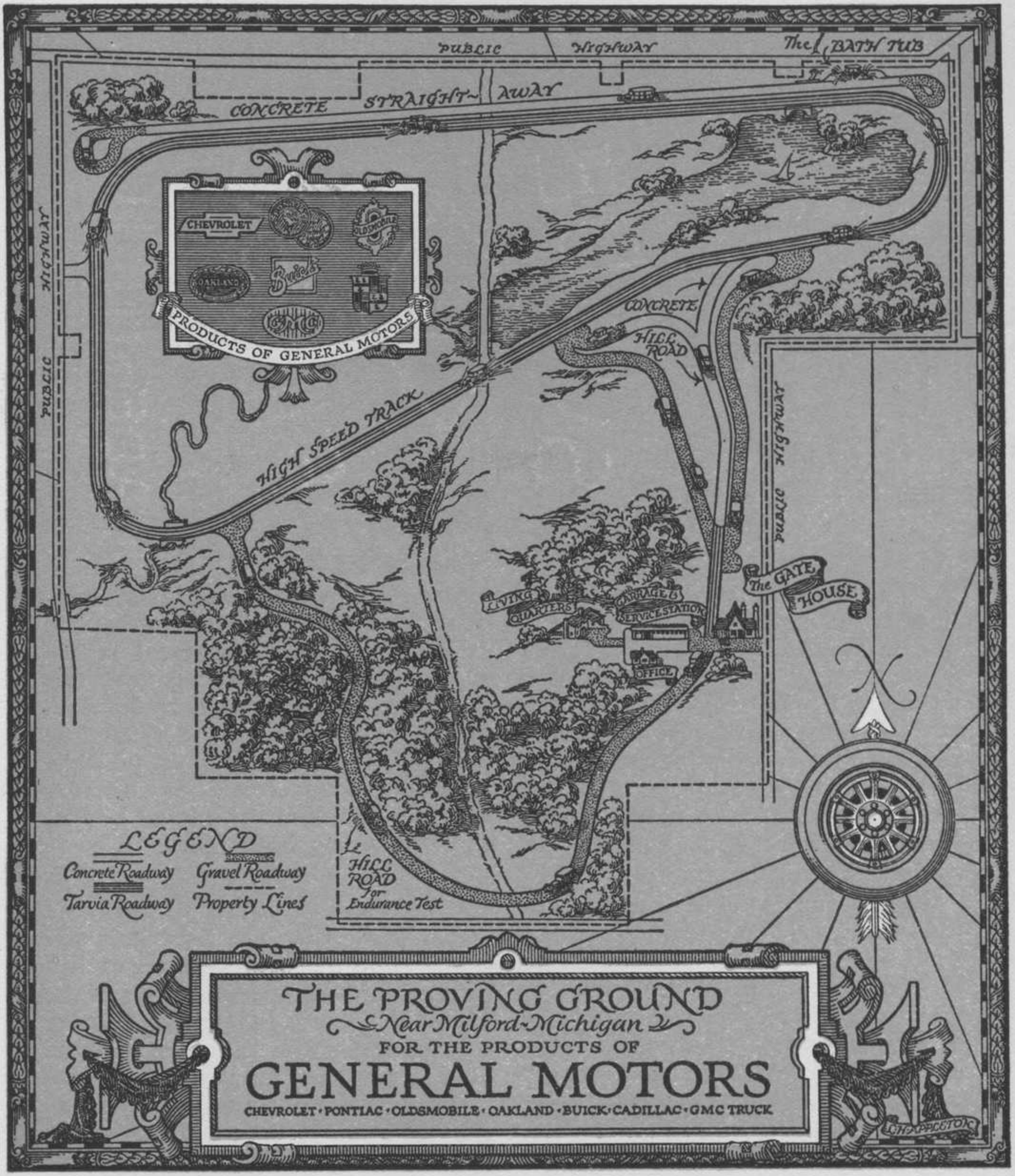

PUBLIC HIGHWAY
The BATH TUB
CONCRETE STRAIGHT-AWAY
CHEVROLET
OLDSMOBILE
OAKLAND
Buick
GMC
PRODUCTS OF GENERAL MOTORS
HIGH SPEED TRACK
CONCRETE
HILL ROAD
PUBLIC HIGHWAY
The GATE HOUSE
LIVING QUARTERS
GARAGE & SERVICE STATION
OFFICE
LEGEND
Concrete Roadway
Gravel Roadway
Tarvia Roadway
Property Lines
HILL ROAD for Endurance Test
THE PROVING GROUND
Near Milford-Michigan
FOR THE PRODUCTS OF
GENERAL MOTORS
CHEVROLET · PONTIAC · OLDSMOBILE · OAKLAND · BUICK · CADILLAC · GMC TRUCK
CHAPPELOW


# *The Proving Ground for the Products of General Motors*

NEARLY all commodities and the essentials of life cost more today than before the war. There is one shining exception—the automobile. Today it is a closed car, usable twenty-four hours a day in all weather. So, based on what it is and what it does, the present day car has utility value at least two or three times that of the old car; and actually costs less.

Today's car is the net result of the industry's accumulated experience. Year by year, there has been gradual evolution, the object being to make a car simpler, more dependable, of higher quality, of greater utility, and always at a lower price.

Progress of the automotive industry, because of its brief career, appears phenomenal. However, compare a new car with its immediate predecessor! There is great refinement but no radical departures. The relatively few revolutionary developments may be chronicled thus: The gas engine, pneumatic tires, multiple cylinders, alloy steels, anti-friction bearings, self starters, closed bodies, Duco—the new body finish.

No other great industry has gone forward so swiftly with so few basic facts—facts that are needed if the motor car is to be of increasing usefulness to a greater number of people. If the industry is to continue its rate of progress it must know more facts about the materials used, the economies of design and what happens as the car is being operated mile after

mile upon the road in the hands of the user.

