



# AUTOMOTIVE HISTORY *Review*

SPRING 1975

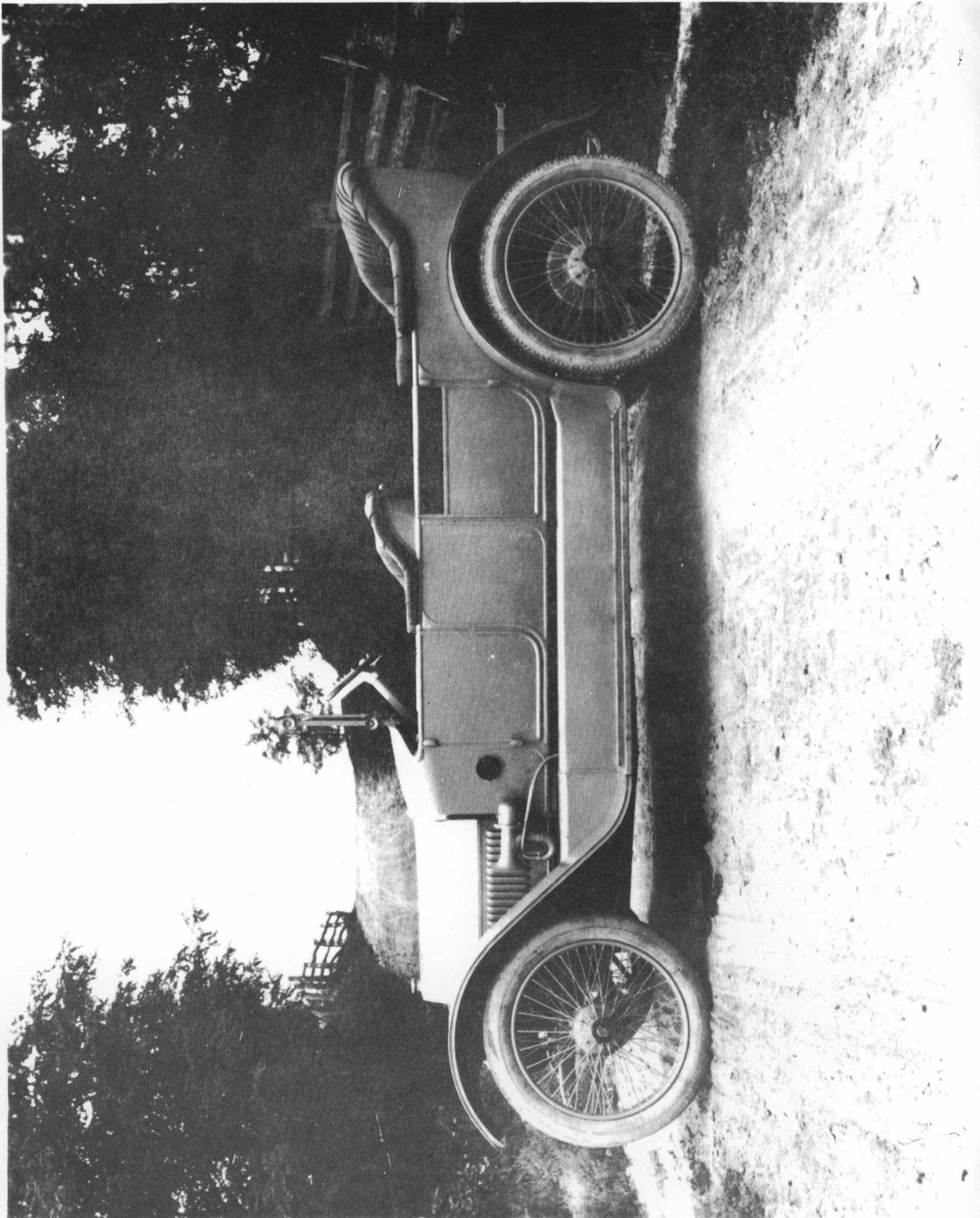
ISSUE NO. 3



DR. FERDINAND PORSCHE, 1875 - 1951

*The Society of Automotive Historians*

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# AUTOMOTIVE HISTORY *Review*

A PUBLICATION OF THE SOCIETY OF AUTOMOTIVE HISTORIANS  
RICHARD B. BRIGHAM, EDITOR

## OFFICERS, 1975

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The Society of Automotive Historians

## THE COVERS -

FRONT - Prof. Dr. Ing. h. c. Ferdinand Porsche, engineering genius and designer of some of the world's finest motor cars. This photo was loaned to us by SAH member Karl Ludvigsen.

BACK - Volkswagen advertisement of 1962, the first of an award-winning series.

INSIDE FRONT - 1914 S.G.V. Touring car. Photo loaned by member Charlie Weaver.

INSIDE BACK - 1920 Owen-Magnetic Roadster. Photo loaned by Charlie Weaver.

## EDITORIAL COMMENT

Several pages of this issue are devoted to the history and products of the Cole Motor Car Company. Under the guiding hand of Joseph J. Cole this company made the transition from buggies to horseless carriages to modern automobiles in a few short years. The business was begun in a rented livery stable which had formerly been used as a coach stop. Over the years of automobile production the Cole company erected a handsome, well-kept set of factory buildings which have become a landmark in downtown Indianapolis.

Although motor car production was terminated in October, 1924, the Cole Motor Car Company remained in business as a going concern until late 1967. During those years the buildings were rented in bits and pieces to smaller enterprises, some parts as office space, others as small manufacturing or warehouse areas.

Finally the Cole assets were sold, and the proceeds distributed among the stockholders. The buildings were acquired by Service Supply Co., Inc., and, fortunately, are as well maintained as they always had been. Unfortunately, however, the new owners have completely obliterated the Cole name from this historical bit of real estate.

Just a few weeks before this issue went to press we visited the plant to verify some of the statements we were about to publish. Mr. M. C. Seitz, Jr., Secretary-Treasurer of Service Supply, greeted us cordially and gave us a generous amount of his time. This included a tour of part of the main building and a visit to an enclosed area where a collection of Cole cars is stored. These vehicles are the property of J. J. Cole, grandson of the founder.

On the front of the main building, just under the roofline, there are three dark-colored rectangular areas (plainly visible in the photos on page 13). Here the Cole script had been cast in concrete blocks which were built into the wall. Mr. Seitz explained that at the time the building was being painted one of the workmen asked if the Cole names should be ground off, and was told they might as well be. Seitz also stated that if it could be done over again those names would still be there, for their removal brought the wrath of every historical society and old car buff for miles around. After all these years, old car clubs make regular pilgrimages to the plant, and they never fail to deplore the destruction of those three large scripts.

Most of the major cities in this country, many of the smaller ones and hundreds of tiny communities have at one time or another been the headquarters and factory sites of one or more makes of automobiles. Many members of the Society of Automotive Historians have photographed some of these old plants, and already some of those of which we have pictures have been demolished.

It should be among the objectives of the Society to encourage the present owners of these buildings to preserve their identity to the greatest extent possible. All of these old factories should be photographed before they are destroyed or modified beyond recognition.

# VIEWPOINT

## COMMENTS OF OUR READERS

PHOTOS, INSIDE COVERS, Issue No. 2

*Kenneth H. Stauffer, Pottstown, Pennsylvania*

Enjoyed the latest *AH Review*. Just wanted to comment on the photos used on the inside covers.. while the cars are correctly identified as Alco's the interesting feature is that the photos were taken in Fleetwood, Pennsylvania, and naturally feature custom-built Fleetwood bodies, this, long before Fleetwood became a part of GM's Fisher Body Division. In fact, the firm was only incorporated as Fleetwood Body a few years prior to the photo dates.

COMMENTS ON ISSUE NO. 2

*John M. Peckham, Troy, New York*

Now, that's what I call a magazine!

You and/or Nick Georgano have created some real doozies (Duesies?). Grabbing a couple of things out of the hat, Picture #6, page 15, seems very Rambler or Jeffery-esque. The cowl lights and rear springs are my main leads on this. However, from my limited material, it doesn't quite fit the bill as either of the above.

Number 7 is driving me right up the wall. We all should get this one, but nothing checks out.

Glad to see a mess of furrin stuff. Most of us are too narrow to appreciate some of the great things that those folks were doing on the other side of the pond.

Of minor interest, the latest issue of *The Orange Disc* (Sept.-Oct. 1974), the stockholder's magazine of Gulf Oil Company, has a good piece on the preservation of a spectacular gas station of the mid-Thirties, in Washington, D.C. The building is in a very good, Greek revival style. Along this line, soon I expect to photograph an old gas station near Washington, New Jersey. This one has a rather magnificent Egyptian motif. It's in an excellent state of preservation, with few alterations. Fitting in with these, in summer 1973, I took a batch of pictures of a large automobile dealership building, late Teens, in Worcester, Massachusetts. The building was quite ornate and very handsome. As far as I could see, the only external modification was a plate glass side door to the service department. Maybe we could encourage our members to take more pictures of this type. Such structures are fast disappearing.

COMMENTS ON ISSUE NO. 2

*Dr. Charles W. Bishop, Ft. Lauderdale, Florida*

You have probably had the answer of RED WING ten times over, but aside from the incomplete 1775 entry there is an erroneous 1930-37 by B. T. Walsh (AOT) and a press release Dec '09: "The Red Wing Motor Co. succeeds the Red Wing Boat Mfg Co. of R. W. Minn. \$250,000 capitalization replaces \$50,000 of old company, and a motor car will be built with a power plant...modification of the Red Wing marine motor." Body looks like 1906 one cylinder Caddy.

Speaking of Dr. Porsche, I have some photos of Lohner-Porsche cars with Panhard engine, belonging to Count Wimpfen, first licensed driver in Austria, whose son died last year.

WALTOMOBILE may indeed have been their cable address but *Automobile Topics* had feature article

and item in two issues, Fall of 1902, cited in "Automobiles of NY", product: WALTOMOBILE.

