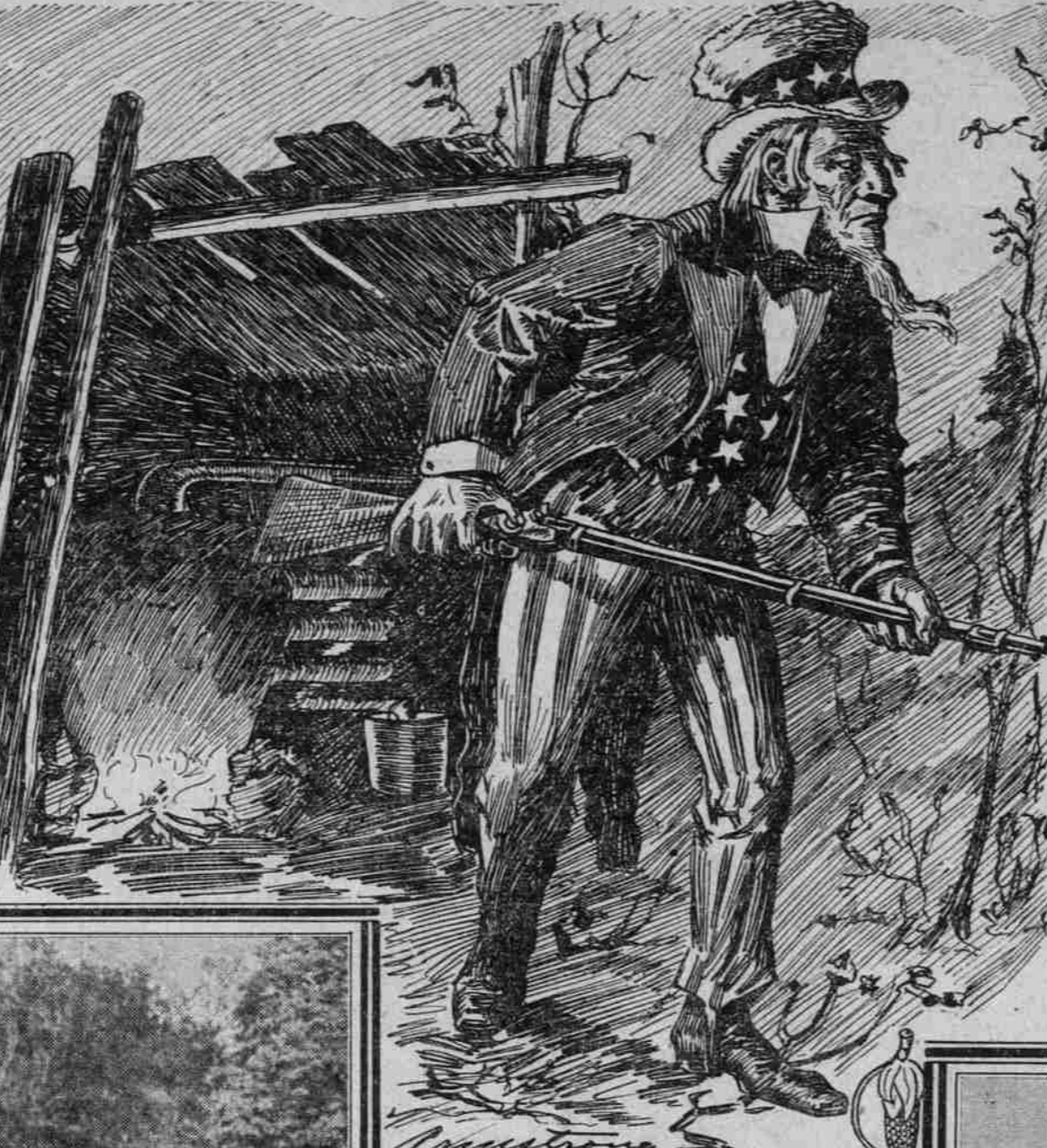


Will Teach Farmers How to Make Denatured Alcohol



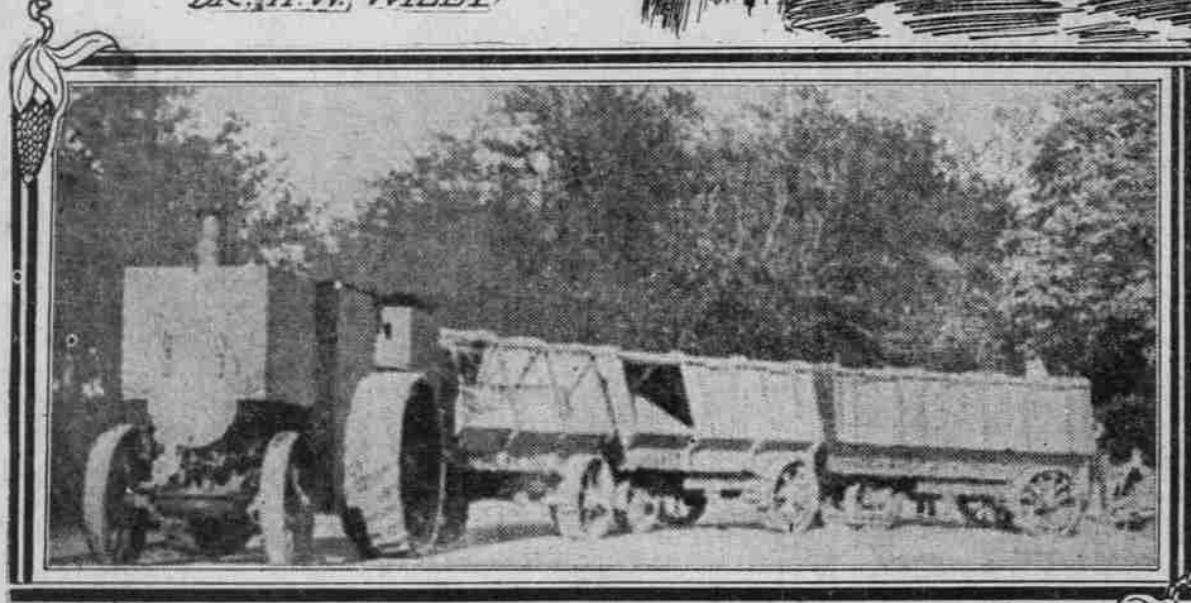
DR. H. W. WILEY



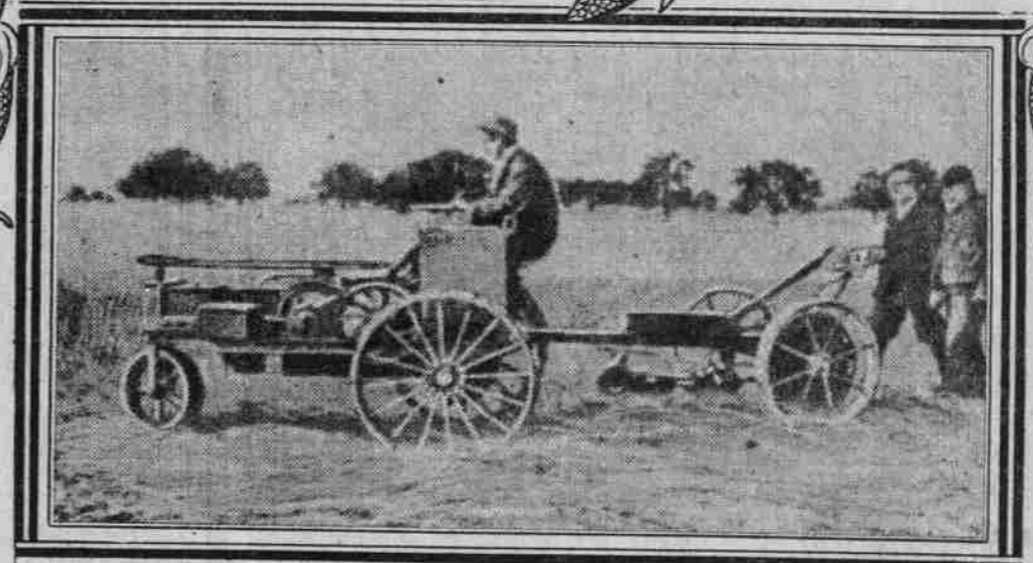
Uncle Sam to Erect a Model Still at Washington and Manufacture This New Fuel and Illuminant
Three Months' Course in Distillation and Fermentation Will Be Given to Students Free of Charge



