AN AUTOMOBILE ECONOMY TEST.

In order to give a demonstration of the efficiency of the American gasoline automobile, the New York Motor Club recently carried out an economy test, which, although having only nine competitors, was nevertheless a successful affair and put all the machines that took part to an excellent long-distance test. The first two days of the week were given up to a trip to Philadelphia and return—a total distance of 204 miles; Wednesday and Thursday the cars went to Albany and back—a distance of about 320 miles; and the last two days of the week, 200 miles more to Southampton, L. I., and return.

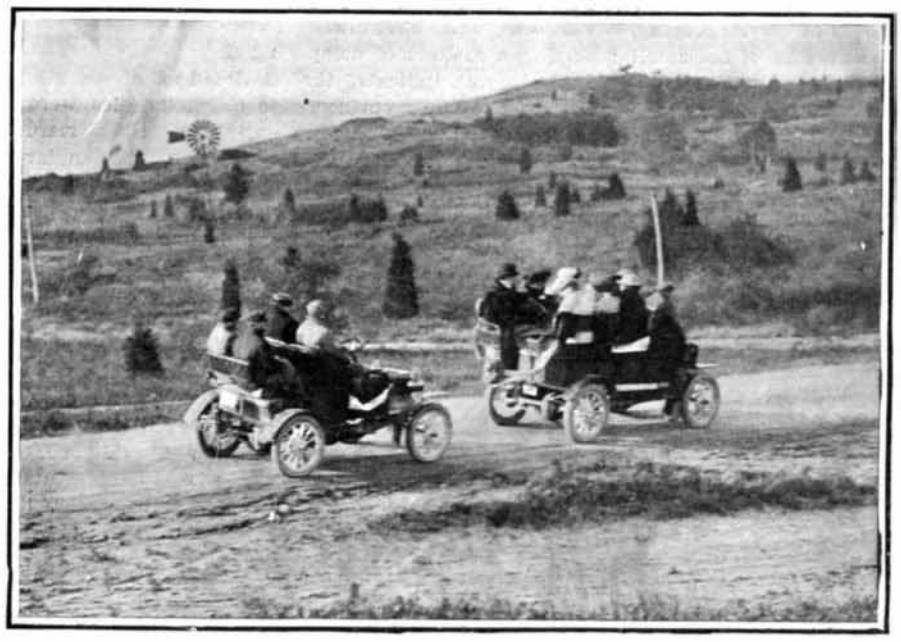
The competing cars, although few in number, consisted of distinctively American types. There were two low-priced runabouts, both originally the outcome of one man's inventive genius—the Reo and the Oldsmobile. The former, which is the latest design for a single-cylinder light car, had the box behind the individual front seats arranged to open and form a second seat facing forward and capable of carrying two more persons. The latter, of the well-known curved-dash type, with tiller steer, carried only two, although sufficient ballast was taken along to make up for two more people, who could have been carried on the dos-a-dos seat. In the run to Southampton this car also picked up and carried for eight miles a member of the editorial staff of this journal and his bicycle, which had a punctured tire. This was an additional weight of 154 pounds, while 150 pounds was allowed for each passenger.

It will be well to state here that the results of the test were figured on the total cost per passenger in comparison with the railroad fare, and that definite charges were made for oil, gasoline, tire, and all other repairs, said charges being in excess, if anything, of current prices. Gasoline, for example, was charged for at the rate of 25 cents per gallon, whereas 20 cents is the regular price in the East at all garages. The railroad fare charged was for a total mileage of 660, while the machines actually covered over 725 miles.