COMMENTS ON ISSUE NO. 2

*Walter E. Gosden, Floral Park, New York*

I really enjoyed the latest issue of *Automotive History Review*. This was my first copy of the Review, having joined in October 1973. It was a great pleasure to receive my own copy after briefly leafing through an issue that was on display at the annual meeting at the Hotel Hershey.

I am enclosing three photographs that you may care to use. They are originals that are from an album I have that was compiled over the years by race driver-inventor-teacher George E. Cook. They are but a small fraction of a large collection of letters, photos, and memorabilia of this man that he kept and I now have in my collection. I don't know what kind of car the two photos show taken in 1905 at Brighton Beach. Perhaps the SAH membership could identify the car; the other is as stated on the photo, a Belgian Pipe race car (loads of photos of Pipe racers, also of Frank Coker and his Simplex wreck).

My own interest in vehicles leans toward air cooled vehicles, especially Franklin, although I do tend to like large foreign machinery, too. Right now a pet project is to find anything I can on automobile designer J. Frank de Causse. It has been rough going with very little information available. He worked for Locomobile (1915-1919) and Franklin (1922-1926) over here and Kellner in Paris before World War I, but according to Tom Hibbard (of Hibbard & Darin, and LeBaron fame) de Causse was a loner and he didn't know of any one who knew him well. If you can think of any place I could find information on him, or on his assistant, Jules Oliviera, it would be most welcome. Oliviera was later with GM styling, later on in the body engineering department at Cadillac (circa 1946-47). No one at Cadillac knows where he is now. Well, enough of my frustrations! Keep up the great work. Hope you can use the photos. I will be glad to contribute more if you can use them.

I have also started to try and locate photographs taken at the Nov.-Dec. 1930 Auto Salon held in the Hotel Commodore in New York City. I particularly want views of overall show and of the exhibit Denham Body Co. of Rosemont, Pennsylvania, had, as I now own the Franklin coupe they had on exhibit.

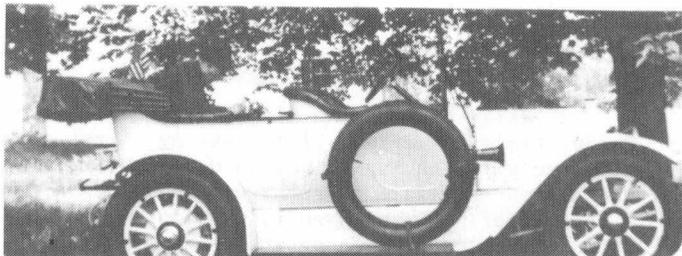
*The three pictures to which Mr. Gosden refers are printed in the "Identification Requested" section.*

MG (Pages 24-28, Issue No. 2)

*Rande Bellman, Northridge, California*

At the risk of sounding destructive towards one of my fellow members, I would like to say that I was disappointed to see an article about the MG in the Summer 1974 issue of the Review. In the past several years there have been many articles and books written about this fine car. By now most members could recite the history of the MG easier than the Pledge of Allegiance. The inclusion of the article is an indication that more members (including myself) should contribute more to the Newsletter and Review.

Mr. Knudson is an acknowledged authority on MG's. I think, however, that it is not the role of the Society to rehash what is already known. It is our responsibility to delve into the history of the much less-known makes.



IDENTIFICATION REQUESTED (Page 15, Issue No. 2)

*Fred Roe, Holliston, Massachusetts*

Here is a photo to confirm my identification of car number 6 in the Georgano series of photographs as a Pope-Hartford. All the chassis and body details check, as does the overall shape of the car. Although the flush cowl lights do not show in my picture, there is a frontal view of this same car in *The Bulb Horn*, Winter 1959, Vol. 20, No. 1, page seven, in which they can be seen clearly. Further confirmation may be found on page 102 of the 1913 Handbook of Automobiles. I think we can safely say that this photo is of a 1913 Pope-Hartford Model 31.

IDENTIFICATION REQUESTED (Page 15, Issue No. 2)

*Walter MacIlvain, Manchester, Connecticut*

The Picture #6 on page 15 is a 1914 Pope-Hartford. Ralph L. Pope had one on the 1954 Glidden Tour Revival. I have its picture - same high mounted horn, drop frame, hood louvre configuration, even same trunk rack. Number 8 has to be a Locomobile 1908, Series I. Note steering tie rod. Tie bar could have been added.

IDENTIFICATION REQUESTED (Page 15, No. 2)

*Harry Pulfer, La Crescenta, California*

Car #5: Everything about this car says AMERICAN. The spider that attaches to the brass and to the steering wheel; the gearshift; the first of the non-skid tires on the back wheels. The only thing I doubt is the front of the rear spring mounting which is not true American.

As far as the three dots (nameplate blow-up) are concerned, I have found this combination in several other American cars, assorted rubs - Maxwell, Frontenac, Oldsmobile. Similar but not the same as the Hillman.

The Boyce MotoMeter is the rare NO GLASS type that was put on the 1914-15 era cars. Even the electric headlamps with their diffused lenses seem familiar. The hub caps look like Cadillac. The radiator mounting is similar to the early 4-cylinder Reo.

STEEL SWALLOW AUTO COMPANY (Page 13, Issue No. 2)

*Donald J. Summar, Lancaster, Pennsylvania*

I have enjoyed the first two issues of *Automotive History Review*. The first issue did seem a little thin, but I guess that length of issues is as much the responsibility of the membership as of the editor.

Concerning the Steel Swallow Auto Company, I have one reference, which is from *Motor World* for August 29, 1907, page 961. The brief item states the Steel Swallow Company of Jackson, Michigan, was organized under Michigan laws with \$150,000 capital, to manufacture autos. The incorporator was J. C. Richardson.

THE WALTER AD (BACK COVER, ISSUE NO. 2)

*(Mrs.) Juliet Walter Pesci, Cheltenham, Penna.*

William Walter, whose picture is on the cover of Issue No. 2, was my grandfather. My father, Edward L. Walter (who at the age of 86 is still actively designing) remembers much of the early history of the Walter Automobile Company, and the Mercer and Roebing-Planche production.

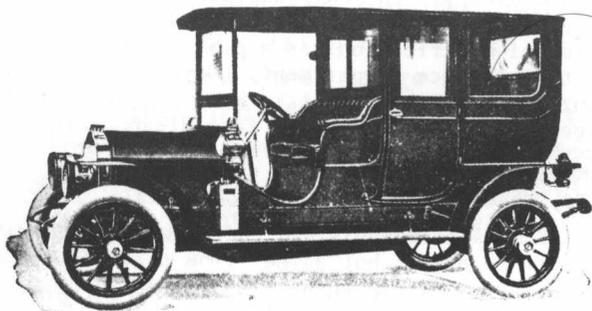
It may be of interest to you that the Walter car shown on the back cover of Issue No. 2 was purchased by George C. Boldt (owner of the old Waldorf-Astoria, located where the Empire State Building was built). This car, instead of having the standard 120 inch wheelbase, was cut down to 110 inches so that it would fit in the elevator, located on the sidewalk of the Waldorf-Astoria, to be taken to the basement, which was the garage for Mr. Boldt.

The car was built half in New York and half in Trenton. After they cut 10 inches from the frame, it was braced temporarily and Edward Walter drove it from New York (really just a chassis) to Trenton where the body was being made. Shortly before he reached Trenton the temporary brace gave way, and he tells me he was practically driving a car in two pieces! He says it was quite a sight.

That car won first prize in the Ten Hour Endurance Race, October 5, 1907, at the Inter-State Fair Grounds, Trenton, New Jersey. This was a half-mile track and that race was the second one run there. The first one was a week earlier. Originally it was to have been a 24 hour race, but because of the Sunday "blue laws" the race ended at midnight Saturday after starting at 2 P.M.

Second place in that race was also won by a 40 H.P. Walter driven by Edward Walter. In lieu of the \$500 prize, my father, not wanting to take money which would change his status from amateur to professional driver, was given a silver loving cup.

I would very much appreciate having three copies of issue No. 2 for my three children, and Issue No. 1. Also, information on how to receive future issues which, needless to say, would be of much interest to my father, would be appreciated.



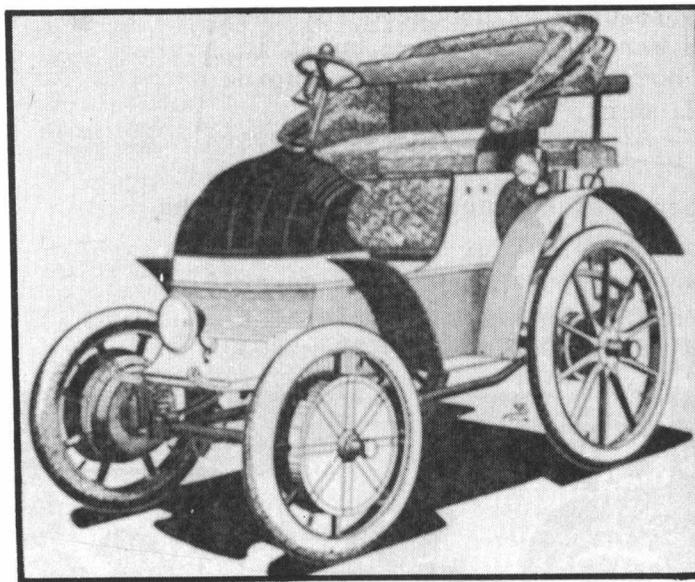
Editor's Note: The copies which Mrs. Pesci requested have been sent to her, along with information about becoming a member of SAH in order to receive future issues.

It is interesting to learn something of the actual car which was pictured in the ad on the back cover of Issue No. 2. The effects of the short Walter article in Issue No. 1 have been far-reaching.