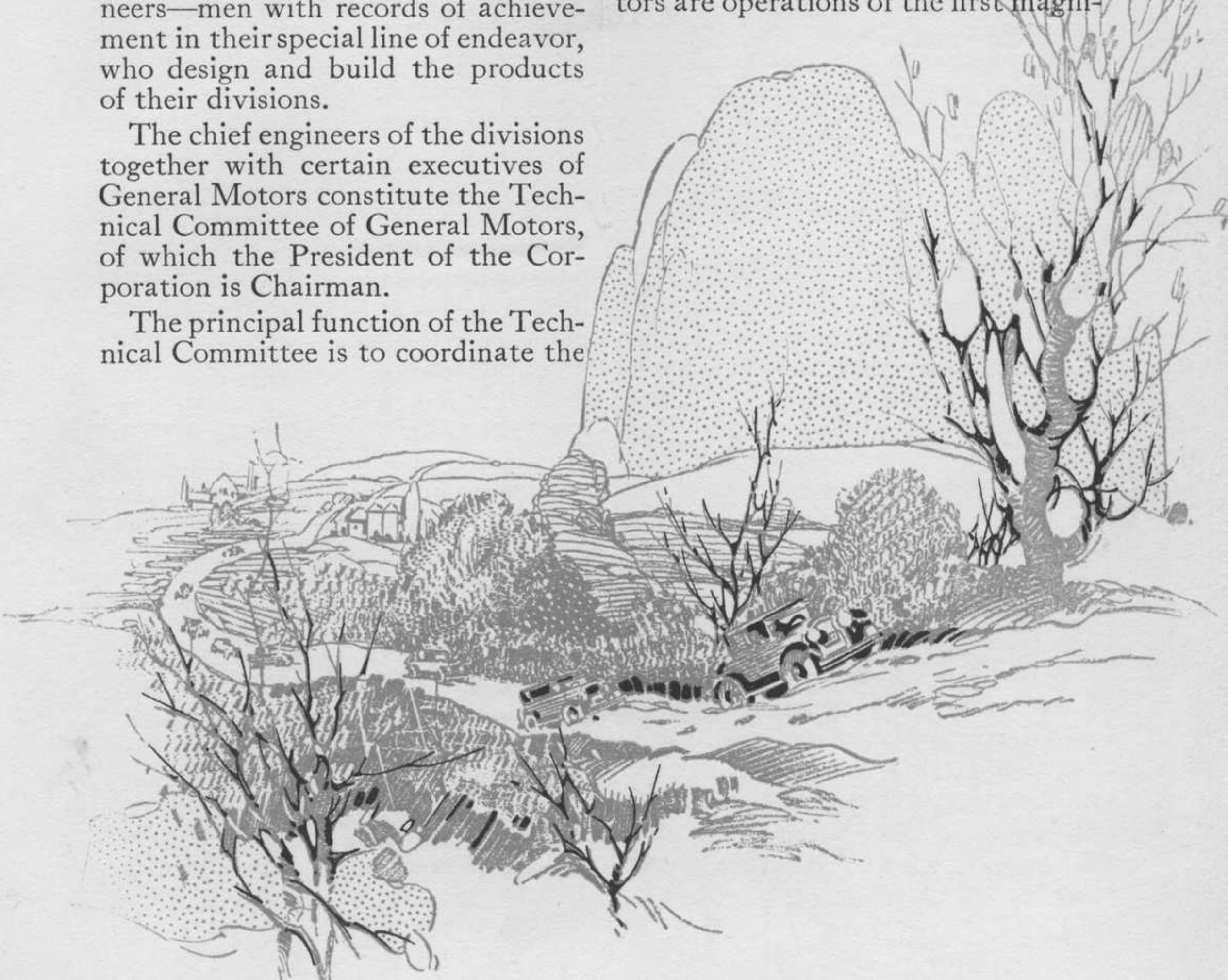
To get these facts General Motors three years ago decided to establish a proving ground and to make it the most comprehensive undertaking of the kind in the world.

The motor car divisions of General Motors each has a large staff of engineers—men with records of achievement in their special line of endeavor, who design and build the products of their divisions.

The chief engineers of the divisions together with certain executives of General Motors constitute the Technical Committee of General Motors, of which the President of the Corporation is Chairman.

The principal function of the Technical Committee is to coordinate the engineering activities of all the divisions and to make available to each the wealth of their combined experience. Operating under the immediate direction of the Technical Committee are two independent and unique activities—the Research Laboratory and, the Proving Ground.