Continuing the mention of the other cars in the test, which, with one exception, were all touring cars, these were as follows: A Wayne two-cylinder touring car; three Compound three-cylinder touring cars; Marmon and Frayer-Miller four-cylinder, air-cooled touring cars; and a Reo ten-passenger bus, which was simply the standard 16-horse-power two-cylinder Reo touring car chassis, geared to 25 miles an hour instead of 35, and fitted with an open bus body. The performance of this machine, which has a horizontal double-opposed engine of 4¾ inches bore by 6 inches stroke, was remarkable; for not only did it spin along at an average speed of 20 miles an hour on the good roads, but it also climbed some very steep and sandy pitches on the river road 10 miles below Albany, without shedding any of its passengers. The total weight of bus and load was over a ton and a half. This mass propelled itself to and from Albany with a gasoline consumption of only 12 gallons each way, or at an actual fuel cost of 1½ cents a mile. With all charges included, the total cost of running it 682 miles was found to be $29.30, or $2.93 per passenger. The Reo runabout was second with a total cost of $13.54, or $3.38½ per passenger. One of the three-cylinder Compound cars was third (the third cylinder of this car is a low-pressure one and receives the exhaust of the other two) with a total cost of $18.62 and a cost per passenger of $3.72½. The remaining four cars to complete the test were charged as follows for the total distance: Wayne, $19.815 total, $3.963 per passenger; Oldsmobile, $15.86 total, $3.965 per passenger; Compound, $17.185 total, $4.296 per passenger; and Marmon, $22.915 total, $4.583 per passenger.

The Frayer-Miller car, which has a novel air-cooled system consisting of air jackets and a powerful blower, had the misfortune to strip its gears when leaving New York on the trip to Albany. It lost two days as a consequence, and was out of the test, though it made the last two runs satisfactorily. Its showing, both before and after the accident, was one of the best. Representatives of the SCIENTIFIC AMERICAN rode on this car the first and the last two days of the test, and they found the car to be both fast and reliable, while the motor showed no signs of overheating, and ran as perfectly as any water-cooled motor. This and the Marmon engine, the cylinders of which are 4 x 4 inches, were the sole representatives of the air-cooled type, and they demonstrated well the feasibility of cooling a four-cylinder touring-car motor of 24 horse-power entirely by air. Another fact worthy of notice is that the four-cylinder, air-cooled Marmon used only $1.40 worth of oil, while the three- and two-cylinder, water-cooled cars used $2.12 and $2.10 worth respectively. The Frayer-Miller engine used very little oil, also. Both these cars are fitted with mechanical lubricators. The engines are shown in the accompanying illustrations. On the other hand, while the air-cooled motor is theoretically more economical of fuel, the two entered in this test did not show superiority in this respect, as they averaged only about 16 and 11½ miles per gallon respectively. The Reo runabout made quite the best showing as it averaged 21 miles per gallon. With this small car a careful driver should easily average 20 miles to the gallon of gasoline when the car is fully loaded. Less than half a gallon of lubricating oil was used by this machine throughout the entire run. The approximate running cost (gasoline and oil) per ton-mile was, for the runabout, $0.016, and for the omnibus, $0.019. The only breakdowns were the stripping of the gears and breaking of an axle on one of the Compounds, the breaking of a spring on another, and the ditching of one of them due to turning out for a team and the failure of the brakes to hold. These, with the accident to the Frayer-Miller car, were the only breakdowns of any consequence in a 725-mile run, which certainly speaks well for the reliability of the American car over good, bad, and indifferent roads. The trip to Albany was the longest and hardest of the test, and some very trying stretches of road were traversed before it was reached.

The rules followed in conducting this test, although good in the main, will receive some minor changes which a practical test showed them to need.

