piping, for steam, water, and air, with the small valves used in their construction, are perfect copies of the large machine. A metallic engineer stands at the throttle. All the parts are beautifully polished and buffed.

The "Mascot" is a model built on the lines of one of the American Line ships. It resembles the "City of Berlin," but is not an exact copy. The crew of the ship were imported from Dresden, Germany. Every line is a faithful reproduction in miniature of an ocean-going ship. Ten lifeboats hang from the davits, each with a block and fall ready for immediate launching. The bridge is connected with the engine room by electric telegraph, the captain and the two mates being posted in their places as though directing the course of the craft. In the chart room, under the bridge, stands the quartermaster holding the spokes of the wheel. Real compasses are at the service of both bridge and wheelroom officials. The sidelights are fitted with two-candle-power electric lamps. The engines are all fashioned in perfect form. The hull is built of copper. The doctor was eight months making his model. A previous effort on the same lines, representing the "City of Paris," was sold to Mr. John Hood, of Buffalo, for $1,000.

Dr. Brandow is an enthusiastic chauffeur, and has made several working models of automobiles, some of which were on view at the recent Automobile Show. His latest work is a model of an airship, which is worked by a machine that enables the propeller to run for an hour. The doctor is now at work on a new Winton automobile, which is about half finished.

THE AUTOMOBILE AS A PLOW HORSE.

BY W. FRANK M'CLURE.

An interesting experiment was recently tried on the Raser estate at Ashtabula, Ohio, where sparks from a passing train on the Nickel Plate Railroad had set fire to the grass in the adjoining meadows. To cope with the fire plowing was necessary, and the horses not being available at that hour, the owner's automobile was pressed into service. Ropes from the ends of the singletree were attached to the rear axle of the machine. Mr. Raser held the plow-handles, and his brother operated the automobile. Furrows were turned as shown in the picture; but it was found to be impossible to operate the machine slowly enough to get the best results. In order to do this, it would be necessary to gear down the machine to a slower rate of speed. The tendency of the plow was to skim the ground in places, and it was with difficulty that the man at the plow handles could keep up. The automobile, however, served the place of a plow horse sufficiently well for the purpose of breaking up the surface of the ground, and the work was done more rapidly than it could have been in any other way.

The first test led to another in a few days, when an acre and a half of grass was to be mowed. Here too it was found impossible to operate the machine as slowly as was desirable. However, it was proved that a piece of grass which would require three hours with horses could be mowed in one hour with an automobile as the motive power. On account of this saving of time, the owners will continue to use the automobile for mowing purposes. The machine, which is of the gasoline type, weighs 1,800 pounds, and has a seating capacity for four persons.

The experiment created considerable interest wherever it became known, and raised the question as to whether or not an ordinary automobile can be successfully used for agricultural purposes. There would not seem at first thought to be any inherent difficulties to prevent such use under favorable conditions. The great bearing surface of the tires, the high frictional coefficient of rubber on fairly dry soil or grass, coupled with the weight of the average machine, should render it equal to ordinary plowing or mowing.

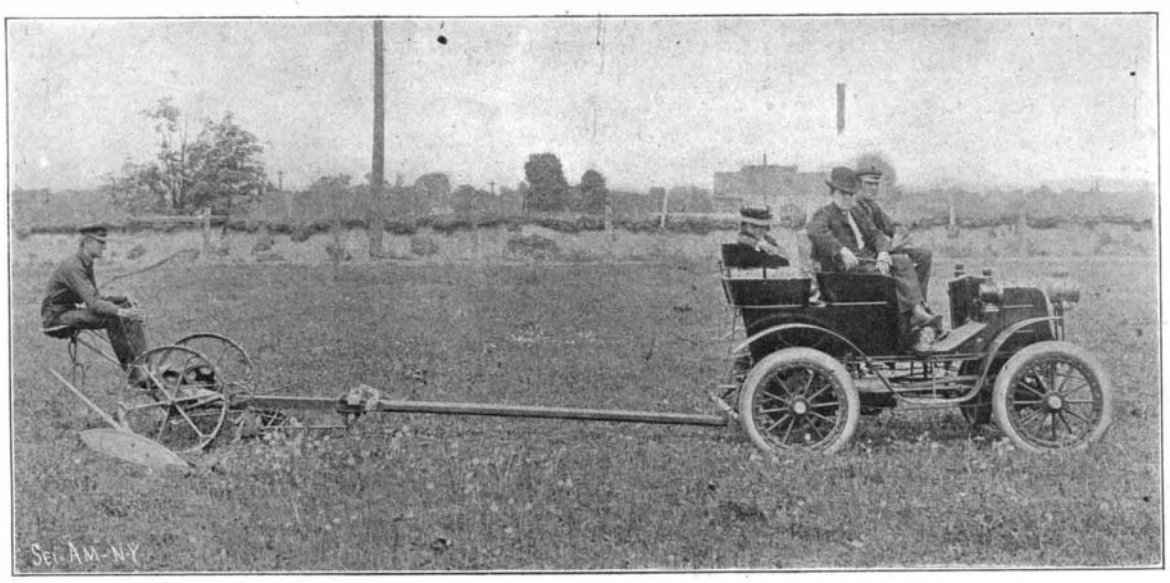
Collecting Pulque.