The car factories of General Motors are operations of the first magni-

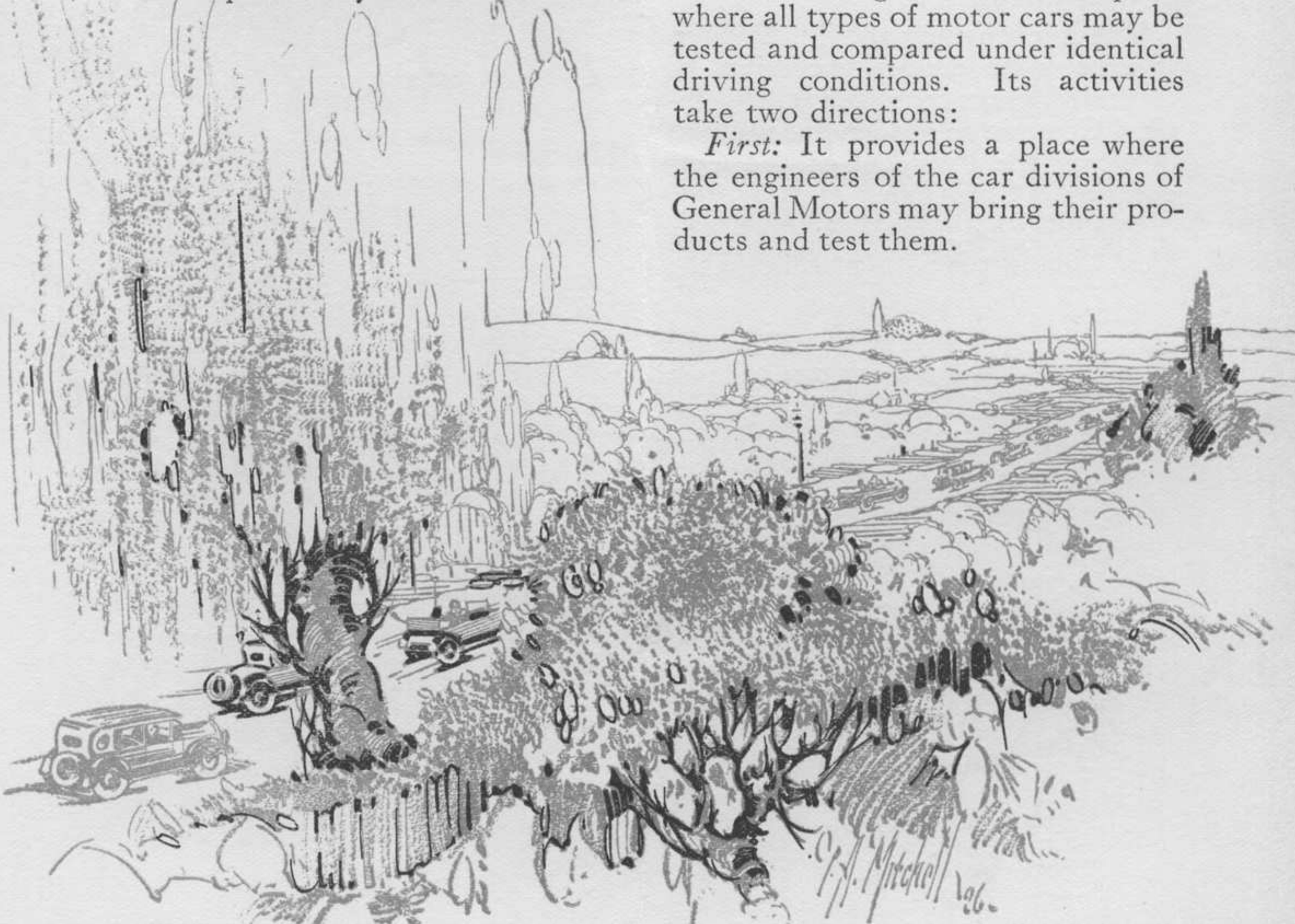


tude in plant equipment, personnel, value and volume of output, as well as financial resources. No one of the divisions alone could shoulder the responsibility of institutions so comprehensive as the Proving Ground and the Research Laboratory. But, the widespread and varied activities of General Motors make their existence practicable and necessary to progress. And, because of the large financial resources of General Motors the responsibility is not a burden to any of its divisions but an asset to all.

The Research Laboratory at Detroit is endeavoring to discover new and better alloys, study heat treatment, new types of engines, axles, manifolds, carburetors, paints, enamels, brake lining, springs, air cleaners, oil purifiers, mufflers, top materials, new principles of ignition and all problems dealing with the present and the future motor car and its operation.

The Proving Ground is a place where all types of motor cars may be tested and compared under identical driving conditions. Its activities take two directions:

*First:* It provides a place where the engineers of the car divisions of General Motors may bring their products and test them.



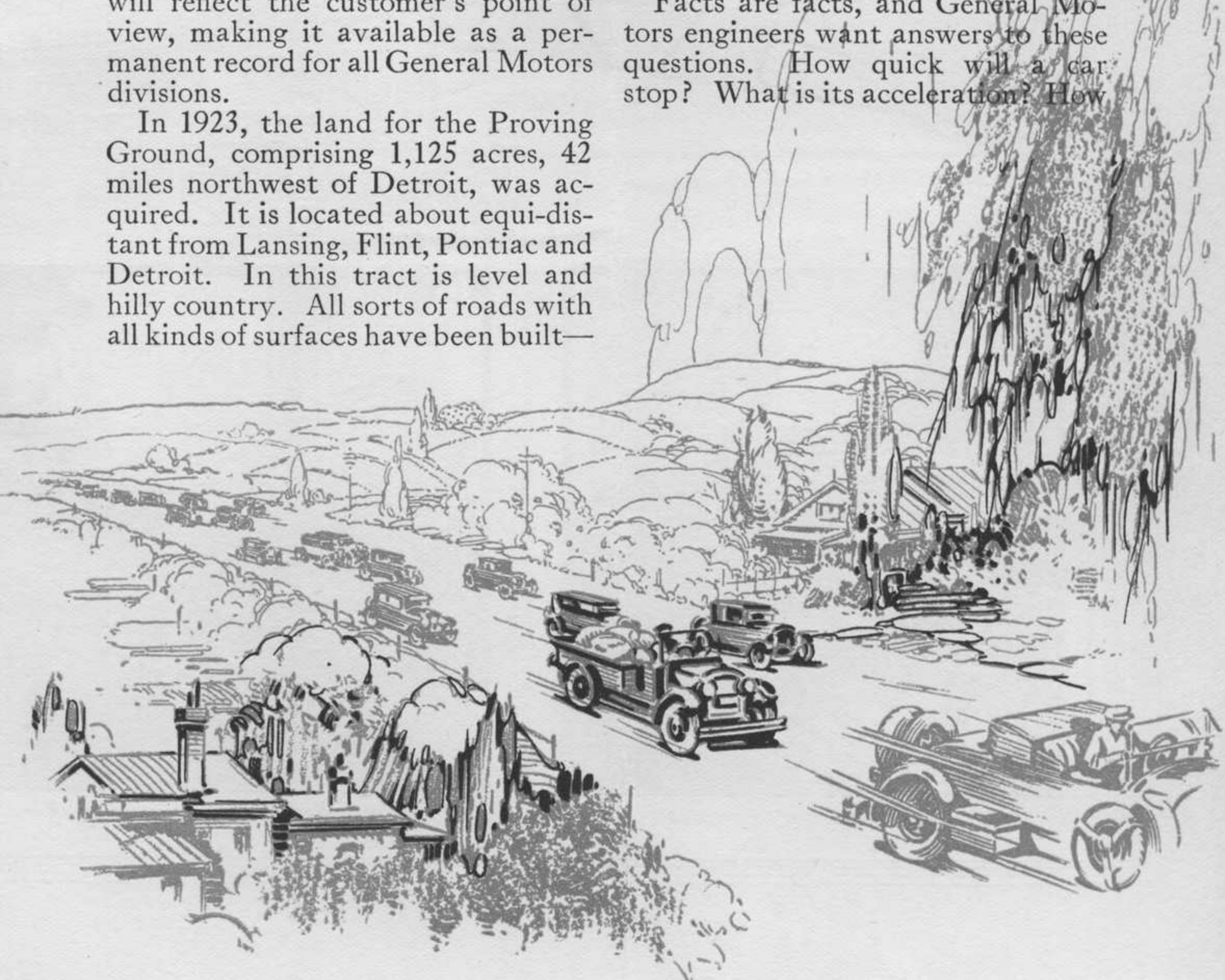
*Second:* It provides a place where resident engineers of the Proving Ground may carry on independent tests, free from the problems of design and production.

