

FACTORIES TEST CAR THOROUGHLY

Use of 'Proving Grounds' Explained by NEA Science Writer

By Israel Klein (Science Editor, NEA Service) Engineers aren't through with an automobile after it is produced. In fact, they've just begun tinkering with it, finding its faults and its promises, in an effort to improve the next product.

For this purpose, some of the large companies have what are called "proving grounds." The General Motors "proving ground" at Milford, Mich., for instance, has about 20 miles of private highway laid out so as to represent every road condition that the average driver meets. There are hills ranging from 7 per cent grades to as high as 24 per cent. There are concrete and gravel roads.

There is a level concrete stretch without a kink or a twist in it, a mile in length, and there is a speed track with embankments at the turns making a 45 degree angle with the level road.

There is a north and south road, and an east and west road, no intersection between them, each to test little idiosyncrasies of driving, the difference in speed or gasoline usage when driving in opposite or cross directions.

No Law Applies These are samples of the tiny details that are being examined in the actual driving of automobiles. Everything conceivable can be done here, from trailing along at 2 miles an hour to speeding at the fastest an engine can pull a car.

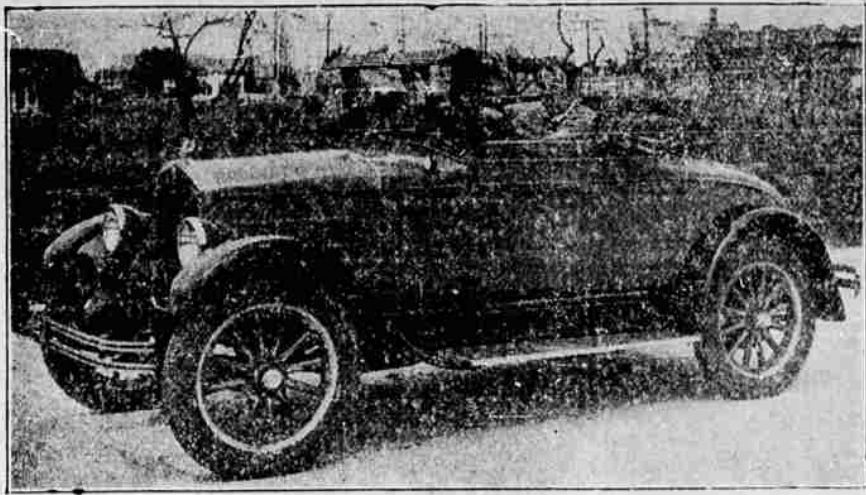
There are no state laws, no constraints to stop the drivers. No imaginable factor about a car is taken for granted, no beliefs or theories permitted. Everything, even though known for a certainty, is tested to learn the actual facts.

Even the instruments placed in the car aren't trusted. Instead of these, special gasoline gauges, special speedometers and other apparatus devised in the research laboratories are fitted to the car on test and the readings are taken from these.

For speed, for instance, a bicycle wheel, a small electric generator and a highly sensitive voltmeter divided into miles from the combination attached to a car for more accurate readings. This is called a fifth wheel speedometer, and it can be relied on for all speeds.

List of Tests Gasoline consumption, also, is

GRIDIRON STAR IN CONVERTIBLE CABRIOLET



Morley Drury, captain of the 1927 University of Southern California football team is one of the few stars left on the campus after the 1927 class was graduated last June. Sixteen members of the U. S. C. squad of last year were missing when the first practice was called by Coach Howard Jones on Sept. 15 and Capt. Drury is the one bright star upon whom the Trojan rooters are building their hopes this year. Photo shows Drury in a Star convertible cabriolet, one of the most popular models in the star line and a favorite among the students of the Los Angeles university.

tested by combination of barettes, or long tubes, showing the driver how this fuel is being burned.

Other tests include acceleration, deceleration, rolling friction, riding qualities, fuel economy at fixed speeds, minimum and maximum speeds, endurance, hill-climbing, braking, driver's vision range, reflection from cars behind, head-lighting, steering effort, vibration, noises, brake and clutch pedal pressures, crankcase dilution, ventilation, size and appearance.

