

## PREDICTIONS FOR AUTO MADE IN '96 ARE COMING TRUE

Maker of Cars Made Startling Statements but Time Has Proved He Knew Whereof He Spoke.

No modern industry has developed so rapidly as the automobile building and none has had more difficulties to overcome in the way of public opinion in its early stages. It is amusing to look back at some of the objections to motor cars that were raised a dozen or 15 years ago, and then to hear the common-sensical answers that the horse is one of the greatest nuisances and annoyances of city life.

The early automobile enthusiasts were mostly designers and builders. They were pretty nearly the only defenders of the "horseless carriage" in those days, but their predictions have all come true. That is probably why in developing the Stevens-Duryea car he originated one of the features of construction that have become fundamental in all fine cars now. His brother, who did most of the talking for the family, made some predictions in *Horseless Age* in July, 1896, that are remarkable to look back upon. They were based, of course, on a more intimate knowledge than most people had of what J. Frank Duryea was doing in developing the gasoline motor.

**Many Uses for Motor.**  
"Such a motor will be found useful in almost every household and in every shop of every kind for all classes of work," said Duryea, discussing automobile engines, with the light of his brother's inventive genius behind him.

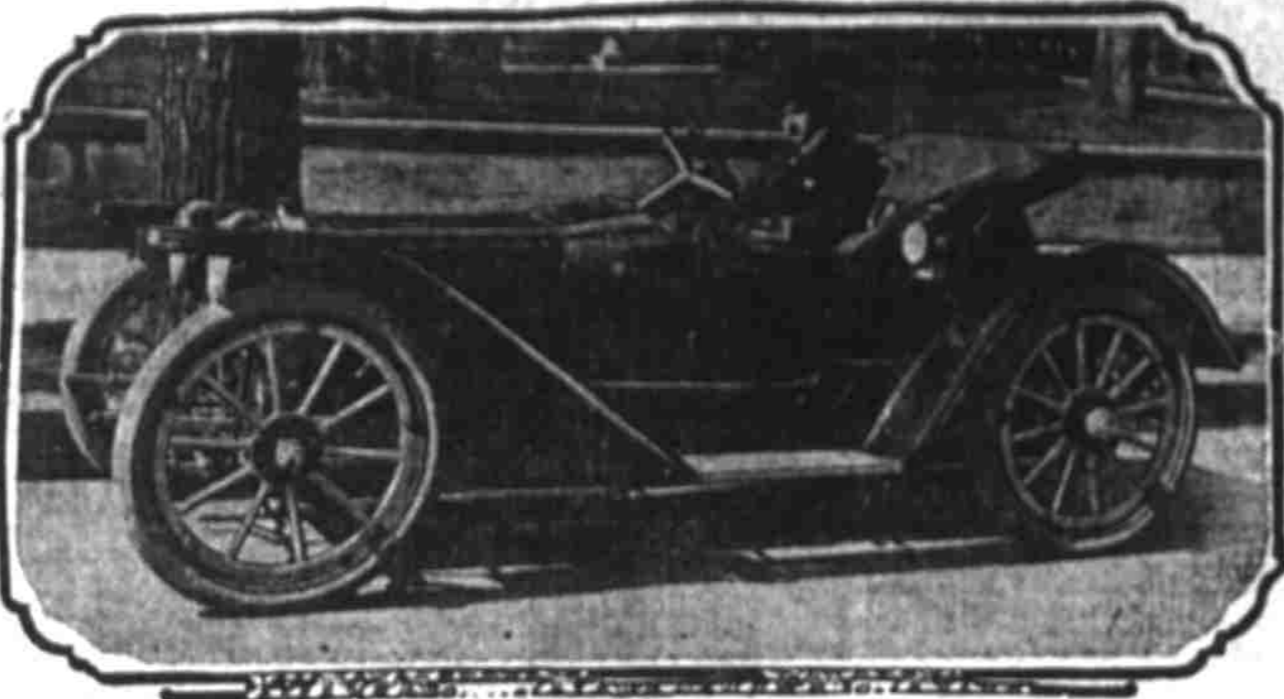
"Such a motor is easily movable and can be taken from one job to the next without difficulty. Farmers will find it in many places far more convenient than animal power, and housekeepers will use it in many places where muscular power now is used.