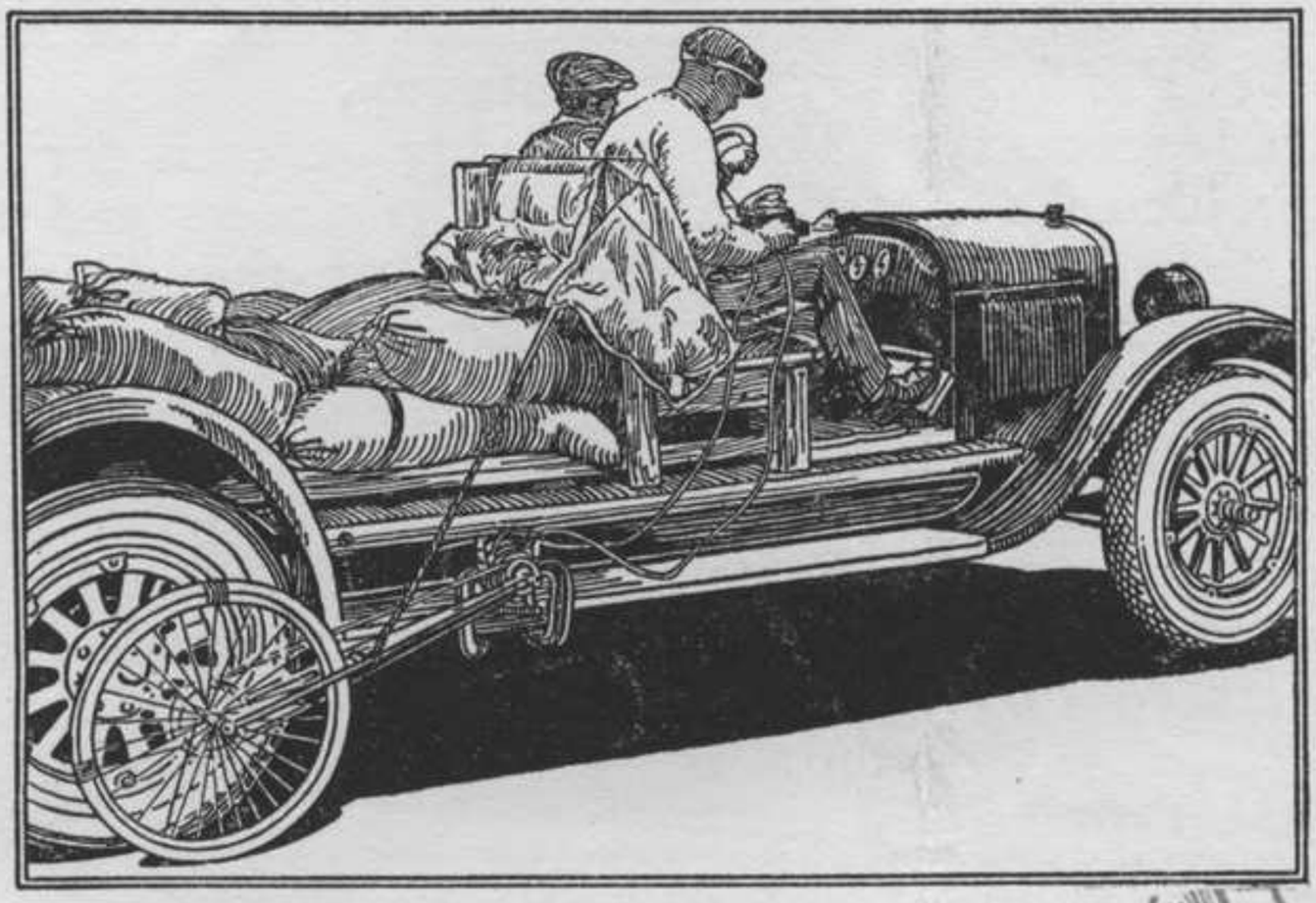
From these tests the Proving Ground is gathering with impartiality and accuracy data on all cars, to provide comparative information that will reflect the customer's point of view, making it available as a permanent record for all General Motors divisions.

In 1923, the land for the Proving Ground, comprising 1,125 acres, 42 miles northwest of Detroit, was acquired. It is located about equi-distant from Lansing, Flint, Pontiac and Detroit. In this tract is level and hilly country. All sorts of roads with all kinds of surfaces have been built—concrete, macadam, gravel, dirt, hills, curves, straightaway.

There are living quarters for the staff of resident engineers and the visiting engineers of the divisions while at the Proving Ground conducting tests on their cars. The garage and service station has facilities for 150 cars.

Facts are facts, and General Motors engineers want answers to these questions. How quick will a car stop? What is its acceleration? How





*Electric "fifth wheel" speedometer*

## *The Measu*

Much of the recorded data at t
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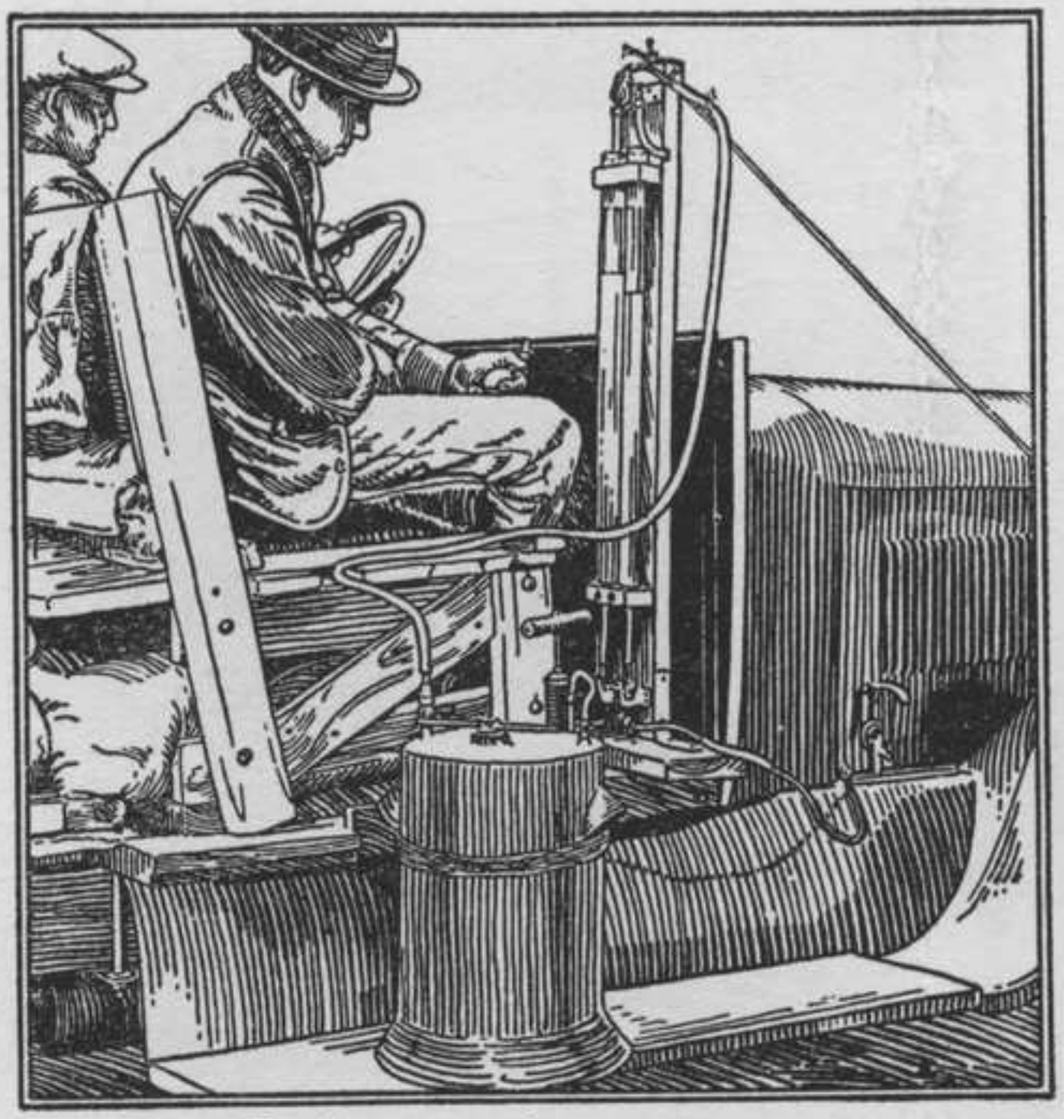
The General Motors Research
making available in rugged for
apparatus familia