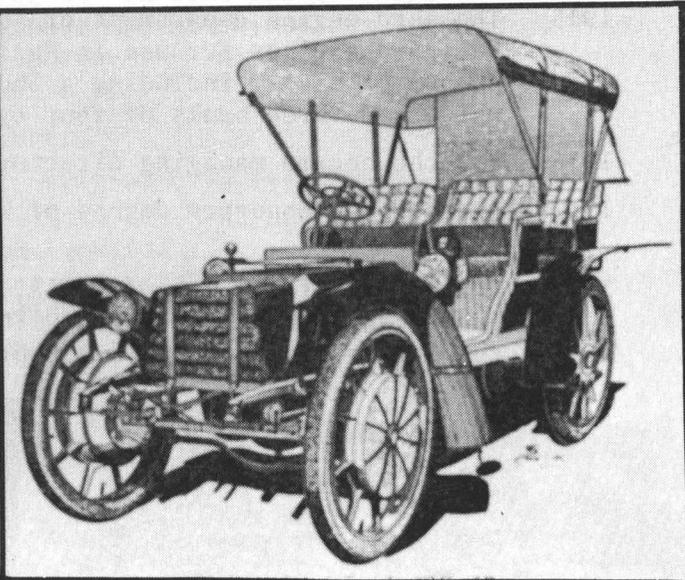
# Dr. Ferdinand Porsche

A CHRONOLOGICAL HISTORY OF HIS LIFE  
AND ACCOMPLISHMENTS . . . PART ONE

- 1875 Born September 3 at Maffersdorf in Bohemia, at that time a part of the Austro-Hungarian Empire, now in Czechoslovakia.
- Apprenticed to his father, a tinsmith, but attended classes twice a week at the Technical College of Reichenberg (now Liberec).
- 1890 Was shown the electric light plant at Ginzkey's Carpet Mill in Maffersdorf, an event which apparently started Porsche's interest in electrical machinery.
- 1892 Built and installed electric generating and lighting equipment in his father's workshop.
- 1894 Joined an electrical engineering company in Vienna. Within four years he was in charge of the experimental department. During this period Porsche attended lectures at the Technical College to acquire more knowledge of science and engineering. It was also in Vienna that he was able to observe science and engineering. It was also in Vienna that he was able to observe the earliest of automobiles and to study their details of design.
- 1898 Was employed by the coach-building firm of Ludwig Lohner as chief designer in the newly created automobile department.
- 1900 The first Porsche-designed automobile, the Lohner-Porsche, appeared. It was battery powered, with an electric motor built into each of the front wheels. Its top speed was 9 miles per hour; its range about 30 miles per battery charge. Porsche was dissatisfied with the low speed and limited range.
- 1901 An improved model of the Lohner-Porsche dispensed with the batteries. Electric front-wheel-drive was retained, but the source of current was a Porsche-designed generator run by a Daimler gasoline engine. This car, the Lohner-Porsche "Mixed", had unlimited cruising range and a top speed in excess of 60 miles per hour. (The world speed record at the time was 79.4 m.p.h.)

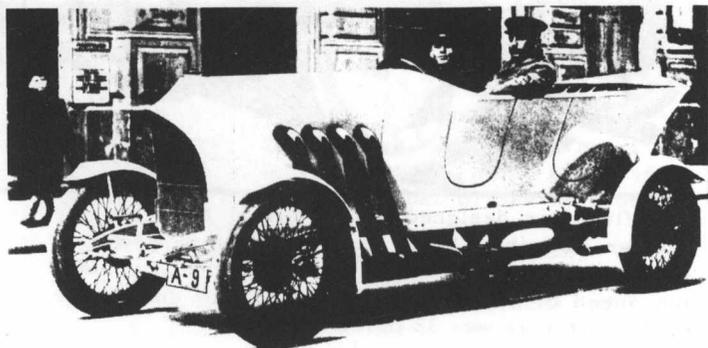


The first car designed by Ferdinand Porsche, the Lohner-Porsche Chaise of 1900. Battery powered, with an electric motor in each front hub, it had a top speed of 9 miles per hour. Range on one charge of the batteries was 32 miles.



The Lohner-Porsche "Mixed", introduced in 1901, retained the hub motors, but current was supplied by a generator driven by a gasoline engine. The top speed of this machine was about 60 miles per hour, and its cruising range was unlimited.

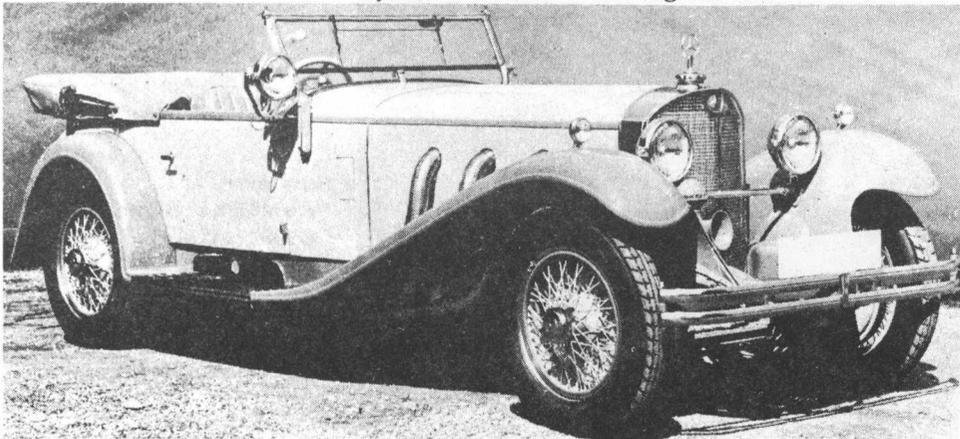
- 1902 Served his time in compulsory military service, as was required of all men of his age in Austria-Hungary. He was assigned to a regiment of which Archduke Franz Ferdinand was Colonel-in-Chief, and was ordered to bring one of his automobiles for trial. As driver for the Archduke he had an opportunity to really road-test his car. This led to improvements in many details when he resumed his work with Lohner.
- 1906 Ended his association with Lohner to become technical director at Oesterreichische-Daimler-Motoren-Werke, a company which later used the more manageable name of Austro-Daimler. Here he was responsible for production problems as well as vehicle design, and under his direction production was increased and workmanship improved. The cars were similar to the Lohner machines in that they used electric hub motors powered by an engine-driven generator. These were the last production automobiles in which this design was used.
- 1907 Porsche developed a car called the Maja, named for the second daughter of Herr Emil Jellinek who had substantial financial interests in automobile plants. (The German Daimler company in 1900 began building the Mercedes, named for Jellinek's first daughter.)
- 1908 Recognizing the ultimate possibilities of the tiny aircraft business of the time, Porsche established an aero-engine department at Austro-Daimler. The first engines were water cooled.
- 1910 One of Porsche's most famous early designs was the Austro-Daimler Model 22/80PS. Its 5.7 litre 95 h.p. engine had five valves per cylinder, one inlet and four exhaust, all operated by a single overhead camshaft. The car was designed to win the Prince Henry Tour, a seven-day trip over rugged territory. Austro-Daimler entered three cars, which won first, second and third places. Thereafter the 22/80 was known as the Prince Henry model.
- 1912 Designed a four-cylinder air cooled aircraft engine. Cylinders were horizontally opposed with push-rod operated overhead valves. It was in this engine that many of the details of the famous Volkswagen engine made their first appearance.
- 1915 The aero-engine department of Austro-Daimler produced Porsche-designed engines for use in World War I. These were built in a number of sizes, including a 360 horsepower 12 cylinder engine which had three banks of four cylinders.
- 1916 Porsche became managing director of Austro-Daimler.
- 1917 Awarded the honorary degree of Doctor of Engineering by the Vienna University.
- 1919 At the end of the war, Austria, no longer a part of the Austro-Hungarian Empire, was faced with difficult times. Employment at the Austro-Daimler plants dropped from 6,000 to less than 800.



The 1911 Austro-Daimler "Prince Henry"

Porsche wanted to build a small economical car, within reach of the lowered standard of living of the average Austrian, but the management insisted upon producing a large six-cylinder car for which the only real market was export sales. After a series of disagreements with the company's directors Porsche resigned.

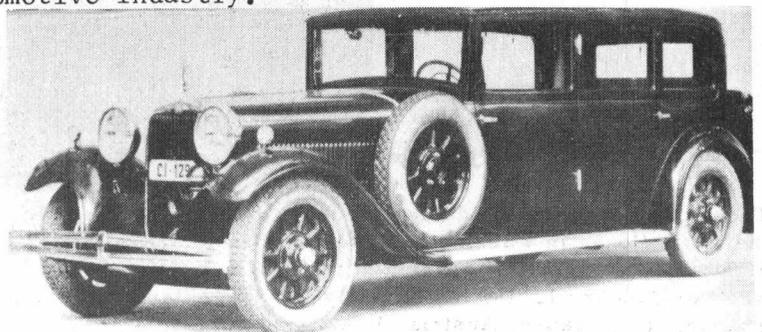
- 1923 Porsche moved to Stuttgart, Germany, where he was appointed technical director of Daimler-Motoren A.G.
- 1924 Porsche developed a six-cylinder 100 horsepower supercharged touring car which won the 1924 "Targa Florio" race. It was driven by Christian Werner. This was the first German car to win a post-war international event, and Porsche became a local hero. His name was entered in Stuttgart's "Golden Book", the highest honor the city could award, and the University of Stuttgart also awarded him his second honorary degree of Doctor of Engineering.
- 1926 Benz & Cie, of Mannheim, merged with Daimler Motoren; a sports car series was developed that had six-cylinder overhead camshaft engines and were known as Models S, SS, and SSK (all now highly prized classic sports cars); and design of small conventional one litre four-cylinder car was begun.



1928 Mercedes-Benz, Model SS

- 1927 First prototypes of small car were built. Porsche wanted to build 30 more for thorough testing and manufacturing study, but the plan was dropped, largely because of the objections of the Benz members of the Board. The controversy which followed led to the eventual resignation of Porsche.
- 1928 Porsche left Daimler-Benz in October.
- 1929 Porsche joined Steyr-Werke, A.G., at Steyr, Austria, on January 2, 1929. Here he designed a two-litre Six, the Steyr "30", which was built until 1935 with few modifications. Also in 1929 he designed the Steyr "Austria", a large 5.3 litre eight-cylinder car, but Steyr's financial position was shaky, and the "Austria" was produced for only a few months. Porsche resigned, returned to Stuttgart, and established himself as a consultant to the automotive industry.