"In the application to vehicles alone it will be widely beneficial. Bicycles of all sizes will be equipped with it. Small, light boats will be driven by it at high speeds, and there is no reason why our many streams and bodies of water should not become as popular pleasure resorts as the bicycle has made our common roads. Tricycles, carriages—both large and small—will be nicely adapted to the needs of everybody, and in a few years their prices will likewise be suited to the buyer's purse.

**Predictions Come True.**  
"The experiments of such men as Maxim, Langley, Chanute and others assure us that before many months we shall be able by the application of this motive means to travel through the air at high speeds and with an amount of pleasure not before experienced in any means of locomotion."

Practically all of this prediction has come true. Its application to household and farm work alone is as yet undeveloped. Frank Duryea made one of the first successful American gasoline motor cars, then developed the engine from one to two and then to four and finally six cylinders. The gasoline motor has made possible not only air navigation to which Duryea's article referred—the dirigible type of airship—but gave the Wright brothers means of making the aeroplane practical.

## NEW MODEL UNDERSLUNG AUTOMOBILE IS ATTRACTING ATTENTION



1912 American Roadster is being shown by the Nob Hill Garage & Auto Company; L. E. Kain is shown at the wheel.

## 5000 INSPECTIONS ARE MADE BEFORE CAR PUT TOGETHER

Details of Automobile Building Interesting and Complex—Many Rigid Tests Bring Out Weak Spots.

The general public, or layman, has no idea or conception of the number of times each part of an automobile passes through the hands of expert workmen, when they look upon the automobile upon the salesroom floor of one of the Portland agents. In talking this question over with W. A. Wildrick, northwest manager of the Michigan Auto & Buggy company, Thursday, he stated that over 5000 inspections are necessary before a well made motor car is ready to be placed on the salesroom floor. "This seemingly extraordinary number of inspections is explained," says Mr. Wildrick, "by the fact that every part of the car is made and inspected under the direct supervision of the factory experts. From the raw material until the car finally leaves the factory each individual part is subjected to from five to eighteen inspections and tests, which increase in strictness as the car nears completion.

**Steel Severely Tested.**  
"Take for instance the raw material which is received at the factory in the shape of steel ingots. Each bar of steel is numbered and a hole is then bored in it. The metal shavings are placed in an envelope bearing a number corresponding to that of the ingot, and these shavings go to the chemists for analysis. If they fail to come up to the specifications the bar is rejected and returned to the steel mill. Then, after the forgings and rough castings have been made they are again inspected and analyzed.

"After this process the real construc-

tion work of the car is begun. Every day the entire staff of foremen meet to formulate strict plans for the day, and to decide what limits of hardness, measurement, etc., shall be set for the day's work. The recommendations are put on the 'operation sheets,' which then go to the workmen for execution. The minuteness of the foremen's calculation may be inferred from the fact that the outside limit of variation in gauging the motor's parts is one-tenth of one-thousandth of an inch.

**Motor Given Test.**  
"The method of inspecting the assembling of the motor is most interesting. The parts are drawn from the stock rooms and assembled into 'units.' Every motor is divided into 12 or more of these units, all of which are drawn separately from the stock room.

After the units are assembled they are put back, then drawn by another department, inspected and reassembled. After this rigid inspection the motor is ready for its initial testing.

One of the first tests to which the complete motor is subjected is on the "lapping stand," a test that continues on an average for seven to ten hours for each motor. On the "lapping stand" the motor is not run under its own power, but is pulled by another motor, the object being to free up the new job, as it is technically labeled. Another rigid test is the fan test, during which the motor drives a large fan for a period ranging from 10 to 12 hours. Naturally the weak spots, provided there are any, crop out under this grueling strain.

Generally speaking, there are about 15 inspections of completed parts and from one to fifteen for every minor piece of material. It takes time and great expense to conduct such tests but every motor car manufacturer will affirm that it is necessary in order that every buyer may get the best product of the factory.

## IMPROVEMENT IN CARS FEATURE OF LATEST MODELS

Self-Starter, Sleeve Type of Motor, Notable Advances Made in Manufacture of Autos This Year.

Two features of improvements in automobiles this year stand out prominently from the rest. They are the self-starter and the sleeve type of motor.