U.S. BUREAU OF CHEMISTRY



ALCOHOL TRACTION TRAIN, GERMANY



ALCOHOL REAPER

BY JOHN ELFRITH WATKINS.
 To start the new "denatured alcohol" ball-rolling throughout the land, Dr. H. W. Wiley, the father of the pure-food law, is going to do some moonshining here in the capital of the Nation. He told me yesterday that he will at once commence the construction of a model still, of the kind which the farmer should use on his own premises, and that from this plant he will diffuse among his fellow-citizens knowledge in the "art of fermentation and distillation."

The revenue officials have been asked by Secretary Wilson to grant immunity to the jovial and witty chief of the Bureau of Chemistry. This they did once before when Dr. Wiley did a little scientific moonshining out-West. Were the formality of asking for this "immunity" overlooked by the Secretary, Dr. Wiley would be liable to a raid, with considerable gun play on the side and a long term in the penitentiary, during which he would have abundant opportunity of studying the adulteration and nutritive value of bean soup and shark steaks.

Waste potatoes, green corn that has soured or become too hard to sell, spoiled cantaloupes, watermelons and other old fruits which have commenced to decay will be purchased by Dr. Wiley in the Washington markets and converted into the new commercial alcohol from which the government by recent legislation removes the revenue tax, provided that it be made repulsive to the human sense organs of taste and smell.

The still will be a model for the American farmer who wishes to learn how to manufacture this new fuel and illuminant from waste products of the field, orchard and vineyard. It will have the capacity to distill 100 gallons of the new

spirit in eight hours. It will cost Dr. Wiley \$400, but he estimates that as soon as the manufacturers see the coming demand for such small stills they will put them on the market for \$200 or less. The cost of the first still of the kind will naturally be high, since entirely new patterns have to be made.

To Teach Classes From Each State.
 Classes of young men will be detailed to Dr. Wiley's still from the agricultural colleges and agricultural experiment stations of the states. There will be room for 50 of these student distillers, one from each state and territory.

Each will be given about a three months' course in fermentation and distillation. Dr. Wiley told me. Post-graduate students at the agricultural colleges will be preferred. Each having taken the course at the still, will go back to his state college or experiment station and be fully qualified to erect and operate such a model plant for the education of the farmers of the state. Within the next few years there will thus be distributed among the states hundreds of young men educated to introduce or conduct distilleries for commercial alcohol.

Dr. Wiley's still will be built as near as possible to the bureau of chemistry as he can rent the necessary building or shed. Perhaps it will be erected on the Department of Agriculture's experimental farm over at Arlington, Va., across the Potomac.

"Why haven't the farmers awakened to the advantage of denatured alcohol before this?" I asked Dr. Wiley.

"First, because they have no knowledge whatever of distillation; second, because no one here manufactures the small stills, which will be necessary for the successful manufacture of commercial alcohol on the farm. When I was abroad I saw many of these small stills. In France there are 7,000 little ones, called 'boilers of the crop.' They are used

mostly in wine making there. Almost every little French vineyard has its small still.

"Our farmers haven't any idea as to what fermentation or distillation means. We have recently had inquiries from some of them as to whether they can make commercial alcohol out of peaches and such impossible waste material. They have to be taught that this new fuel and illuminant can be profitably made only from materials containing large proportions of sugar and starch. They must learn, also, how the starch can best be converted into sugar and the sugar into alcohol. But this knowledge cannot be diffused except through the hands of instructors, technically trained. Take 500 American farmers and put them down in the vineyards of Bordeaux and tell them to go ahead and make wine. What kind of stuff do you think they would turn out?"

