus and machinery can be used in making alcohol. The one additional apparatus needed is a continuous still. Most all brew houses are tall enough to admit the installation of such a still without a prohibitive overhauling of the plant.

Farmers as Stockholders

"In this the farmers themselves are the stockholders. They bring their raw material to the still, have it made into

alcohol and take part of the alcohol home - sufficient for their own use - as well as the by-product. Then at the end of the year the farmer stockholders get a dividend on the business done by their still.

"The material left after the alcohol is extracted is very important to the farmer. It makes excellent cattle food for dairy products. Alcohol is nothing but carbon, hydrogen and oxygen. When these are extracted there still remain all the nitrogenous, phosphates and other elements. Fed to cows, it enriches the dairy product; later it becomes the best possible fertilizer to go back into the soil to increase and enrich next year's crops. Such farming is the perfect cycle of usefulness.

Demand for Machinery

"Every day that goes by makes the labor situation on the farm more serious. More and more is there a demand for labor saving machinery. The self-binder was the outgrowth of such a demand and now the scarcity of horses, the high prices they bring and with the mounting costs of their maintenance demands the motor tractor. And of course every modern farmer has his automobile to run to and from town.

"The next 10 years will see an ever-increasing demand for motive power on the farm. Then why should the farmer pay an ever-increasing price for gasoline when he can produce all the alcohol he needs and a lot more on his own farm?

"As an example of the uses to which alcohol can be put, let me tell you that today 30 of the tractors used here on our farms in Dearborn are alcohol-driven. When a large still I have planned is completed we will make our own fuel right here.

Can Pipe Alcohol

"We have proven here in our laboratories that alcohol can be piped, just as gas is piped now, and used for illumination. The farmer ultimately will not only drive his automobile and tractor and threshing machine with alcohol, but he will light his house with it and his wife will have an alcohol stove on which she will do all her cooking.

"The small producer of alcohol need never fear competition from the big producers, such as the whisky trust. In the first place, the supply of raw material is unlimited. Not until someone learns how to control the sun and its light can there be a monopoly in the raw material for alcohol manufacture.

"Just the reverse will always be true. The innumerable uses to which alcohol is now put and the increased uses which the future is certain to develop, guarantee that all the alcohol which the farmer produces above his own wants will find a ready market. Moreover, the farmer will be saved the immense transportation costs. In the old days he sends his hay and grain to market in bulk. In future will go in the compressed form of alcohol, or in the self-transporting bodies of his cattle and pigs. This will be a great aid in reducing railroad congestion."

"What to do with over-abundant crops; how to get a rich food for dairy cattle, how to cut the amount of manual and teaming labor, how to obtain a motor fuel the price of which will not be prohibitive - these problems of the farm, and many others may all be solved by the use of alcohol as a gas engine fuel and the production of alcohol which he uses by the farmer himself," says Henry Ford, who for the last 18 months has been experimenting in the use of alcohol in automobiles and farm tractors ad in the possibilities of the farmers' producing their own fuel.

"The opportunities of the American farmer in general and the Michigan farmer in particular along this line are unlimited," says Mr. Ford.

"There's simply no two ways about this fuel question," Mr. Ford said, as he turned from his desk in the Henry Ford & Son laboratories in Dearborn. "Gasoline is going - alcohol is coming. It is coming to stay, too, for it's in unlimited supply. And we might as well get ready for it now.

Supply Fast Waning

"Sir Boverton Redwood is advisor on petroleum to the British government. He is reputed to be the highest authority in the world on the subject. He says that at the present rate of consumption the world's available supply of petroleum will be exhausted in 25 years. When that is gone, there will be no more gasoline and, long before that time, the price of gasoline will have risen to a point where it will be too expensive to burn as a motor fuel.

"All the world is looking for a substitute. And, like all much-sought-after things, we find it right at our elbow. The substitute for gasoline is alcohol, which experiment has shown works even better than gasoline, is cheaper and more powerful; which can be manufactured very cheaply - from some materials as low as 10 cents a gallon - half the present price of gasoline - and which, because of its presence in a thousand different forms of vegetation, renewed year after year, is in unlimited supply.

In Corn, Beets, Potatoes

"Corn, cornstalks, wheat, potatoes, beets and beet-tops, apples, peaches - all the things grown on the farm, to a greater or less degree, contain alcohol which can be readily extracted, leaving the by-product for other uses.

"Can't you remember years when Michigan farmers lost thousands of bushels of apples, potatoes and other crops because the supply was so abundant there was no market for them? They did not even spend the time and labor to gather them. Those crops could have been made to yield a small fortune by extracting the alcohol they contained.

"Right today, up in Michigan's potato belt, hundreds of bushels of potatoes are going to waste. Some are too small, some too large, for market use and are cast aside. The day will come when they will be very valuable.