Roasting Agave Hearts Over Baking Pit.

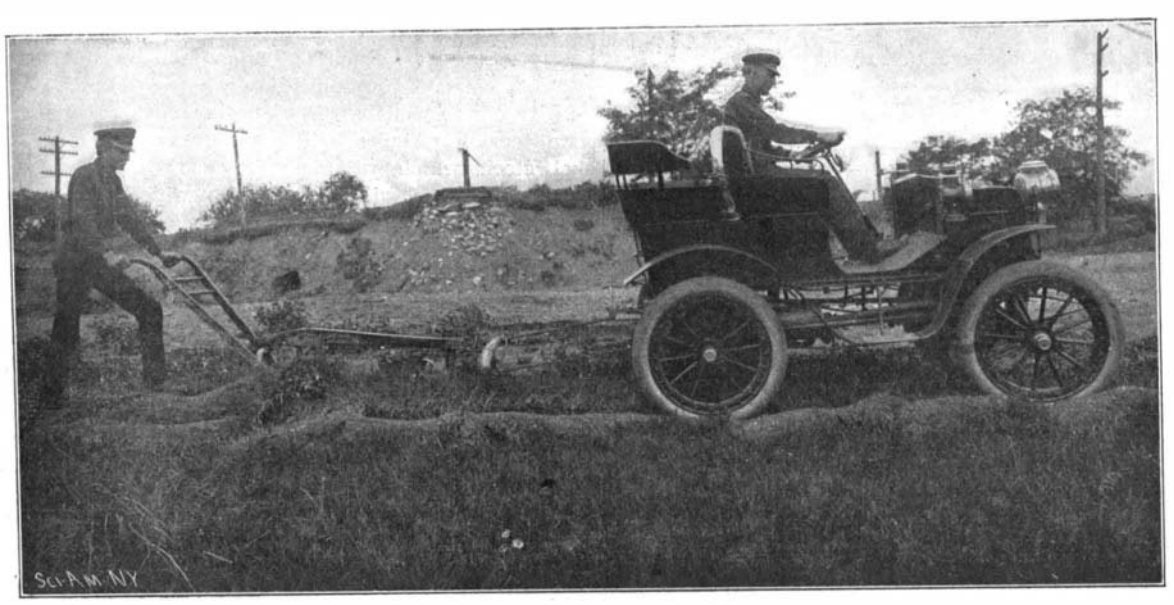
Filling the Fermenting Vats.

Transporting Agave Heads to the Distillery.

THE PULQUE AND MESCAL OF MEXICO.



THE AUTOMOBILE AS A PLOW HORSE.



PLOWING WITH AN AUTOMOBILE.

THE PULQUE AND MESCAL OF MEXICO.

BY CHARLES RICHARD DODGE.

The American tourist journeying by rail over the plains of Apam, on his way to the city of Mexico, will be surprised to observe the vast plantations of the *maguay* which stretch away on either side as far as the eye can reach. For fifty to one hundred miles, on the different railways, will be seen little else than these Agaves, in all stages of growth from the young plants newly set out—a couple of yards or more apart—to those of mammoth size which are seven or eight years old.

These immense plantations supply the Mexicans of the capital—and of other cities as well—with the drink known as *pulque* (pronounced *pull-key*) which is a national beverage. There are upward of a thousand shops in the city of Mexico where pulque is sold, and hardly a railway station within a hundred miles of the city where the traveler will not be importuned to buy from the boys and women who bring it to the trains in pitchers and jugs of red pottery, dispensing it at a penny or two for a cupful.

On the Mexican Railway, one of the systems connecting the capital with Vera Cruz, a special train is run over the line every morning, laden only with pulque, in barrels and skins, suggesting the milk trains of this country; and it is said that the daily shipments by this train amount to over one thousand dollars. So extensive is the industry that the maguay plantations of the three states of Hidalgo, Tlaxcala, and Puebla are valued at nearly $15,000,000, while the railways have carried over 80,000 tons of pulque in a single year.

Many species of the genus *Agave* produce pulque, these belonging to the *Americana* group of *Agaves*, though two species, *potatorum* and *salmiana*, are the most important, as I was informed by a Mexican botanical authority. The century plant, of our greenhouses, is a *maguay*, and one has only to imagine a century plant, with massive leaves five or six feet in length, to know how these pulque maguays look. They grow to perfection on the high plateau of central Mexico, where the elevation averages about 7,000 feet above the sea level.

When one of these plants reaches maturity its tendency is to flower—throwing up an immense mast or stalk sometimes 25 feet high, upon the branches of which, at the top, the blossoms appear. The pulque operator is always on the alert for indi-