Never in the history of the automobile industry has an innovation been accepted with such rapidity as the mechanical cranking device. Scoffed at by the skeptical, relegated to the category of the whims of a dresser and pronounced impracticable by scores of manufacturers, it looked, for a while, as if the fate of the self-starter would not be pleasing to its champions.

Today there are few of the four cylinder machines not equipped with the self-starter. There are several different makes in use, many of which seem to be equally efficient. The self-starter, in a way, has a parallel in the sleeve valve motor. When Charles Y. Knight sought to place his invention with American automobile concerns when he first perfected it, they literally laughed at him. He could get scant recognition. Determined that he would show them the worth of his engine, Knight went to

Europe. In Europe he met many obstacles but finally had his motor accepted by the Daimler Motor company. Now several of the leading automobiles of Europe are equipped with the Knight engine, as are also the Stearns, Stutz, Duryea and Columbia, American machines.

"This is the first year that the Stearns has been equipped with the silent Knight engine, and the acquisition has almost doubled the sales of this car," said F. W. Veeger, Oregon agent for the Stearns and northwest distribu-

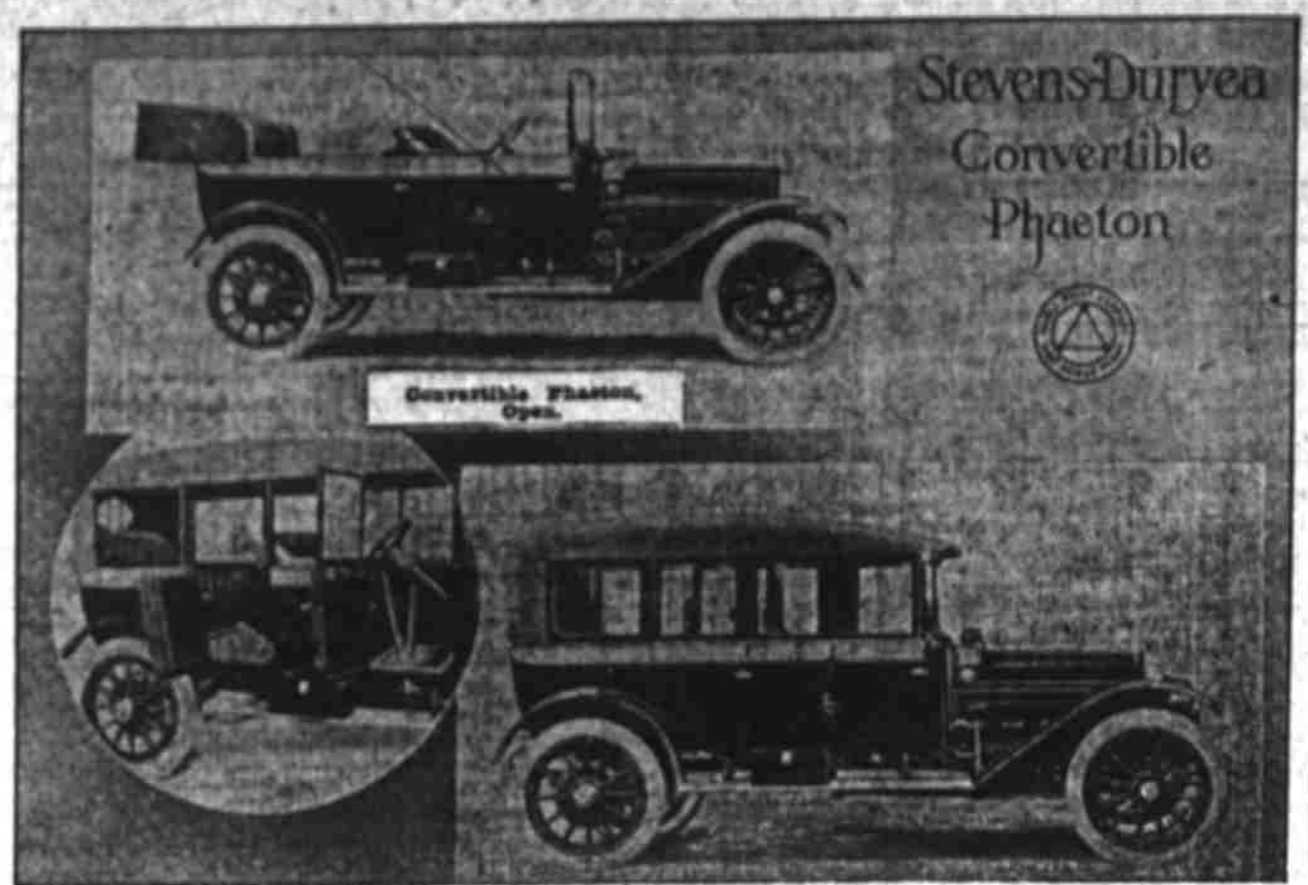
tor for the Stearns, Apperson and Premier. "When one considers the fact that the Stearns has been on the market for 15 years, the success of the silent Knight engine in this country has been phenomenal."