Problem in Production

"The problem is how to get the farmer to use this material for alcohol production - whether to have a small still on each farm, where low-proof alcohol can be produced or to have fairly large community stills, to which the farmer can take his raw material and have it made into alcohol. He could receive cash outright from the still in payment, or he could pay the still a small amount for the actual manufacture and take away the finished alcohol, together with the by-products.

"The former method - where each farmer has a still with which he develops low-proof alcohol on his own farm and then takes it to a larger still to have it redistilled to a higher proof liquid - has been tried out in Germany. The government subsidized the farmers to encourage the manufacture of the liquid and for a time the system was very successful. But later that system has given way to the community idea.

Material at Door

"On the one hand the brewer will find that his available raw material has greatly increased and, in many cases, reduced in price. It requires grain to make beer. There has not been enough barley grown in Michigan to supply the demand and the brewer has had to go to Iowa, the Dakotas and Montana to get it. Now he can find plenty of material at his very door. For we have proved in our laboratories that a good yield of alcohol can be had from scores of vegetable elements that now go to waste.

"On the other hand, the brewer will find his market infinitely broadened and extended. Everyone does not drink beer - as witness Tuesday's election throughout the United States [*November 7, 1916*]. But everyone does use alcohol in some form or other. It is in the varnish of the household furniture; it is in clothing we wear; it's in the phonograph records and the rubber knobs on the chairs. In fact, everything we touch, at some point or other in its manufacture, has gone through a process involving alcohol.

"Last year in the United States automobiles consumed 21,000,000 barrels of gasoline, 42 gallons to the barrel. This year the number of automobiles is use has increased from 2,235,000, the figure on Jan. 1, 1916, to nearly 3,000,000. It is estimated that this year's consumption of gasoline by automobiles in the United States is close to 27,000,000 barrels. This does not include the gasoline used in motor boats and stationary engines. Adding in that probably would bring the figure up to close to 30,000,000 barrels. The day is not far distant when, for every one of those barrels of gasoline, a barrel of alcohol must be substituted.

No Limit to Market

"Pile up on top of that the millions of barrels of alcohol used in the arts, sciences and industries, and you have a market that is beyond comprehension.

"We have found that 160-proof alcohol works very well in the ordinary gas engine on our cars and tractors. But of course, better results could be obtained by modifying the engine somewhat to make it capable of much larger compressibility and, therefore, more adaptable for alcohol.

"Government experimentation so far has proved only that the relative value of alcohol and gasoline, as gas engine fuels, is as 1 to 2 - that is, that only half the results cold be obtained from alcohol as from gasoline. We, however, have been able to make a gallon of alcohol do nine-tenths of the work accomplished by a gallon of gasoline. We are still working on it and expect to perfect it to the point where it will do just as much, if not more, than gasoline.

"Using alcohol in an ordinary Ford car, we are able to get 15 per cent more power than with the present gasoline, although the mileage covered was not quite so high. However, that is a matter of consumption which can be adjusted and regulated.

"Where government made its mistake was that it went on the theory that an alcohol of very high proof was needed. It began at 180-proof and went up. We began with 180-proof and went down. We found 160-proof to work better than most any other grade. That combination of spirit and water seems to burn best in a gasoline engine.

"The raw materials we have used in the laboratories in producing alcohol cheaply are various kinds of grains and vegetable substances. Tests were made with corn and wheat. Then we tried potatoes, grapes, cherries, peaches, currants, strawberries, and many other kinds of small fruits. Carrots, turnips, beets, sugar cane and wood were also used. We also found that the waste from canneries - such as apple peels and cherry pits; the waste from sugar factories and vegetable tops, usually thrown away on the farm, were surprisingly high in alcohol value.

Cornstalks Good Material

"One of the best materials we found were cornstalks. These, ground up, mashed and boiled, produced a very high percentage. An acre of cornstalks will produce 100 gallons of alcohol - some cornstalks wold produce 50 per cent more. Then the distiller can turn around and sell his waste back to the farmer for cattle food. Nothing has ben taken from it but the alcohol - all the nitrogenous matter is still there, to go back to the soil as fertilizer.

"Again, we can import from Germany a kind of alcohol potato and make our barren, sandy acres in the north yield abundantly. These potatoes are not good to eat. They are large, like our beet, and the inside is reddish and juicy and very obnoxious in taste and odor. But they yield a wonderful amount of alcohol."

Tomorrow Mr. Ford will explain how the Michigan farmer can profit by the change from gasoline to alcohol fuel.

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Re-typed from a galley proof in Accession 62, Box 77 of the collections of the Benson Ford Research Center at The Henry Ford. Formatting kept the same as the original, except for a little white space between paragraphs for readability.