There's a concrete mile straight-away to test pickup, speed and braking. There's a sunken stretch, called a "bath-tub" to learn the effect of water on a car's parts. Special cameras are used to photograph cars from all angles for appearance and vision.

All these and many other tests and measurements are made and tabulated by figures and graphs. Many facts are being gathered apparently with no purpose in view, except that they'll be on record whenever an engineer happens to want them. Then they might form the basis for an improvement long desired in the auto world.

How these facts are used and compared is suggested by O. T. Kreusser, engineer in charge of the General Motors proving ground.

How Cars Compare "Here are two cars providing the same amount of leg room and seating comfort," he points out.

"One car can steer in a circle of ten per cent less diameter than the other. Assuming everything else being equal, it can be deducted that the car steering within the shorter radius has the advantage from the customer's point of view.

"Here again are two cars, in one of which the driver has a vision through the windshield and past the corner posts that is 20 per cent greater than the other's. Again the one with the greater vision area has the advantage. If everything else is equal.

"Unfortunately, out of necessity the automobile must be a compromise involving a great many factors, any one of which may be of major importance to a particular customer.

"The car mentioned as having a shorter turning radius, may be less steady to drive on rough roads. The car having greater driving vision may not have a desirable rakish appearance or the corner posts may be too flimsy and not provide a rugged door hinge hanging.

This is how deeply the investigators go into the last detail.

Every part is taken from a machine that had been run through the mill for measurements and further individual tests to determine everything possible about it.

MANY TOTS HURT 'HOOKING' RIDES

Estimates Place Death Toll Among Children Under 15 at 7,211

An estimated 7,211 children under fifteen years of age were killed in highway accidents in 1926. Several hundred of these child fatalities were the result of hooking rides or coasting in the public street.

These appalling figures were issued by the American Road Builders' association today in emphasizing the necessity for safety education of children. Nearly one-third of the total 25,392 fatalities last year were children of school age, it was pointed out.

"The dangerous habit of hooking rides should be discouraged by parents and teachers. Children who insist on "hopping" motor trucks or passenger cars without the knowledge of the drivers are inexhaustibly careless. Often children will climb to the rear step of an ice wagon in order to secure a cooling piece of ice, and fall to the pavement when suddenly the machine is started. Drivers are unaware, in many cases, that children are secretly riding on the tire or tender of their machines, and are powerless to prevent accidents to them.

"The responsibility for accidents to children rests for a large part upon school teachers and parents. It is their duty to see that their children are properly instructed in the necessity for courtesy and caution at all times, the child can develop an habitual safe conduct that will follow him throughout life.

"In addition to the safety education of children, it is the moral duty of all drivers to prohibit children from riding the fenders or rear attachments of their machines. Roller skating or bicycling behind motor vehicles should be discouraged completely."

Made Movies in Cannibal Land



Edith Roberts and her husband, Kenneth Snoke, of Los Angeles, have returned after seven months in the Fiji Islands, where they made movie subjects of the reigning cannibal king and 2000 natives. Austrialian movie interests backed the film.

Court Defines Minor's Rights in Purchasing and Returning Autos

CHICAGO, Oct. 1 (AP)—The mother of the cave age, as she struggled to rear her children, even lived in fear of the jungled beasts and today's mother finds a counter part for that terror in the "jungle" beyond the curb where motor juggernauts take a "terrible toll" of young lives. Harold S. Buttenheim, editor of "The American City" told the National Safety Congress.

The jungle mother heard the lion's roar with quaking; today's screaming brakes blanch the cheeks of mothers—and why, Buttenheim asked "have your chiefs fallen down in their traffic job?"

The editors answered by declaring there is no sense of fair play or courtesy among the general run of motor car drivers. "The mental attitude of most motorists and of some law makers appears to be that pedestrians who survive as such are a well-earned, tolerable nuisance. We hear a good deal of the need of pedestrian control on the highways but mighty little of consideration of pedestrians."