"To show that the Stearns company's faith in the Knight motor was not misplaced, it was necessary to lease a new factory and employ a large number of extra men in order to keep abreast with the demand that developed.

"The silent Knight motor, like the self-starter, only needed an opportunity

to show its worth. Thus far it has been a pronounced success here. How long the present demand will continue is, of course, all problematical, but I can see no reason why it should not increase instead of falling off."

"Silence of operation in a motor is something automobile engineers have been trying to obtain for years. It stands to reason that the less noise and vibration, the less wear and tear is done the engine. Another feature of the Knight motor is its simplicity."



Model 4A Six Cylinder, Five Passenger, Convertible Phaeton, Closed.

## The First Practical All-the-Year Body for the Motor Car

The far-reaching importance of the Stevens-Duryea Convertible Phaeton will be appreciated not alone by the man who drives his own car, but by those motorists who want comfort and protection while touring. Think of the opportunity for country life all the year round, or going to business every day, regardless of snow, rain or zero weather!

Let Us Mail You Our Folder Descriptive of This New Model.

## Graham Motor Car Company

WASHINGTON AND FIFTEENTH ST., PORTLAND, OREGON.

Stevens-Duryea Co., Chicopee Falls, Mass.

Pioneer Builders of American Sixes.

## FATHER OF MOVEMENT FOR BETTER HIGHWAYS



George M. Dickson.

One of the leading automobile builders of the country is George M. Dickson, of Indianapolis who is general manager of the company that builds National cars. Dickson is the father of the "Motor Museum" movement to establish a permanent collection of automobile parts and cars to preserve for posterity the story of the development of the science of locomotion. Dickson is also the man who figured out that the motor car is not the nation's juggernaut; that the street cars killed twice as many people in a year in this country as the motor car and that, in fact, the percentage of fatalities due to the motor car is very small in comparison with other forms of death.