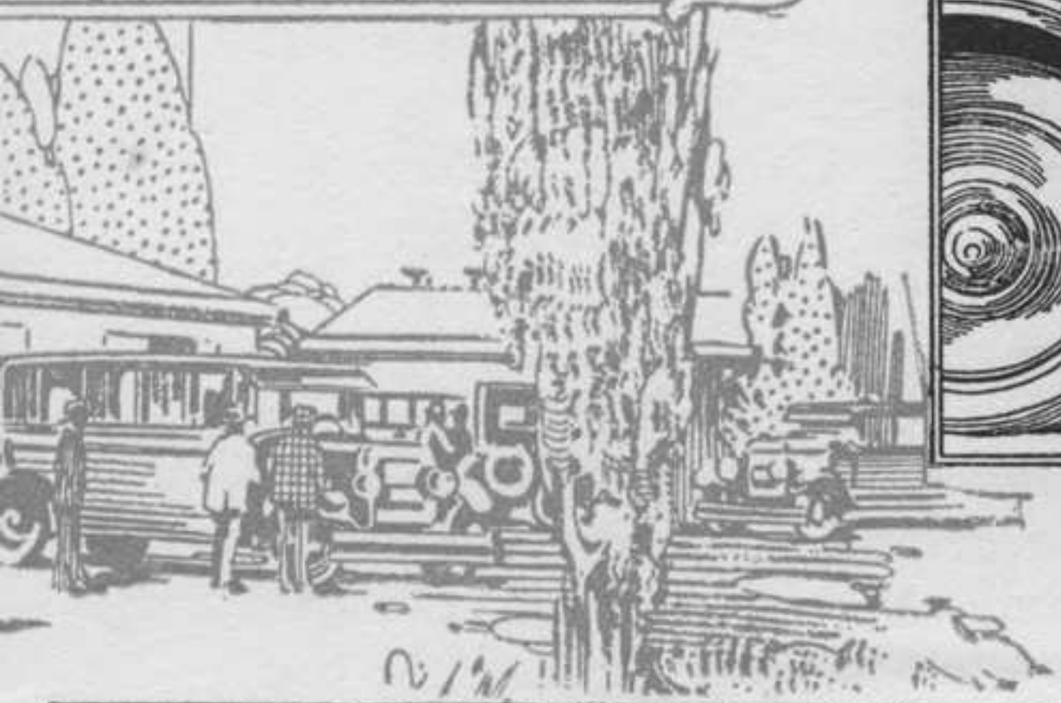


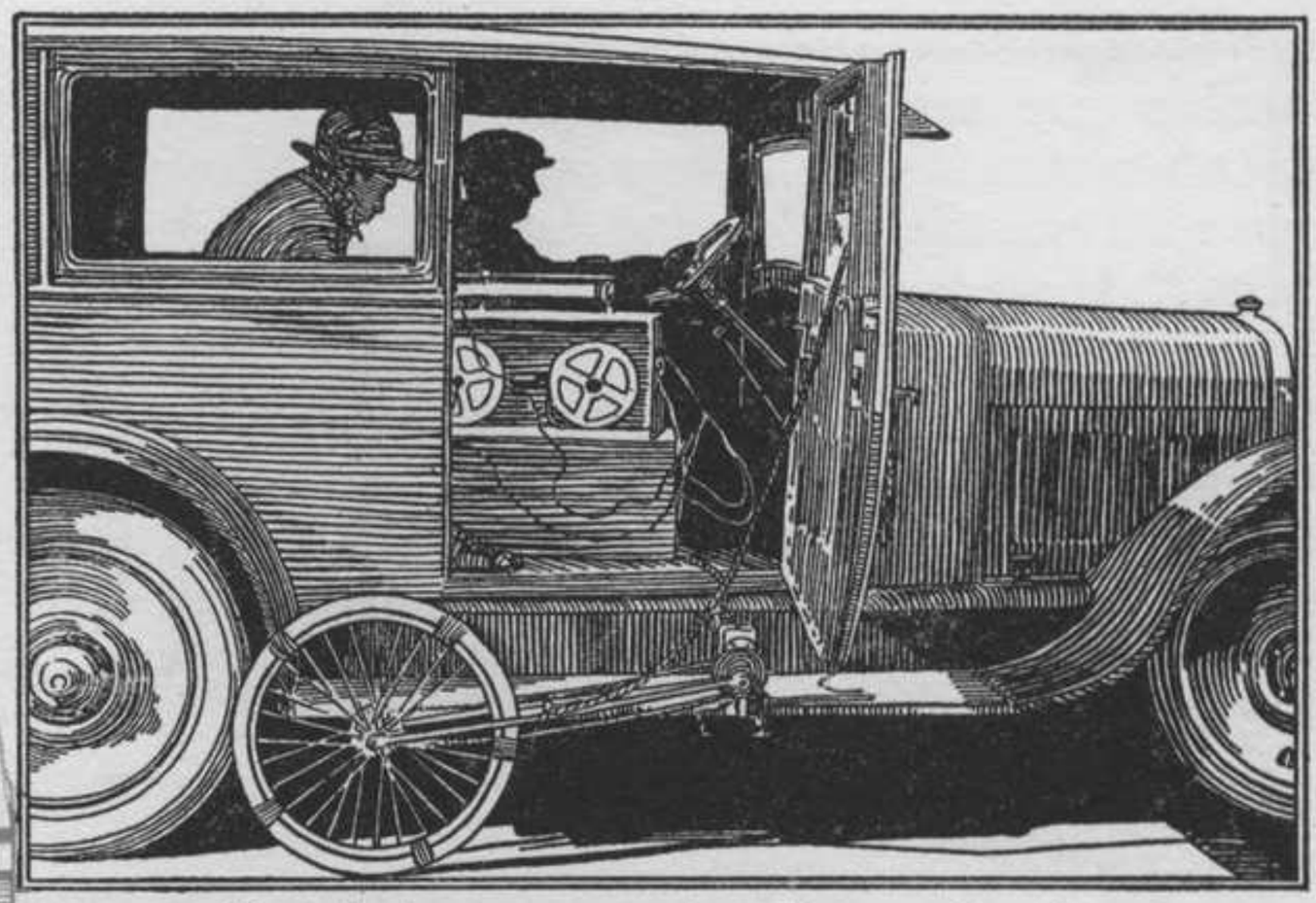
*Fuel measuring apparatus*

*Duplicate wheel measuring steering effort*

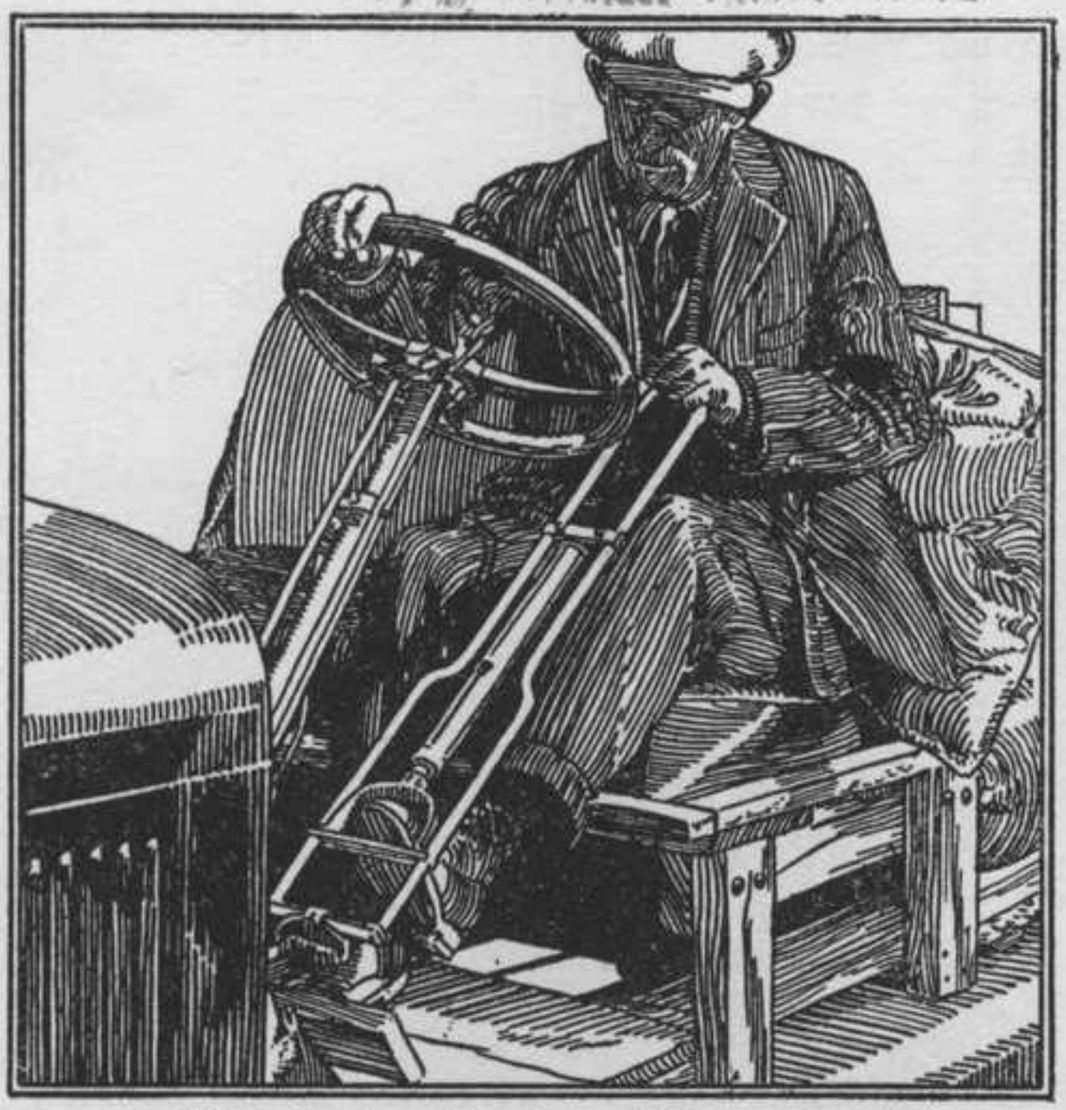
## *g Instruments*

oving Ground is of such nature as
nstruments never before required.