"Have the big distillers commenced yet to make denatured alcohol?"

"A great deal of it is now being distilled at Peoria and Terre Haute. It sells for 40 cents a gallon. The farmer with his small still cannot manufacture it to sell cheaper than this if he uses marketable corn, potatoes or beets. But to him the product of his little distillery will be a pure gain if he can learn to use materials that would otherwise go to waste, and if he utilizes the farm labor which he would have to pay anyhow for other purposes.

Can Use Cornstalks and Spoiled Grain.
 "Grain freezes by the hundreds of thousands of bushels each year in Montana and North Dakota alone. It doesn't pay to transport it to the big distilleries. All of this spoiled grain can be converted into commercial alcohol on the spot and the waste, or what the distillers sell as brewers' grains, will still be left as a cattle food as good as a muscle and bone

builder as the whole grain was itself, although not so efficient as a fattener."

That cornstalks as a source of alcohol supply should be started by our agricultural experiment stations was pointed out by Dr. Wiley. Untold tons of sugar annually go to waste on the cornstalks of our farms—the stalks of sweet corn, field corn and sorghum. Everywhere cornstalks are cured for fodder the sugars ferment and are lost before the cattle are fed with this waste material of the fields.

Inventors who can overcome the technical difficulties of cheaply extracting this sugar from the stalk will, Dr. Wiley said, give the country's future commercial alcohol stills an almost inexhaustible source of raw material. Stalks of sweet corn, field corn and sorghum contain in addition to sugar, notable quantities of starch and gum which would be converted into sugar at the distilleries. No other source of raw materials for free alcohol is so abundant as these stalks, the doctor estimated. The only question is how can this material be cheaply extracted.

Our farmers' small stills, built after Dr. Wiley's model plant, will come under a new class of industrial distilleries provided for in an amendment which Congress last year made to the original "free alcohol law." In these stills only industrial alcohol may be produced, and the daily output must not be over 100 proof gallons—the capacity of Dr. Wiley's projected plant. The bureau of internal revenue has made regulations which will relieve this class of small industrial stills of the many restrictions placed on the large distilleries. Any material may be used, and the still may be of any size, provided not over 100 "proof gallons" are produced per day. But, of course, the smallest still that can manufacture this maximum output will be the cheapest for the farmer. Each such still must be registered, plans of the premises must be filed with the revenue bureau, a bond must be given and the distillery must then be "surveyed" by a Government official. After this is done the farmer-distiller may control his own operations almost entirely, merely notifying the revenue collector of his district as to when work is to begin.

How Farmers Will Denature Alcohol
 The farmer can have the "denaturing" of his alcohol done, in any quantity, on his own premises, or it can be sent to a central denaturing bonded warehouse, and there sold for denaturing purposes. If denatured on the farmer's premises it must be so treated under the supervision of the district storekeeper gauger. If shipped to the central warehouse that of-

icial must draw it into the barrels in which it is to be shipped, and these must be stamped by him.

The chief difficulty to the farmer who wishes to establish such a still will be the restriction that his alcohol must be distilled "100 proof." This will require a certain kind of still and some special knowledge of its operation. Were there not such restrictions the process would be as easy as moonshining, in which the most ignorant mountaineer easily becomes proficient. A wooden or "pot" still will not answer the purpose, but a "column still," preferably of the "continuous type," will be necessary. It is this latter class of still—whose description is too technical for this article—that Dr. Wiley will erect for his demonstrations.