He advocated the revoking of driving licenses as punishment for reckless driving, adding "the average driver would rather lose his right to vote than his right to operate a car."

GOBS TURN POLICEMEN

LONDON—Too many sea-dogs are wanting to be bobbers, according to a notice issued by the admiralty. The naval office says there has been a considerable increase in the number of sailors applying to join the police force. Because of the demand for seamen and stokers, men of these classifications will not be released for police service as formerly except in special circumstances.

COLUMBUS IS INVESTIGATED

PARIS—A new attempt to prove that Columbus was not a citizen of Genoa but a Catalonian has been launched in a book written by Senor Luis Ullon, Peruvian scholar. He claims that a French Catalonian named Joan Colomb has been robbed of his fame by confusion with a Genoese family named Colombo, which tried to prove kinship 60 years after the explorer's death.

A French concern is planning a series of excursions into the suburbs of Paris on Sundays in stage-coaches of the days of Louis Philippe with coachmen in top-boots and gayly colored liveries.

A recently measured iceberg was found to contain enough ice to keep every refrigerator in the United States supplied for a year.

Court Defines Minor's Rights in Purchasing and Returning Autos

The police and the courts have made automobile stealing for more joy-riding much less popular than it was 10 or 15 years ago. Girls, on the other hand, have grown more insistent that their boy friends provide them with the thrill of a spin down the highway. If the boy friend hasn't a car, some other boy friend has. Result, the boy friend, who is often a minor, provides himself with a car on the conditional sales plan. Often, before the car is fully paid for, the minor wrecks it, loses his job or his girl. Then, he calls for the dealer who sold it to him and says, "I was a minor when I signed that contract, here's your car. Give me my money back."

In many states the minor is able to get away with it, too, and the merchant is compelled to give back what money he has received and take back what is left of the machine without any compensation for its use or depreciation—a sad and a wiser man.

But, the courts of all the states have not followed this ruling, and some that have followed it have differentiated between certain conditions, holding differently in cases where the contract was performed, partly performed, or to be performed in the future; also, letting their decisions be altered by such questions as "was the contract one for necessities of life? Was it beneficial to the minor? Was it fair and reasonable?" and many others.

A Minor's Right The question of a minor's right to disaffirm his contract and secure back anything of value he might have paid on it, was never presented to the supreme court of Oregon until 1920. It is interesting to note that the case in which it was first presented involved a motorcycle, and the second an automobile.

When the question was finally presented, the supreme court began its opinion as follows: "The amount involved in this proceeding is not large, but the question of law presented is a very important one, and one which has been much disputed in the courts, and about which there is a great and irreconcilable conflict in the authorities, and we have, therefore given the matter careful attention."

Following a discussion of the decisions of the various state courts and of England, our court laid down the law in Oregon to be "where the minor has not been over-reached in any way, and there has been no undue influence and the contract is a fair and reason-

able one, and the minor has actually paid money on the purchase price, and taken and used the article, that he ought not to be permitted to recover the amount actually paid without allowing the vendor of the goods the reasonable compensation for the use and depreciation of the article, which his hand."

RAY STATE TOBACCO AMHERST, Mass.—Massachusetts, whose population per square mile is greater than that of any state except Rhode Island, still has a little room left for tobacco farming. The Massachusetts Agricultural college points out that the yearly crop now averages between 14,000,000 and 15,000,000 pounds, virtually all of which is grown in three counties in the Connecticut River Valley.

CANT DODGE BAD LUCK OGDENSBURG, N. Y.—A salesman laden with travelling cases was hurrying to catch a ferry when a black cat dashed across the street ahead of him. To avoid ill fortune he turned and walked around the block to approach the ferry from a street the cat hadn't crossed. Ten minutes later the salesman trudged back to his hotel, baggage and all. "Avoiding that cat," he lamented, "made me miss my boat."

According to Professor Koelliker, a Swiss zoologist, fish are not dead and dumb, and in the depth of the sea give forth a buzzing sound which contains a certain amount of harmony and gaiety.

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