ratory is proving indispensable in
road test work most of the delicate
e scientific laboratory





*Electrical apparatus recording acceleration*



*Measuring clutch pedal pressure*

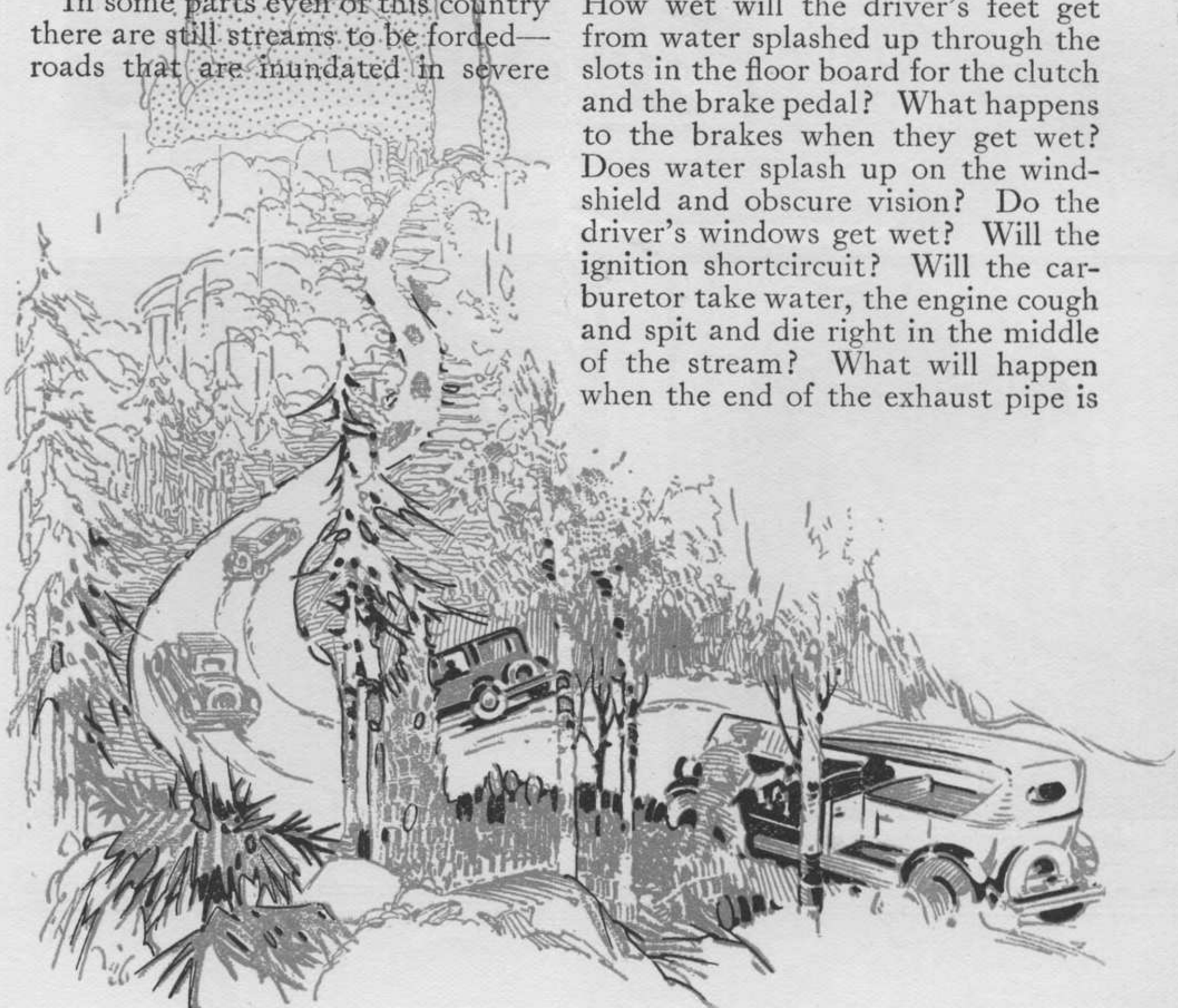
*Measuring brake pedal pressure and deceleration*