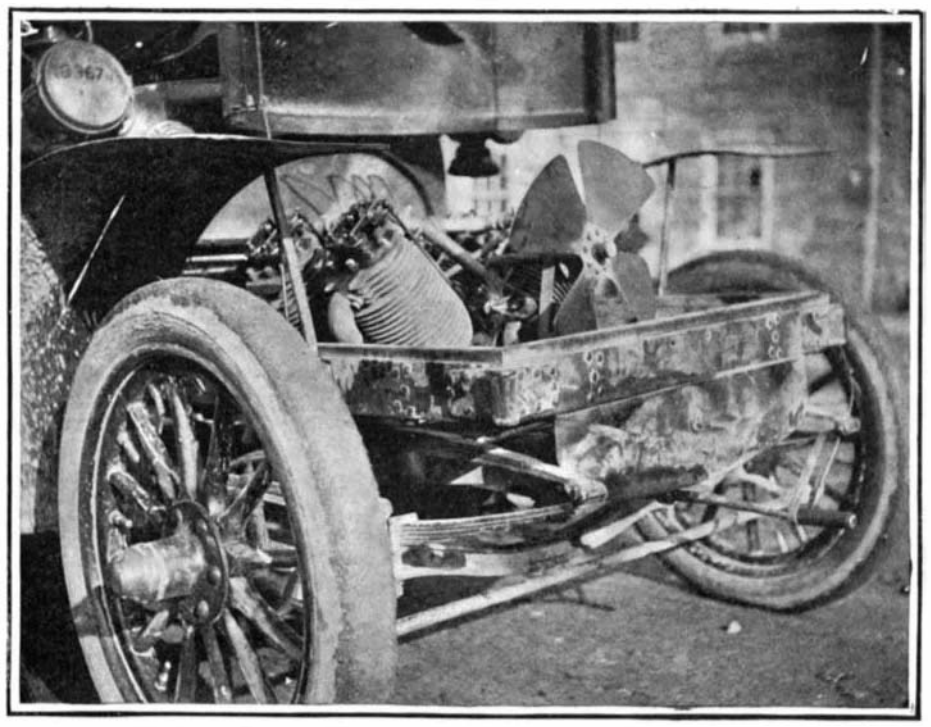


The Reo Bus and Runabout Among the Shinnecock Hills of Long Island.

The bus carried ten people and the runabout four. These machines were first and second respectively.

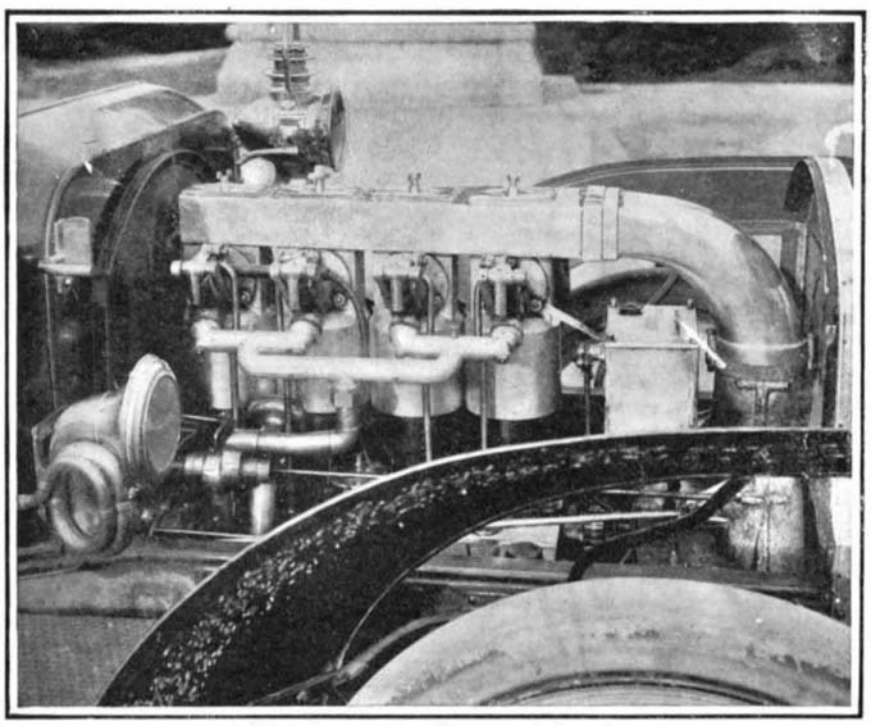
The 15-Horse-Power Compound Car Which Was Third.

This car has two 4 x 4 high-pressure cylinders and a third 7 x 4 low-pressure cylinder between them.



The 20-Horse-Power Air-Cooled Motor of the Marmon Car.

This engine has four 4 x 4 cylinders placed in pairs at an angle of 90 degrees.



The 24-Horse-Power Air-Cooled Frayer-Miller Engine.

This engine has a blower in front for supplying a powerful air current to the aluminium air jackets. The cylinders are $4\frac{1}{16}$ x $5\frac{1}{8}$ inches.

THE WINNING AUTOMOBILES IN THE NEW YORK MOTOR CLUB'S ECONOMY TEST.