The Steyr "Austria" model, a 100 h.p. 8-cylinder car, as it appeared at the Paris Automobile Show in 1929. When Porsche left Steyr A.G. this model was discontinued, even though orders remained unfilled.

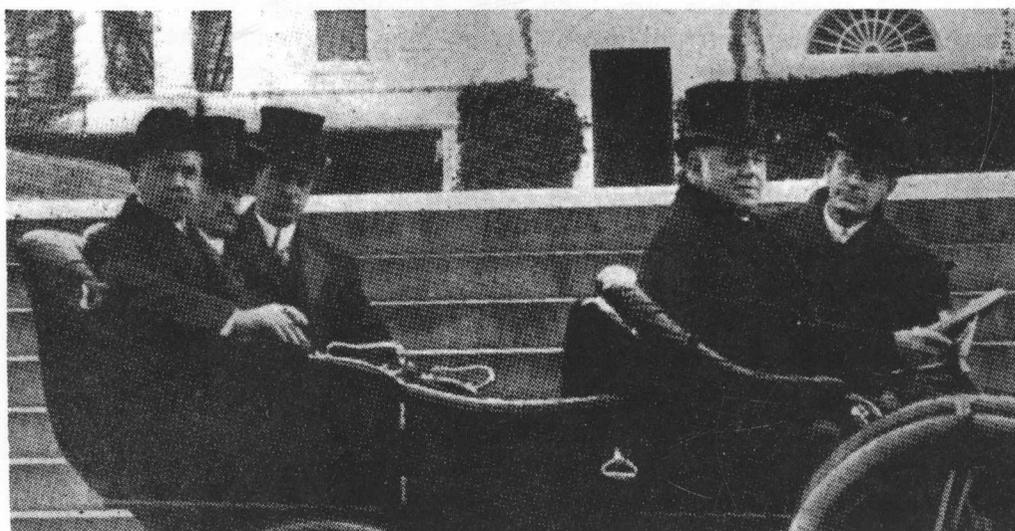


- 1930 Porsche spent several months selecting a staff and establishing an office, which opened for business on December 1.
- 1931 In addition to work for various clients, work was begun on the design of a small car. This was known as Project No. 12. Many details of construction were considered, weighed one against another, reasons for and against examined, until finally a pattern emerged. Porsche's small car would have an air-cooled engine at the rear, behind the axle for accessibility. The transmission would be ahead of the axle for better weight distribution. All four wheels would be independently sprung by means of torsion bars.

◆ ◆ ◆ ◆ ◆

The second half of this chronology, to be published in the next issue of AHR, will discuss Porsche's activities as a consultant, and the evolution of Project 12 into the Volkswagen.

## SEVEN PROMINENT AUTO MAKERS OF 1907

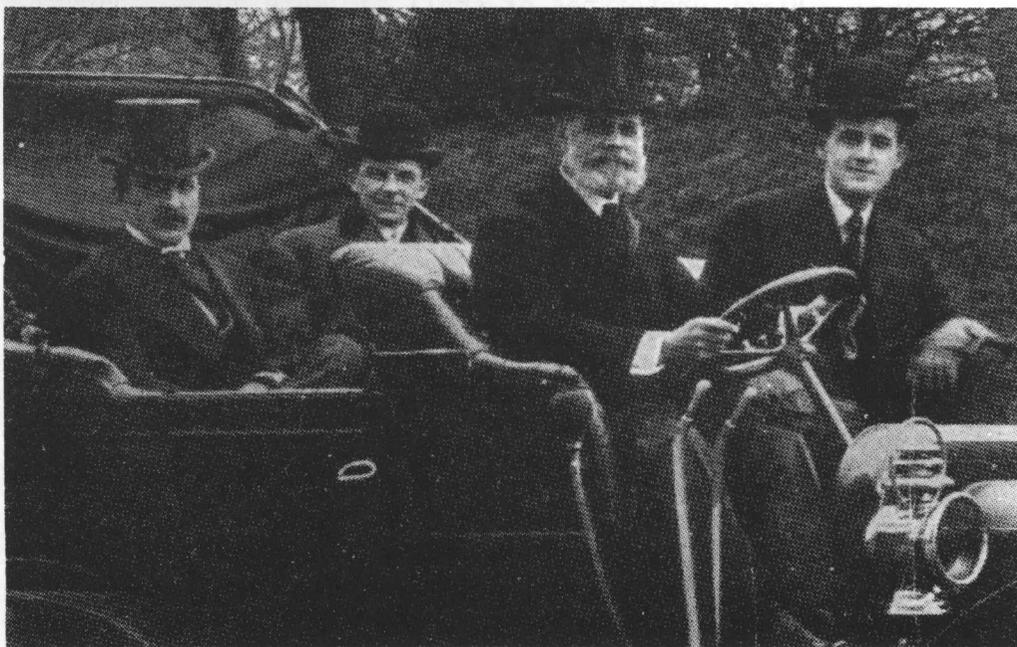


At the wheel:  
George N. Pierce

In tonneau (l to r):  
Alexander Winton  
C. R. Mabley  
E. R. Thomas

At the wheel:  
Col. George Pope

In tonneau:  
H. H. Franklin (l)  
G. M. Studebaker (r)



These pictures show the delegation from the Association of Licensed Automobile Manufacturers' on the grounds of the White House in Washington. The purpose of their visit was to solicit President Theodore Roosevelt and other dignitaries to attend the opening of the 1907 automobile show in Madison Square Garden, New York City, during the week of January 12 19. Invitations were also extended to the heads of state and ambassadors of England, Germany, France, Italy, Japan, Austria, Brazil and Mexico.

# *J. J. Cole and the Founding of the Cole Motor Car Company* by Robert F. Croll, D.B.A., D.Litt.

Early in the Twentieth Century, when Peerless, Packard, and many other firms were struggling to establish themselves in the fledgling automobile industry, the concern which was to become the Cole Motor Car Company did not even exist. Its predecessor, Gates-Osborne Carriage Company, was not organized until August 21, 1902.<sup>1</sup> Gates-Osborne was organized to produce horse-drawn wagons and carriages only. The company was located in Indianapolis, one of the centers of this country's carriage production. The total paid-in capitalization was \$25,000, and L. M. Osborne was elected president of the new organization.

The firm was an immediate success and operated at capacity throughout 1903. This success continued during 1904. Osborne's salary was increased from \$1,200 to \$1,500 a year, and a 100 per cent stock dividend was declared on August 16, 1904. The company had doubled its net worth in two years.

Control of the business was sold on November 15, 1904, to Joseph J. Cole, the man who was later to give his name to the firm. Cole purchased 250 of the existing 500 shares of stock and became the president. His friend Lee Watson secured 125 of the shares and became secretary-treasurer, while F. E. Gates, one of the original founders of the carriage company, retained his 125 shares and his position as vice-president. The stock was sold to Cole and Watson at par, which was \$100 per share.

J. J. Cole was a carriage salesman by trade. He was first associated with the Parry Manufacturing Company, one of the largest carriage companies in Indianapolis. He had, during his association with that firm, risen to the position of sales manager of the Philadelphia retail branch. Later, Cole left Parry to take a sales position with the Moon Brothers' Carriage Company of St. Louis.<sup>2</sup> He did so well with Moon that he became secretary of the enterprise in 1901.

Cole, at the age of 35 with 16 years in the carriage business and \$25,000 in savings, decided to go into business for himself. Together with a Texas hardware dealer named Lee Watson, Cole began to search for an established carriage business which he and Watson could purchase control of with the \$37,500 they had between them. Cole and Watson found what they were looking for in the Gates-Osborne Carriage Company.

After taking control of the carriage company, Cole continued to operate it under its old name until September 6, 1905. On that date F. E. Gates' shares were purchased by Cole and his salesman, S. J. Kuqua, who replaced Gates as vice-president. December 4 of the same year saw the firm's name changed to the Cole Carriage Company.

The Cole Carriage Company prospered during the first year under its new name, and profits in the



J. J. COLE (*Munsey's Magazine*, August, 1912)

amount of \$11,063.57 were reported by the president on September 9, 1906. A stock dividend of \$7,500 was declared on that date. Also, the president's salary was raised to \$2,500 a year, and a cash dividend of \$8,000 declared eight days later.<sup>3</sup>

The Cole Carriage Company produced a complete line of horse-drawn pleasure vehicles. The 1907 catalog listed 49 models consisting of 16 surreys, 4 phaetons, 28 driving wagons, and the "cozy cab," a patented convertible model. The firm's largest market existed in the state of Texas and in the Southwest generally. Output was marketed through salesmen selling to local dealers.

Business was good for the first three quarters of 1907 before the economy suffered the famous slump of that year. On September 9, 1907, the company declared a cash dividend of \$20,000. The Cole Carriage Company produced about 3,000 vehicles during 1907 but had a capacity of at least 3,600 units.<sup>4</sup> The recession reduced demand for carriages during the last quarter of 1907. This recession was responsible for many carriage companies taking a close look at the automobile industry. The automobile industry was so little affected by the recession that it could hardly escape the notice of a number of carriage companies with excess capacity and seemingly easy access into the industry.

<sup>1</sup> Most of the information upon which this section of the paper is based came from the records of the Gates-Osborne Carriage Company and the Cole Carriage Company.

<sup>2</sup> Both Moon and Parry attempted to enter the automobile industry at a later date. Parry had almost no success, while Moon was, until approximately 1930, an established automobile manufacturer.

<sup>3</sup> Minutes of the Board of Directors' meeting September 9, 1906, of the Cole Carriage Company.