much gas and oil does it consume? What is the minimum speed—the maximum speed? Will it start readily in cold weather? How short will it turn? How much of the road can the driver see?

On the roads of the Proving Ground the engineers are getting answers to these and many other questions dealing with automobile performance.

In some parts even of this country there are still streams to be forded—roads that are inundated in severe rainstorms. What happens when a car must be amphibious?

To find out what happens when a car is run in water there was built the bath tub at the Proving Ground—a depressed piece of concrete road, low in the middle, higher at either end with concrete side walls. It may be filled with water to any desired depth. Cars are run through. How wet will the driver's feet get from water splashed up through the slots in the floor board for the clutch and the brake pedal? What happens to the brakes when they get wet? Does water splash up on the windshield and obscure vision? Do the driver's windows get wet? Will the ignition shortcircuit? Will the carburetor take water, the engine cough and spit and die right in the middle of the stream? What will happen when the end of the exhaust pipe is

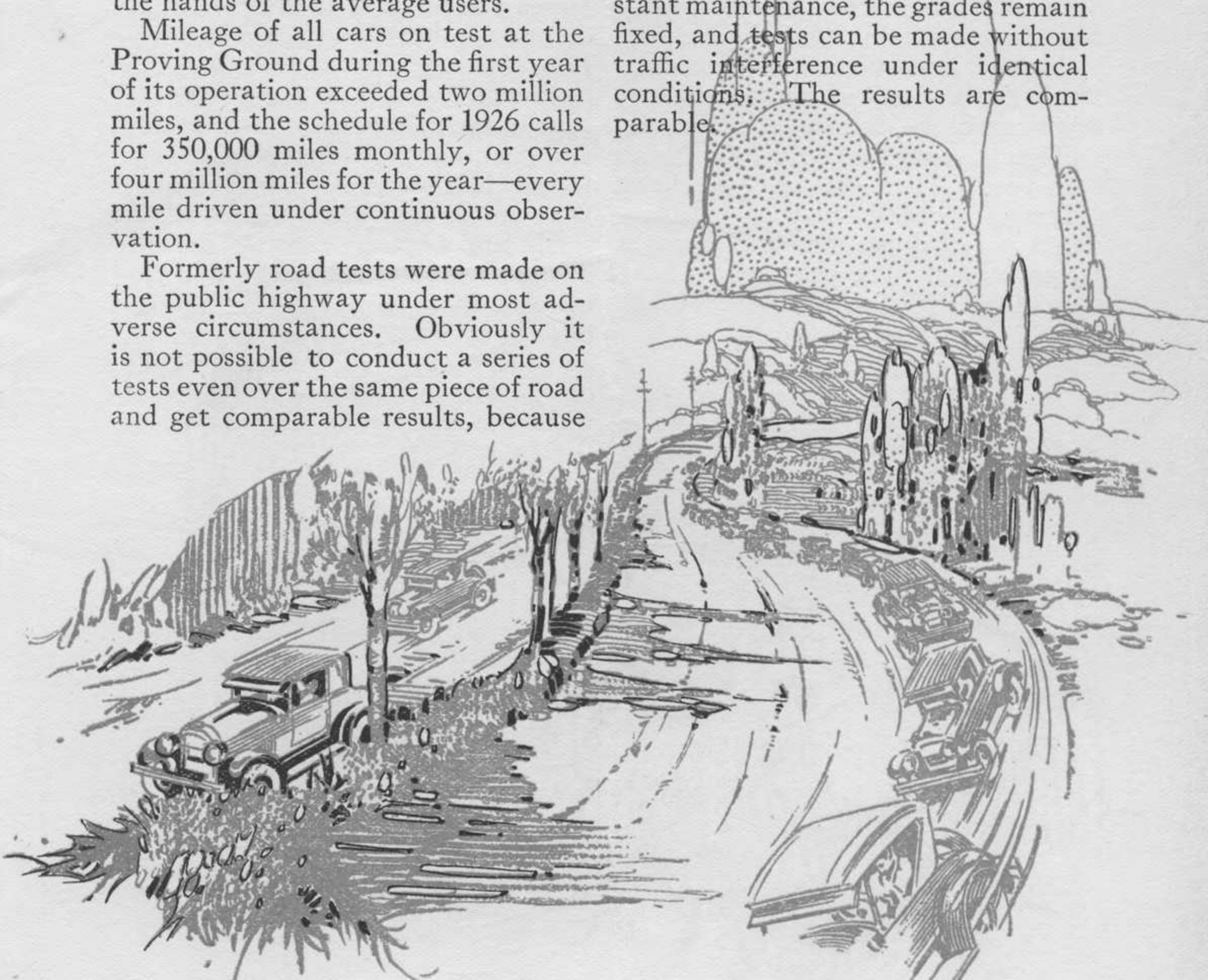


immersed in water? Will the red hot muffler blow up?

Cars are run summer and winter, day and night, in all kinds of weather, by trained crews of drivers who in a single month concentrate more road experience than could be gained in years of actual service of the cars in the hands of the average users.

Mileage of all cars on test at the Proving Ground during the first year of its operation exceeded two million miles, and the schedule for 1926 calls for 350,000 miles monthly, or over four million miles for the year—every mile driven under continuous observation.