Alcohol Lamps and Stoves.
 The bureau of chemistry has one of the new alcohol lamps which will be seen in many an American home in the not very distant future. It looks like an ordinary kerosene lamp with a Welsbach gas mantle over the wick. What appears to be the knob for turning the wick up and down is the handle of a little pump which is pressed down two or three times with the thumb just before the lamp is lighted. This action brings a little of the alcohol around the wick holder where it is ignited by holding a match through an opening at the side. The lamp burns with a colorless flame for the first min-

ute or half minute. Another match is then applied to the top of the chimney, just as when a gas mantle is lighted. The alcohol vapor ignites in the same manner as does the gas in the latter and soon heats the mantle to a white heat. The lamp then burns regularly, and with all of the brilliancy of a gas mantle, without any further attention as long as any alcohol remains in the bowl.

Alcohol stoves, such as are in general use in Germany, convert the alcohol into a gas which is ignited in burners. They burn with a pale blue flame which is intensely hot and without smoke. If there is any odor about them at all, Dr. Wiley says, it is an agreeable one. Alcohol stoves have been invented also for heating bathtubs, soldering irons, crimping irons and for roasting coffee.

It is quite certain that the use of alcohol motors on the farm will become quite common as soon as the technique of construction is practically complete and the price of alcohol is sufficiently low," said Dr. Wiley. "Alcohol can be used for all purposes for which gasoline is employed—the driving of wagons, carriages, stationary motors, water pumps, mowing machines, plows, etc. Very little change need be made in the engine of a motor car, designed to use gasoline, to fit it for the use of alcohol. Gasoline becomes volatile (evaporates rapidly) at a temperature of blood heat (98½ degrees F.), while a much greater degree of heat (135 to

176 degrees F.) is necessary to volatilize alcohol rapidly enough for motor purposes. This fact makes necessary a change in the explosion chamber of the engine when alcohol is to be used. This adjustment is especially important in the starting of the machine, as after it is in action the temperature of combustion is quite sufficient to easily produce the necessary gasification. The vapor of alcohol can be more highly compressed at any given temperature without exploding than can the vapor of gasoline."

Alcohol Wagon Trains.
 The Germans use small alcohol motors for driving plows, mowing, reaping and binding machines; also for chopping and grinding cattle food and pumping water. They have developed also many kinds of alcohol automobiles, motor boats and traction engines.

The German army uses alcohol traction engines to draw artillery and trains of heavy military wagons for transporting all sorts of supplies. These alcohol wagon trains pull over the mountain roads and even ford streams. Some of them are drawn by detached traction engines, such as those run by steam on the farms of this country. Others are heavy automobiles with truck bodies on their own frames, and yet with trains of transport wagons hitched on the rear.

Washington, D. C., February 24.

THE HOTEL CLERK OR THE BOHEMIAN LIFE BY IRVING S. COBB

"IF YOU want sneeze, w'y don't you sneeze?" said the house detective of the Hotel St. Reckless to the hotel clerk. "You make me nervous standin' there with your face all puckered up."

"I know," said the hotel clerk. "You see me as I am now, with my nose looking as if she was about to bibe and come about, and you dope it out that I've got one of those double-seated, self-feeding, runabout colds-in-the-head that have been so justly popular the past winter. But not so, Larry; not so. If I was to sneeze at this writing, it would lack practically all of the scenic effects which are required to make a success of a sneeze. It wouldn't be one of those realistic sneezes such as you'd find in a Belasco production. The trouble with me is, Larry, I've got the scent of punk sticks up my nostrils."

"I'm plenty wise to that punk stick thing," said the house detective. "A punk stick is somethin' that burns like a way-station cigar, and smells like a defective fuse in a Chinese laundry, ain't it?"

"The late Noah Webster couldn't have expressed it more neatly, and Noah was the unabridged kid," said the hotel clerk. "A punk stick is all that you have called it, and then some. My nose thinks somebody's been burning rags back of my nostrils."

"How come you're to where they was touchin' off punk sticks?" inquired the house detective. "I thought nobody but strangers in town ever went to them shony low-houses down in Chinatown."

"I've been to a studio tea," explained the hotel clerk.

"A studio which?" asked the house detective.