<sup>4</sup> Howard R. DeLancy, "The Cole Motor Car Company," *Business History Review*, Vol. XXX, No. 3, (September, 1956), pp. 260-273.

Entry into the automobile industry for established carriage companies was now easier than it had ever been in the past. A parts manufacturing industry had by this time grown up to serve motor vehicle producers. This group of parts suppliers had early discovered the economies of scale involved in their businesses and had begun to offer standardized components. Thus, a carriage concern had only to hire an engineer, design a car using standard parts, order the parts, assemble their product, and sell it to the same carriage dealers, who were now handling automobiles. The automobile business seemed very similar to the carriage business. The automobile, after all, seemed hardly more than a self-propelled carriage.<sup>5</sup>

This seemed especially true of the "high-wheeler," a special design for the rural market where most Midwestern carriage firms sold their products. An established carriage company also, presumably, had an established line of credit, a certain knowledge of assembly techniques, a factory, and contacts with rural carriage dealers. Thus, countless carriage concerns were taking up the production of high wheeler automobiles by 1908.<sup>6</sup>

*Horseless Age* warned the carriage industry time and again that entry was not as easy as it appeared; that profits on the average were not so large as made out in the public press; and that, in reality, certain comparative advantages probably lay in building automobile bodies rather than in automobile manufacture itself. Few seemed to have listened since there were over 200 different firms producing high wheelers between 1908 and 1910. The Cole Carriage Company was one of these concerns.

J. J. Cole secured permission from the Board of Directors to build a prototype "high-wheeled" automobile early in 1908. The firm secured the assistance of Charles S. Crawford, a graduate engineer, formerly with Lozier Automobile Company and the Speed Changing Pulley Company of Indianapolis, as chief engineer.<sup>7</sup> The first car was assembled from standard parts in one of the stables of J. J. Cole's neighbor. It was ready for inspection by the Board of Directors on October 9, 1908.

The first Cole automobile was a "high-wheeled" vehicle powered by a two-cylinder, 14 horsepower engine and equipped with solid tires. The car could seat up to four persons and travel at a maximum speed of 20 miles per hour. All parts were purchased as complete components and were to be assembled in the company plant much as the prototype had been.

The Board of Directors received this new product with mixed emotions.<sup>8</sup> They did not, on principle, care much for it, but after the report on the poor condition of the carriage business, they were ready to try it on a limited basis -- providing it did not compete with carriage produc-

tion. A separate division of the firm was set up to manufacture the automobile. A former stable was rented to assemble the car, and production began.

The cars sold for between \$725 and \$775.<sup>9</sup> They were to be assembled as orders were received. A deposit of 20 per cent was required at the time of ordering with the remaining cash to be paid on delivery. The solid-tired first Cole was not a success; the firm lost a little money on the 170 cars which were assembled during the seven months the model was offered.<sup>10</sup> It became obvious that the design of the car was not acceptable; that the automobile business was not just like the carriage business; that the Cole Carriage Company could not engage in both businesses at the same time; and that the future of the carriage industry was limited. Furthermore, automobiles could not be sold through the same channels as carriages, and they could not be designed and built in the same manner. The Cole Carriage Company learned a lot about the automobile industry in seven months while producing its first 170 vehicles.

Nevertheless, Cole Company was in the automobile business, and its future was there. Even though that future did not look extremely bright, it was even bleaker in the carriage industry. Thus the decision was made to build a second model. This time it was to be an imitation of a currently successful and more modern automobile design. Crawford began work on a second design for the Cole Carriage Company shortly after the first high-wheeled vehicles had been produced.

J. J. Cole was the Cole Carriage Company. He knew little or nothing about automobiles and almost everything about carriages. However, the carriage business was dying in Indianapolis, and the Cole Carriage Company was dying with it. The carriage company had an established line of credit, a small amount of capital, and a competent engineer. It was, of course, handicapped by its relatively meager financial resources to use in competing against firms with six to eight years of experience, greater public acceptance, and far more substantial capitalization. However, the industry was expanding and perhaps there would be enough business for all.

The decision to put all of Cole's eggs in one basket had not been made at the end of 1908. Cole was attempting to support a carriage business and design and build an automobile on less than \$100,000 in working capital. It was certain that 1909 would be a year of decision, for it was in that year that the Cole firm was fully transformed from a carriage producer to a manufacturer of high quality automobiles.



<sup>5</sup> A similar policy of assembling automobiles had been tried about 1900 by a number of firms. They had failed to achieve success, but there were no standard components especially designed for automobiles at that time. And carriage components, it was found, did not work satisfactorily.

<sup>6</sup> *Horseless Age*, January 17, 1908, p. 710.

<sup>7</sup> *Ibid*, July 24, 1907, p. 129.

<sup>8</sup> Lee Watson, in particular, did not approve of the production of automobiles and left the firm when entry into the automobile industry was approved.

<sup>9</sup> *Horseless Age*, December 16, 1908, p. 879.

<sup>10</sup> Cole was the seventeenth carriage concern in Indiana to take up the production of automobiles.

## THE COLE MOTOR CAR COMPANY - ITS PLANT AND ITS PRODUCTS

The following is a condensation of an article published in Issue No. 1 of The Road To Yesterday. Modified and brought up to date, it is a brief account of the affairs of the Cole Motor Car Company following its transformation from carriage to automobile building, as described in the preceding article by Dr. Robert F. Croll.

Just a few blocks east of the downtown business section of Indianapolis stands the main plant of what was the Cole Motor Car Company. This company, which had not produced a car since October, 1924, was still a going concern until late 1967. It was headed by Joseph J. Cole, grandson of the original J. J. Cole who established the business.

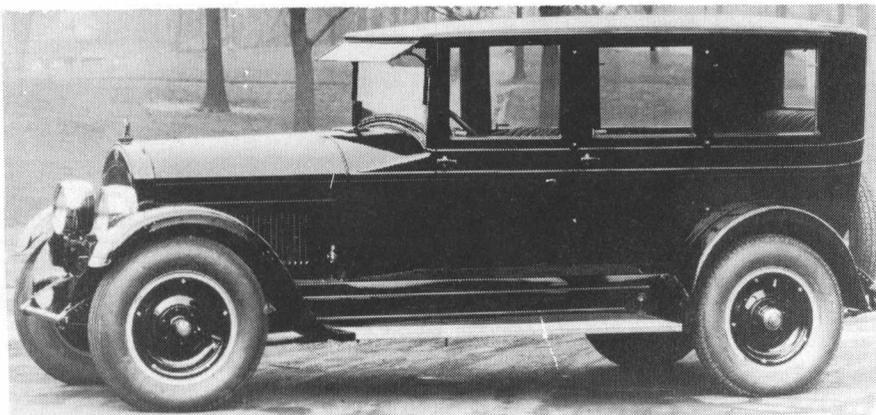
Following the cessation of automobile production, the Cole office buildings were rented as office space to smaller companies. The manufacturing areas were likewise subdivided into smaller sections that were occupied by machine shops and various manufacturing concerns. The name of the Cole Motor Car Company remained prominently displayed in large letters that spanned most of the length of the main building.

Late in 1967 assets of the Cole company were liquidated, and proceeds were shared by the stockholders. The buildings themselves were acquired by the Service Supply Company, Inc., distributors of an enormous variety of standard and special bolts, screws, nuts and other fastening devices. The new owners occupied the buildings in 1968.

The company produced its first cars in 1908. These bore a strong resemblance to old-fashioned buggies, with large wood-spoke wheels and solid rubber tires, although the engine in a Cole car was mounted in front under a hood and steering was accomplished by means of a wheel. Less than fifty of these cars were built. None are known to exist today.

Real production got under way in 1909 with a medium-sized four-cylinder car equipped with pneumatic tires. The car was priced at \$1500. It was among the first to have demountable rims as standard equipment.

A modification of the Model 30 was the Cole Flyer. In a ten day racing event at Los Angeles a Cole Flyer driven by Wild Bill Endicott won three of the ten races, with an average speed of just over 68 miles per hour. Another 1910 Cole averaged 23 miles per gallon of gasoline during an economy run at Atlanta, Georgia.



1925 Cole Sedan, actually built in 1924, the last of a proud line.  
(Photo from the collection of Stanley K. Yost)

In 1910 the plant was enlarged and production capacity increased to 4000 cars per year, although this figure was not attained until 1916. The Model 30 Cole of 1910 had front doors, a feature which was not found on most makes until a year or two later.

To make room for increased production, the plant was enlarged two more times, first in 1914 and again in 1921. The company built four and six-cylinder models until 1915. Beginning in 1916 all Cole cars were equipped with eight-cylinder V-type engines.

The Cole was an assembled car, built of components supplied by other manufacturers. Engines were made by Northway to specifications set forth by Mr. Cole, who designed most of the parts in the car and created all of the body designs.

Beginning in 1914 the cars were put together on a progressive assembly line. This was not a powered conveyor system, but instead each chassis was carried on a six-wheeled dolly and pushed from each assembly station to the next.