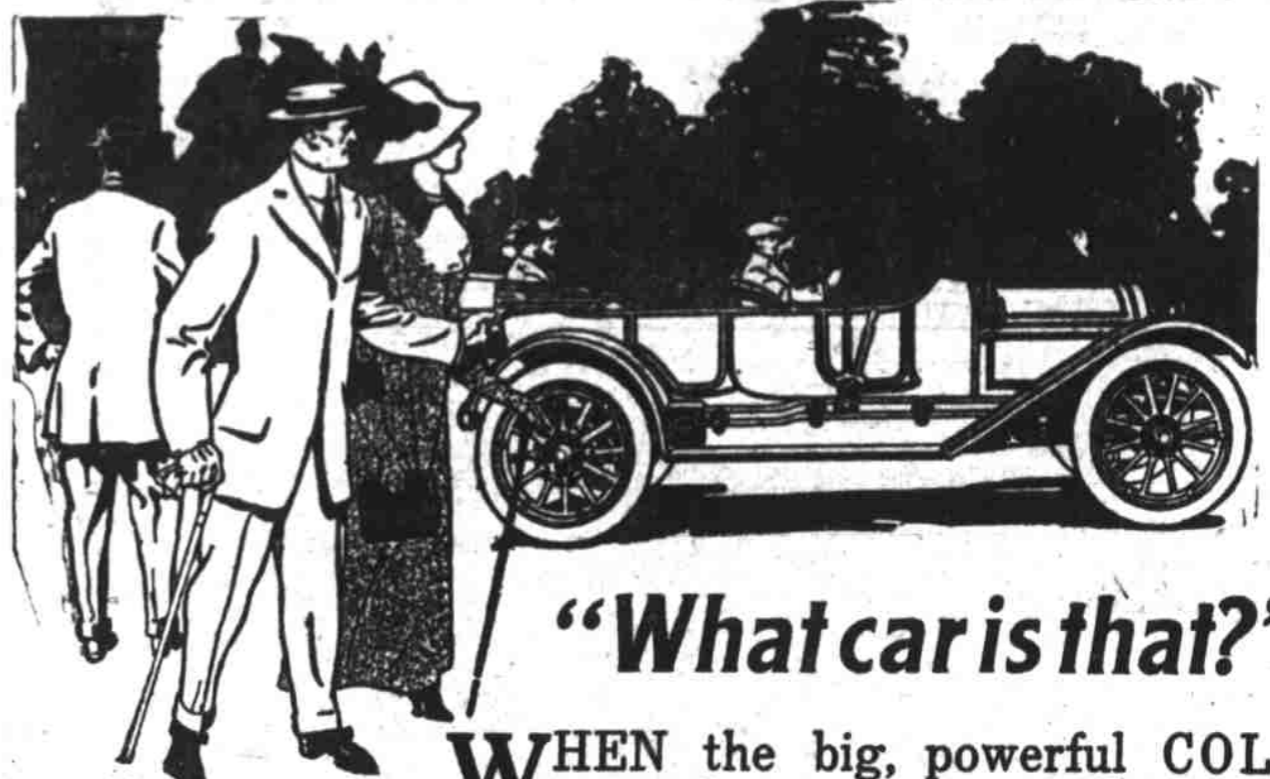
Dickson is a strong believer in the value of motor car races and declares in his answer to the attacks of Benjamin Briscoe that race tracks are the laboratories where cars have been through the white heat of analytical tests. He declares that a race of 300 miles at terrific speed is "more" on a car's strength, power, speed, and reliability than three years' service in the hands of the average private owner. Dickson now comes forward with a proposal for a "motor museum." He suggests that the American Automobile Association select a car from off the salesroom floors of any one of his dealers in any part of the country without his company's knowledge and then enter it in a race with cars of other make selected in a like manner. This, Dickson says, is a fair sportsmanship proposal. Dickson's cars hold the world's stock championship, world's road race record, world's fastest stock straightaway mile record and in fact last season won 54 first places.

## WIRELESS WILL GIVE WARNING OF STORMS

(Dated Press Release Wire.) Paris, April 6.—The French Academy of Science has had submitted to it by M. Pigeolet an invention by which storms can be detected by wireless while yet 100 or more miles distant. The device is especially adapted for use by ships at sea.

Journal Want Ads bring results.

COLE



## "What car is that?"

WHEN the big, powerful COLE speeds up the avenue, people take notice. They look at it long. For the COLE is different. It has style, class and distinctiveness all its own.

Always it brings forth the question, "What car is that?" The COLE bears no price marks. If you didn't know its price, you would stamp the COLE as one of the high-priced cars on sight. And in reality it is. It has all and more than many of the high-priced cars. Large output is responsible for putting such a big value on the market for the price.

## COLE COMFORT 122-Inch Wheelbase

This at once signifies not only comfort, but saving to COLE owners. The Cole has a LONG STROKE SILENT MOTOR. The bore is 4 1/4-inch, the stroke 5 1/4-inch. The COLE is properly balanced as to weight.

COLE owners are a big asset. To get these boosters the COLE factory must build a car with every dollar of value in it. We stand behind the car. We take care of the COLE owners. Ask any COLE owner about this.

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No Rim-Cut-Tires have become the sensation. But we spent 13 years in ceaseless improvement to give you a tire like this.

## The Savings

No-Rim-Cut tires end rim-cutting forever. Statistics show that 23 per cent of old-type tires become rim-cut.

No-Rim-Cut tires are 10 per cent over the rated size. They give you that added capacity.

And 10 per cent oversize, with the average car, adds 25 per cent to the tire mileage.

So the average saving from this patent tire is 23 plus 25 per cent.

## No Extra Price

These patent tires now cost no more than other standard tires. The savings are entirely clear.

200,000 motorists have already come to them. 127 leading motor car makers have this year contracted for the Goodyear tire.

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Won't you find out why?



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