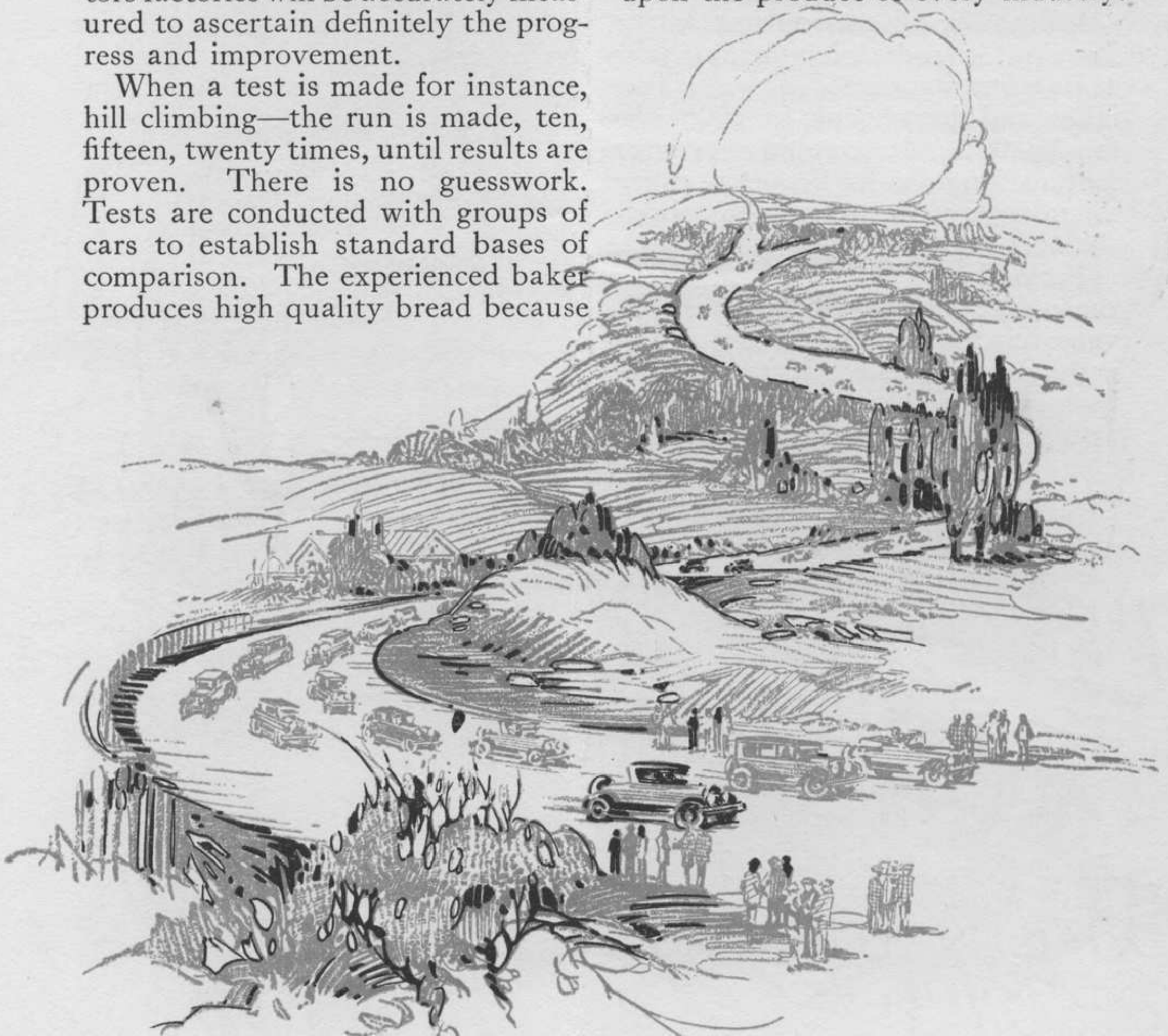
Formerly road tests were made on the public highway under most adverse circumstances. Obviously it is not possible to conduct a series of tests even over the same piece of road and get comparable results, because of the interference from other cars on the road and the changing conditions of the road itself, over which there could be no control. Further, each division made their road tests in different sections of the country. At the Proving Ground the roads do not vary, because they are under constant maintenance, the grades remain fixed, and tests can be made without traffic interference under identical conditions. The results are comparable.



The Proving Ground is a place where today's cars may be measured and studied. The cars of tomorrow will be put through identical tests, over identical roads, under similar weather conditions. And so on, year after year, month after month, day after day, products of General Motors factories will be accurately measured to ascertain definitely the progress and improvement.

When a test is made for instance, hill climbing—the run is made, ten, fifteen, twenty times, until results are proven. There is no guesswork. Tests are conducted with groups of cars to establish standard bases of comparison. The experienced baker produces high quality bread because he knows and controls the variables of oven temperatures, of yeast and flour—so the engineers using and operating the Proving Ground know the variables that affect car testing and have learned to control them so that they do not distort results.

The buying public sits in judgment upon the product of every industry.



The General Motors engineers are trying to find more about what kind of cars the buyers want? What are the desirable features that influence the final decision in the purchase of a car. Obviously no one car can combine every desirable feature. If it has a long wheelbase it cannot turn in so short a space, or park at a crowded curb with the ease of a car with a very short wheelbase. One with a big engine may develop more power, but speed does not necessarily mean flexibility at low speeds in traffic or hill-climbing ability. What is the happy medium that will satisfy the average purchaser?

The Proving Ground in its tests is building a basis to evaluate these and a multitude of more or less intangible things, one against another, so that cars may be compared, feature for feature, from the viewpoint of the buyer.

Every new device, every novelty, every principle in engineering and construction, every kind of material, must prove itself by use. So that whatever is most advanced in automotive engineering will be found in General Motors cars after it has stood the exhaustive tests on the road.

Through the information made available as a result of the Proving Ground the engineers of the General Motors divisions are constantly improving their products to meet public requirements and tastes. The value of these improvements is evident in better products that render better service at lower operating costs. This continual striving to advance the present products and make more efficient cars of high quality at lower price brings forth developments that keep General Motors products ahead of the times and point to continued leadership.

Proving the products of the factories at the Proving Ground marks a forward step—an assurance to the buyers of General Motors cars that the final product is right.

*To help sell its products General Motors has printed booklets to inform its shareholders, employes, dealers, and users of its products. The Series will be mailed upon request to the Department of Publicity, 224 W. 57th Street, New York.*

CHEVROLET : : PONTIAC : : OLDSMOBILE : : OAKLAND : : BUICK : : CADILLAC : : GMC TRUCKS

# GENERAL MOTORS

The
PROVING GROUND
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the Products of
GENERAL MOTORS
CHEVROLET - PONTIAC - OLDSMOBILE
OAKLAND - BUICK - CADILLAC - G M C TRUCKS



*March 12, 1926*