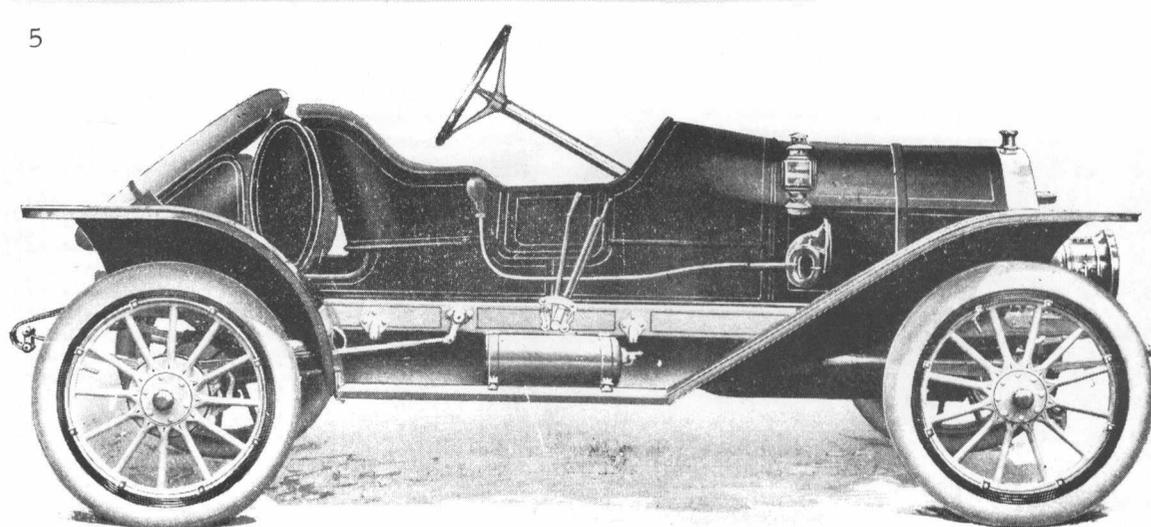
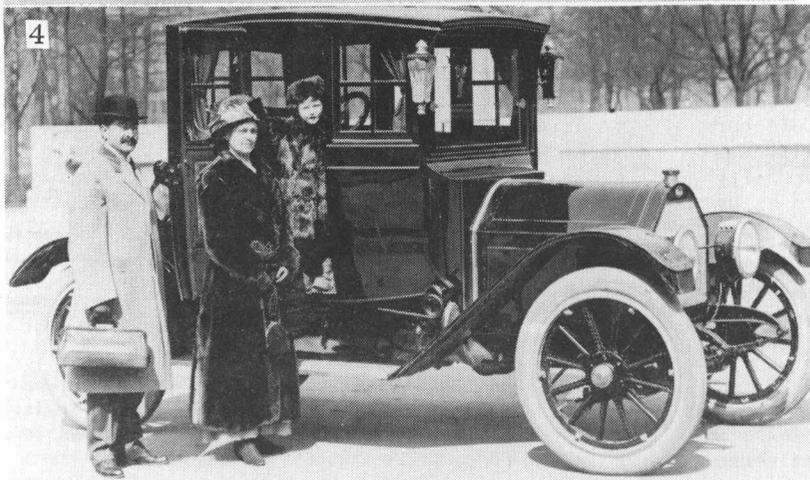
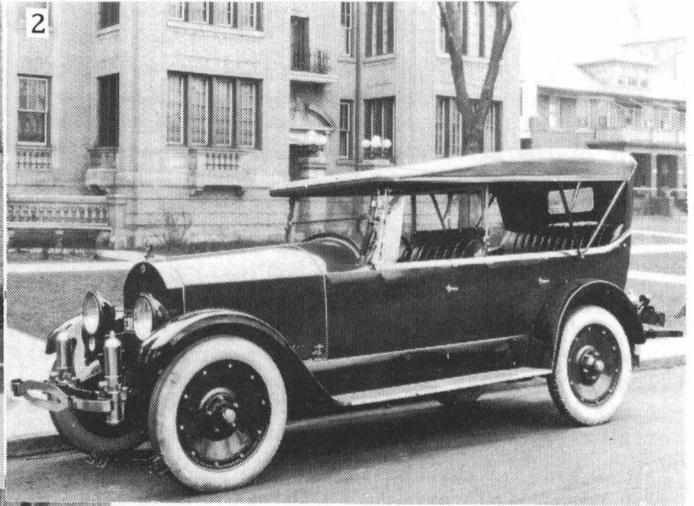
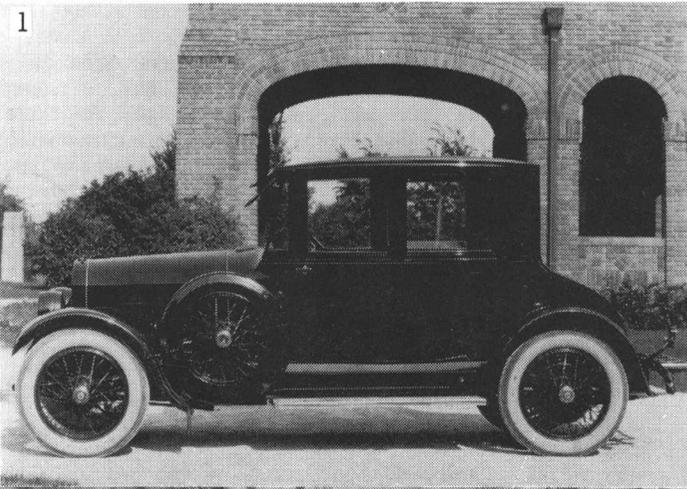
By 1919 Cole was second only to Cadillac as a builder of high-quality automobiles. Many of their cars were sold abroad, especially in the Far East. As late as 1946 the company received a request for repair parts from China. This was for a car owned by Generalissimo Chiang Kai-Shek. In 1956 a firm in Turkey wrote to the Cole factory seeking an exclusive dealership.

After 1919 there were only five more years of full production. By 1925 the Cole Motor Car Company was no longer building automobiles, although some advertising was done in that year, and trade magazines included pictures of Cole automobiles along with other 1925 models. This was done, of course, to dispose of the remaining inventory of cars. For this reason many rosters of auto makers state that Cole's last production year was 1925.

### COLE PRODUCTION FIGURES

The following information, sent to AHR by G. Marshall Naul, is from an article in Business History Review, Vol. 30, No. 3, September, 1956, entitled "The Cole Motor Car Company", by Howard R. DeLancy.

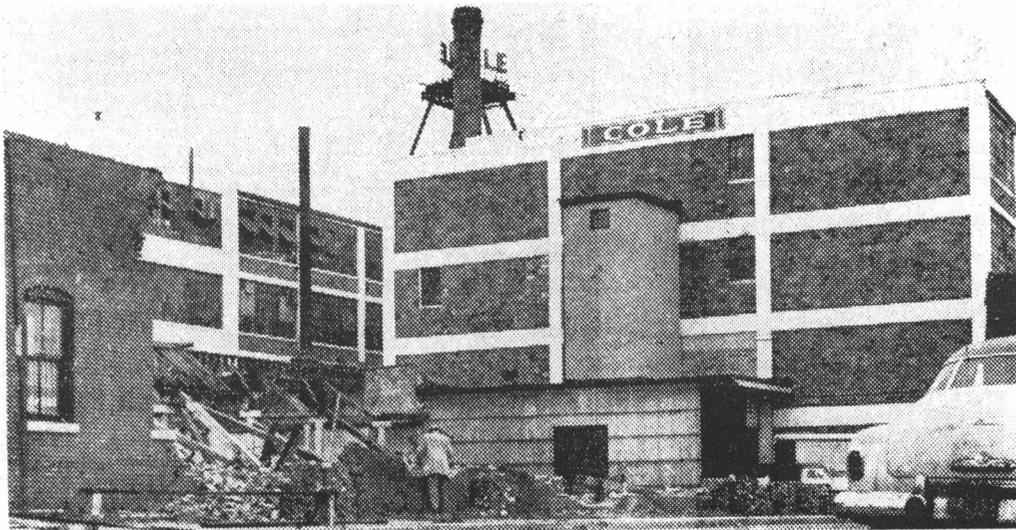
Oct. 1908 - May 1909 . . . . .	170
September 1909 . . . . .	6
October . . . . .	30
November . . . . .	42
December . . . . .	33
1910 . . . . .	783
1911 . . . . .	1316
1912 . . . . .	1991
1913 . . . . .	3547
1914 . . . . .	1748
1915 . . . . .	2703
1916 . . . . .	4445
1917 . . . . .	?
1918 . . . . .	2439
1919 . . . . .	6255
1920 . . . . .	2606
1921 . . . . .	1722
1922 . . . . .	?
1923 . . . . .	1522
1924 . . . . .	632
Production discontinued October, 1924	



## A PAGE OF COLES

1. 1923 Opera Coupe
2. 1921 Touring Car.  
Note Westinghouse  
Air Springs, dual  
windshields.
3. 1918 Touring Car.  
J. J. Cole at the  
wheel.
4. 1913 30 - 40 H. P.  
Colonial Coupe.
5. 1909 Cole 30, as  
advertised in Motor  
Age magazine of  
December 2, 1909.

All pictures  
on this page  
are from the  
collection of  
Stan Yost.



Wreckers demolish plant that saw birth of the Cole Motor Car.

## Cole Autos Unlikely To Sit in This Lot

Workmen are wrecking one of the original buildings of the defunct Cole Carriage & Motor Car Manufacturing Co. to make way for a parking lot.

The brick structure at E. Washington and Davidson was built before the turn of the century and was once a stage-coach stop, according to Joseph J. Cole, president of the Cole Motor Car Co. The firm is now an industrial real estate leasing and management company.

**COLE'S** grandfather, J. J. Cole, first rented the build-

ing about 1909 when it was a livery stable. He built carriages and experimented with some of his first cars there.

In 1911, when business of the Cole Motor Car Co. began booming, Cole purchased the building and surrounding property.

He constructed a \$100,000 building directly behind the old brick structure for auto manufacturing.