"A studio tea," repeated the hotel clerk. "I've been circulating, Larry, among the real Bohemians—the kind that come from

away up on the head waters of Bohemia Creek. Yeasir, I've been to an intellectual orgy of those devilish artistic souls, our care-free literary giants who think so much of local color that they wear it in their collars. It's a great game, Larry. 'How'd you butt in?' said the house detective.

"I was invited," said the hotel clerk. "This hotel is the home of so many bookmakers and others who follow a literary life that I suppose they thought that I belonged. So I got an invitation written out in red chalk on a piece of plank. Everybody at the tea said it was one of the most artistic and Bohemian idea that was ever thought up."

"It certainly was a lovely affair. It was up seven flights of stairs in a real studio. A real studio, Larry, is an attic that has a skylight in it, instead of windows. No true Bohemian will live in an attic that has common dobbing windows in it. It would lower him in the estimation of the whole Bohemian profession."

"At the door I was ushered in by a real East Indian, bein'g one of the most prominent Afro-American families in Yazoo City, Miss. This quaint East-corn figure was all dressed up like a sore thumb in a turban about the size of a wash tub and somebody's nightshirt, with a crimson sash about the waist. I had a cup of genuine Russian tea that tasted like a throat gargle, and a slice of rye bread that appeared to be suffering from a mild outbreak of blackheads on the inner side. That's what I thought was the matter with it at first, but later I found out it was a caviar sandwich. There was also a most fascinating Oriental cozy corner—a crippled sofa, a Chinese back-scratcher and two paper fans tacked to the wall and a set of those spaghetti Italian portieres. Over all was the haunting odor of many punk-sticks,

can catch emotional drama with its guard down. There was a playwright who wrote a play that Charley Frohman almost accepted, and several novelists who haven't been able to find a suitable publisher yet, and just any number of artists who paint for art's sake alone.

"Oh, yes, and there was a talented vocalist who stood up alongside the piano and gave off a large volume of sound. Sometimes it seemed to me he was imitating a coon dog on a warm trail, and sometimes he sounded like a trained seal not unduly proud, but mingled freely with the other guests, dropping here an epigram, there a flake of dandruff, and there again an original saying that I hadn't heard for years, and all right out of his own head.

"Oh, yes, and there was a talented vocalist who stood up alongside the piano and gave off a large volume of sound. Sometimes it seemed to me he was imitating a coon dog on a warm trail, and sometimes he sounded like a trained seal

that's been cheated out of its share of the fish. But one of the regular Bohemians told me that he was staging a folk-song in his native tongue. The regular Bohemian, Larry, is a great, big fellow, the next time I'm going to have any of that brand of tongue, I'd like for it to be spotted."

"I'll bet New York is the only town in the country where they pull off food stunts like the one you've just been to," said the House Detective.

"By no means," said the Hotel Clerk. "It's a bum community indeed these times that hasn't got a group of free, untrammelled souls that love to assemble at the house of some kindred spirit and drink bottled beer and ask each other if they've read 'Three Weeks' yet. All you need for a starter is a queen-mother of the local ostrich herd who is relatedly reported to have smoked a cigarette nearly all the way down and a rollicking young assistant organist who wears long hair and an Elbert Hubbard necktie, and you've got the start for a little Bohemian circle right there."

"But in New York more people work at the trade, and it pays better here than anywhere else. It's a funny thing, Larry, if a man works in a drugstore or a pie foundry or any other more sordid commercial establishment and acquires a breath like a cellophane at night and a subway entrance in the morning, and if he begins to look as if he's dressed up while lying down, and if he forgets to wash his neck, and if he neglects his dandruff cure until his coat collar looks like a Christmas card, we diagnose it as a case of clandestine pickles and give him the disciplinary hook. But if he once almost had a poem printed in a magazine, or if he's one of those coming playwrights that missed his train, we know he does these things because he's a genuine Bohemian, and we have him up to dinner at the flat, and buy drinks for



A TALENTED VOCALIST GAVE OFF A LARGE VOLUME OF SOUND

When the German Emperor attends a musical comedy he often possesses two or three original jokes, which are handed from the royal box to the leading comedian for interpolation.