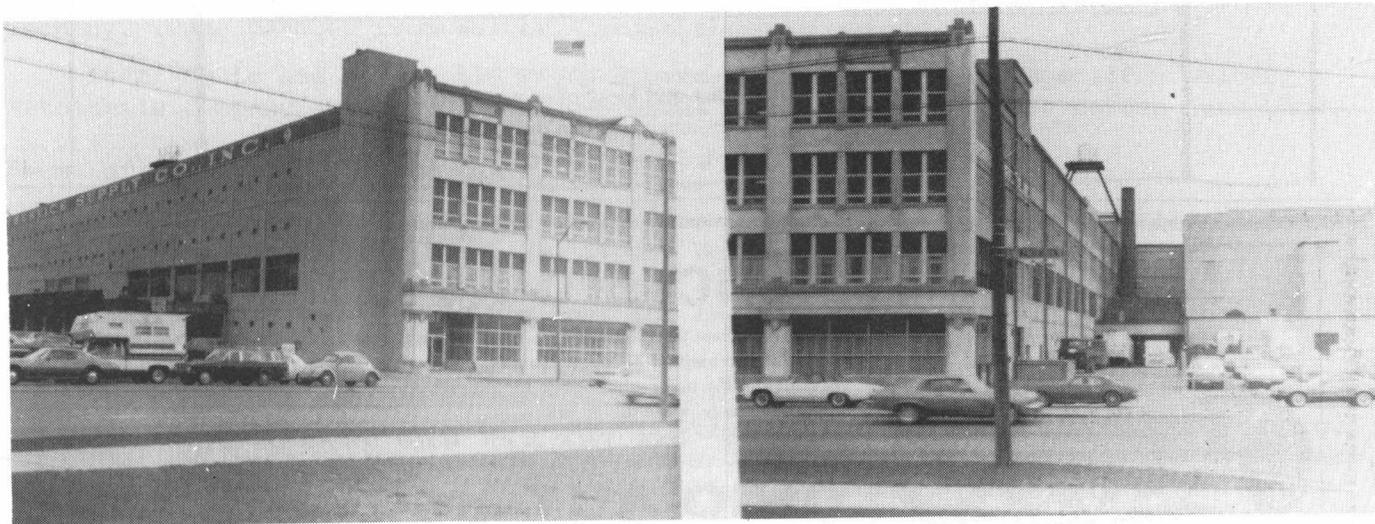
**IT WAS THE** first in the large complex of Cole buildings in the 700 block of E.

Washington between the Belt Railroad crossing at College and Davidson, which now house several companies, including the George F. Cram Co. plant.

The brick structure has been vacant, after being used as a warehouse for several years. Cole said the building is being demolished because it will not support the high taxes on it.

The building site will be left vacant for use as a parking lot, he said.

This item is from the collection of the late Alexander Telatco. It was originally printed in the *Indianapolis Star*. The date of this clipping was not noted, but it probably appeared in 1961.



The main buildings of the Cole Motor Car Company as they appeared in the spring of 1975. The parking lot shown in the left-hand picture was the site of the first Cole factory building. Regrettably, all traces of the Cole name have been removed from the remaining buildings.

# ASK THE MAN WHO OWNS ONE

In Issue No. 2 of AHR, Dr. William F. Northrup, Jr., raised the question as to when the slogan "Ask the Man Who Owns One" was first used in Packard advertising. A prompt reply came from Harry Pulfer, La Crescenta, California, who sent in a badly battered portion of the front cover from the November 7, 1901, issue of "The Cycle Age and Trade Review" with part of a Packard advertisement included. In restored form, that item is reproduced herewith.

Note, however, that the words 'Ask the Man Who Owns One' are used simply as a sentence and not necessarily as a slogan. The ad reproduced at the bottom of the page indicates that this phrase was used as a slogan as early as March, 1902.

Now, does anyone know of an even earlier use of ATMWOO in Packard ads?

## THE CYCLE AGE AND TRADE REVIEW

Entered at Chicago Post Office as Second-Class Matter. Published every Thursday by the Cycle Age Co., 324 Dearborn Street, Chicago. Eastern Office, 150 Nassau Street, New York.  
Subscription—Domestic, \$2.00; Foreign, \$4.00.

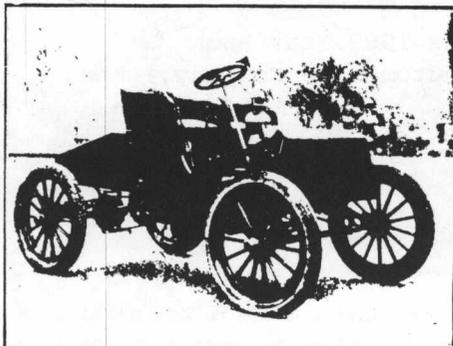
Vol. XXVIII—No. 2

CHICAGO, NOV. 7, 1901

New Series No. 207

# Packards

Are built for combined *reliability* and *speed* over any roads. Ask the man who owns one. Our machines can and do *prove their efficiency* in every detail. Descriptive catalogue free. :: ::



Packard Touring Car. Model F.

## Packard Automobiles

are built for those to whom tried out efficiency is the first requisite. Past achievements speak for themselves. Brought strictly up to date and the acme of simplicity and reliability. We make no attempt to compete on prices. If you are interested in this kind of carriage write us, or better,

*ASK THE MAN WHO OWNS ONE.*

**OHIO AUTOMOBILE CO.**  
Warren, Ohio.

Eastern Department: **ADAMS, McMURTRY COMPANY, 317 West 59th St., New York.**

Boston Agency: H. B. SHATTUCK & SON, 239 Columbus Ave., Boston, Mass.

Packard advertisement in MOTOR AGE, March, 1902.

## RANDOM NOTES ON THE ROEBLING-PLANCHE

The items concerning the history of the Walter Automobile Company, published in the first two issues of Automotive History Review, have brought to light many bits of information, some almost unknown and others distorted over the years as a result of inaccurate reporting.

The date of the first Walter car has been pushed back to 1898. The names of "American Chocolate" and "Waltomobile", which appear in rosters from time to time, were never used, according to the descendants of Mr. William Walter. Etienne Planche and Louis Chevrolet were both former employees of the Walter Automobile.

It has been common knowledge that the Walter Automobile Company became the Mercer Automobile Company, and that the Walter name continues to this day as the Walter Motor Truck Company. But there has persisted a hazy period between Walter and Mercer in which the name Roebing-Planche appeared. Many automotive historians (your editor among them) were of the opinion that there was a fairly simple, straight-line transition from Walter to Roebing-Planche to Mercer, with a short-lived Roebing-Planche as the connecting link between the others. But it wasn't all that simple.

Requests for information have brought a response, in bits and pieces, from several of our members, and selected parts of this response follow.

From Frank T. Snyder, Jr., Chandler, Arizona:

I have enclosed a negative of the Roebing-Planche racing car. (See following page. Ed.) I believe that Roebing-Planche and Sharp Arrow were very closely tied together. If you will check Horseless Age, 10/21/08, page 570 "John A. Roebing Co. contracts with W. H. Sharp to manufacture the car which Sharp constructed and drove in the Long Island Sweepstakes". Roebing's first contract with Sharp was for ten cars.

Item: (Also from Horseless Age, 10/21/08) "Washington A. Roebing to build ten 4-cylinder cars with the 7" x 6" bore and stroke engines after designs by Etienne Planche, to be known as the Roebing-Planche 140 h.p."

Item: Roebing-Planche (1909), Walter Automobile Company, Trenton, New Jersey. Description and illustration, Model P, MoToR magazine, January, 1909. Specifications only for Model M.

Item: Duryea's list of auto makers in MoToR, March, 1909, lists Roebing-Planche Company. (Name changed from Walter Automobile Company).

Item: Cycle and Automobile Trade Journal, February, 1909, page 110 - Walter Automobile Company exhibits Roebing-Planche car at Madison Square Garden Auto Show.

From Karl Ludvigsen, Pelham Manor, New York:

Letter to Mr. Ludvigsen from Mr. William L. Scherer, of the Automobile Manufacturers Association, Inc. (Sept. 22, 1965) "We found that Mr. Planche was the designer of the Roebing-Planche automobile and was listed in the 1909 Year Book Motor Cyclopaedia as General Manager and Designer for the Walter Automobile Company, then of Trenton, New Jersey".

Letter to Mr. Ludvigsen from Mr. Maurice Walter, Walter Motor Truck Company (October 18, 1965) ".....in regard to Mr. Etienne Planche, as I recall he worked for my father, William Walter, in New York about 1906 and 1907 as a draftsman. When operations were started in the Tranton plant he was transferred there. About the time that production was started on the Mercer car at the Trenton plant, I heard about the Roebing-Planche automobile and understood that one of the Roebings was backing Planche on this new car. As I recall, this was a large, powerful car but I believe only two were built".

Item: The Automobile, January 21, 1909, page 148, "Roebbling-Planche built by the Walter Automobile Company, Trenton, New Jersey.

Item: Motor Age, September 10, 1908. "The Motor Car Specialty Co., Trenton, New Jersey, is marketing the Planche four-cylinder air-cooled motor, which is looked upon as one of the smallest machines of its type manufactured in this country." Designed for motorcycle applications, this little engine had a bore of 2 1/16 inches and a stroke of 2 1/4 inches. It weighed only 54 pounds, produced 6 h.p. at 2000 rpm

From Frederick D. Roe, Holliston, Mass.:

Item: From "The Golden Age of the American Racing Car", pages 99-100, "Needing larger facilities Walter built a plant at Trenton, N. J., to which Planche was transferred. By 1908 he had the title of General Manager and Designer for the Walter company. In that year he designed a jewel of an air-cooled in-line four-cylinder motorcycle engine which was marketed by another firm. A Walter offshoot was the Roebbling-Planche car of 1909.....and then, early in 1910, the Mercer Automobile Company flowered from these sources.

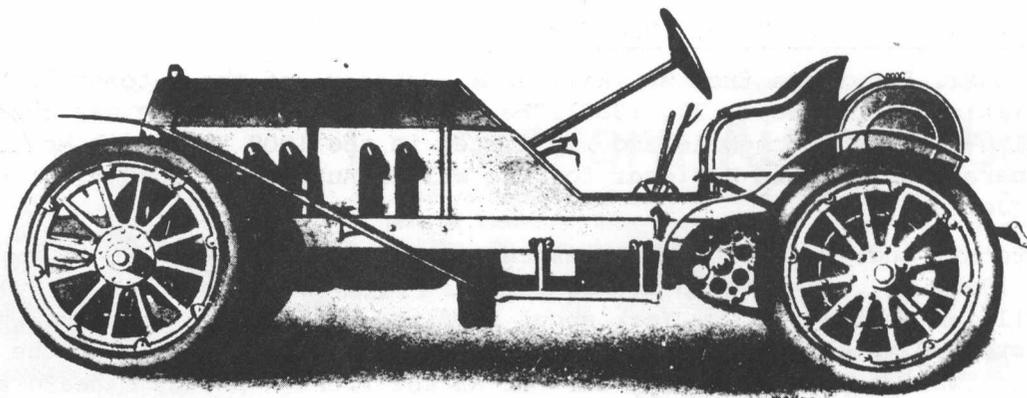
"Planche's role in the creation of the immortal T-head Mercer Raceabout is not clear, particularly since C. G. Roebbling and Finley R. Porter both outranked him in the firm's engineering hierarchy".

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How did the Walter Automobile Company become involved with the Roebbling-Planche car? After the company moved from New York to Trenton the affairs of Walter and the Roebblings began to overlap. The John A. Roebbling Company had entered the automobile business by means of a contract to build ten cars for W. H. Sharp (Sharp Arrow). Washington A. Roebbling II had become the secretary of the Walter company. Etienne Planche, obviously a prolific designer, was employed by Walter but seems to have been doing some design work on his own.

All of the parts were there. The Roebblings were interested in making cars, Planche had the design and Walter had a factory. The only Roebbling-Planche cars ever built were made by the Walter Automobile Company, and apparently there were only two of them. The short-lived Roebbling-Planche Company was organized early in 1909, but there seems to have been no production.

By 1910 the Walter Automobile Company had become the Mercer Automobile Company. Shortly thereafter Planche left the company to join Louis Chevrolet in Detroit in designing the first Chevrolet car. In 1915 Planche became chief engineer of the Dort Motor Car Company where he remained until 1923.



Roebbling-Planche Racing Car

# THE SILENT WONDER

by STANLEY K. YOST

In the deep, dark secret files of most auto history buffs there has to be one item that touches the imagination and brings to light something that maybe Keith Marvin didn't know about. Keith and I have run a parallel for lots of years now, and I know that eventually we will run out of names.

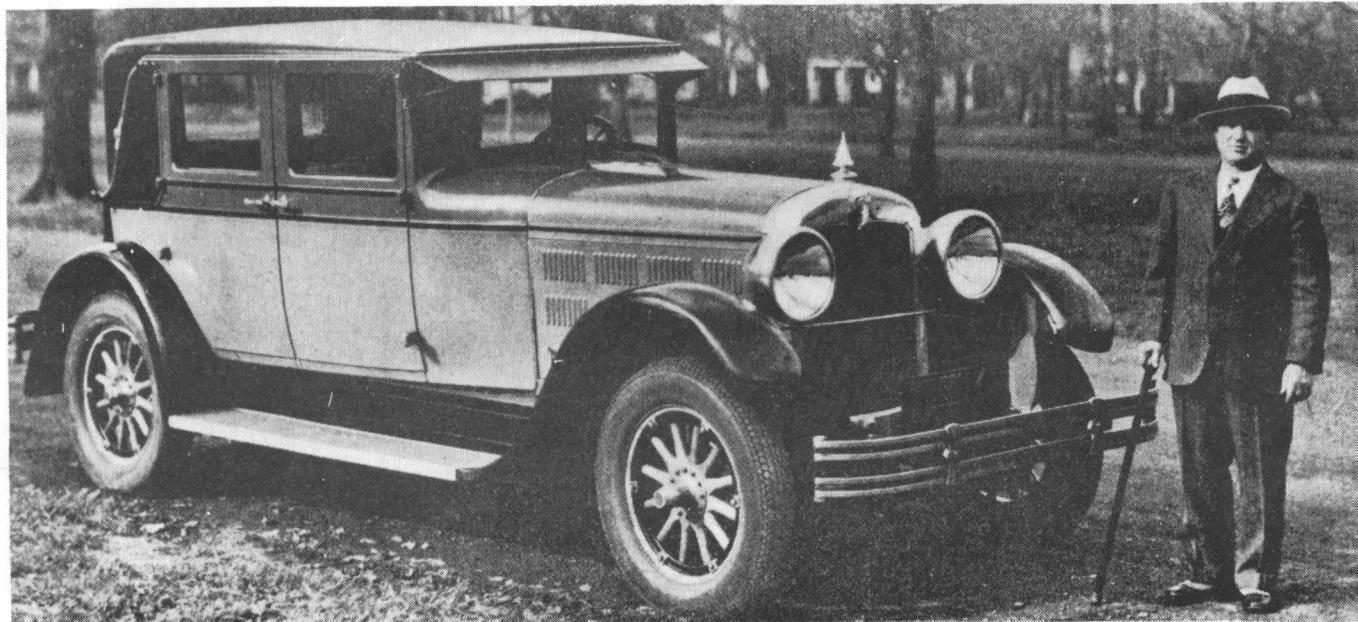
The title of this article could be construed to mean "I Wonder Why It Is Silent" or "It Is a Wonder It Is Silent" or "No Wonder It Was Silent". At any rate, the silent, valveless economical Willis "9" was a reality. With the help of a good metal cutting saw you could also have a Willis "7", a Willis "5" or a Willis "3".

Now, to get down to basic things, the Willis Motors Corporation was formed in the spring of 1928 by an enterprising group of men from the Chicago area. The corporation was based on the patents, ideas and working models of Durward E. Willis of New York City. The new company was incorporated under the laws of the State of Delaware on June 8, 1928. The papers were all-inclusive, and authorized the company to manufacture complete cars, trucks, airplanes, motors and accessories. This was pretty much standard procedure. It gave them broad coverage when they didn't know what was going to happen next.

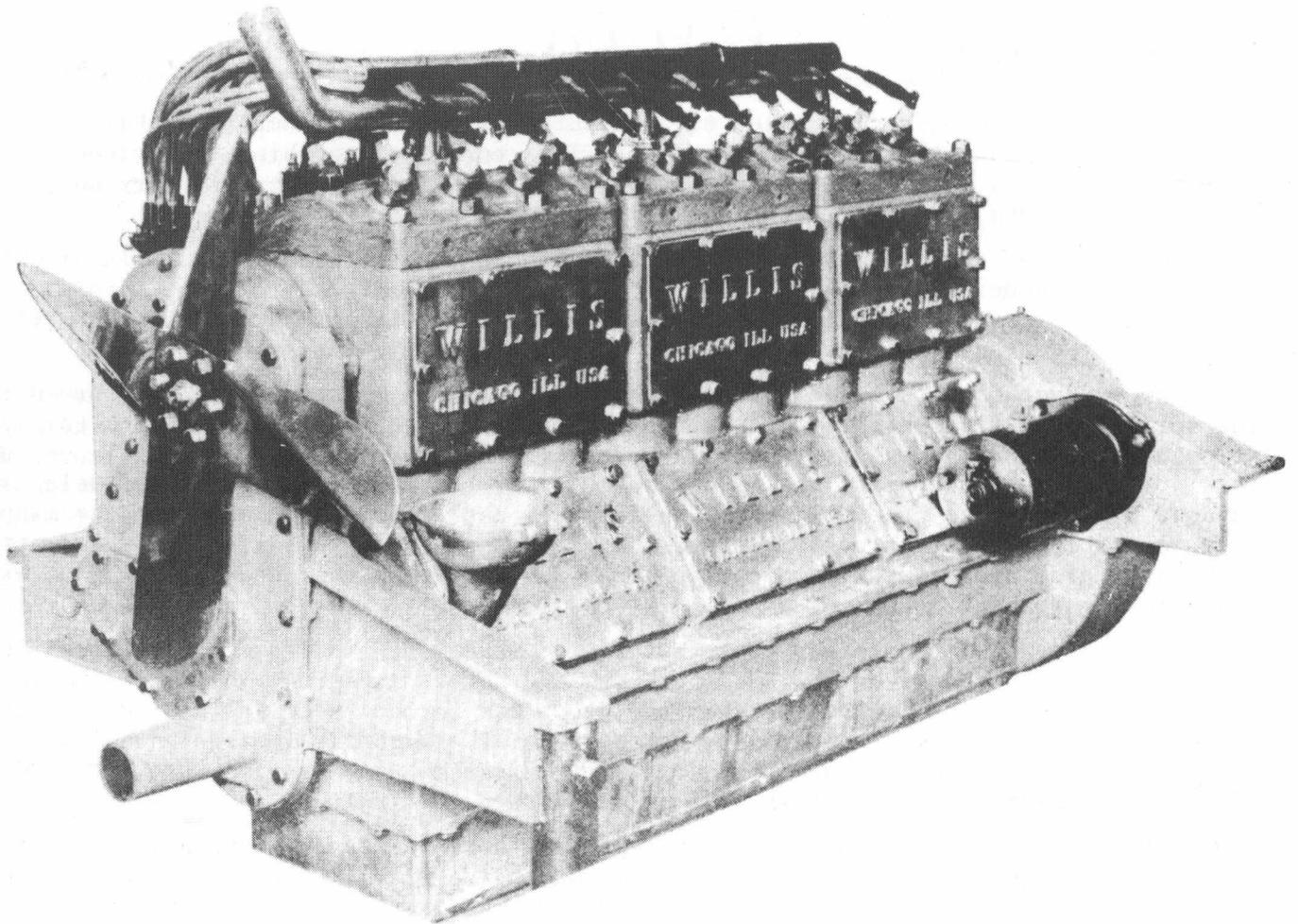
The officers of the company were automotive unknowns, and came from diversified areas of the business community. There was the necessary sprinkling of politicians and heads of commercial ventures. When the group was formed there was already a car on the road, and a number of engines had been built. When the idea of an odd number of cylinders is presented, an old flying man like me immediately conjures up a radial of some sort. Not so, says Willis, this is an in-line!

Let's face it - more than a few eyebrows were raised on that one, so our man Durward proceeded to explain his theory. In an engine with an even number of cylinders there are two pistons traveling together and they must alternate in their firing, resulting in twice the inertia from stopping and starting the combined weights of the two pistons. But with an odd number of cylinders, each piston moves into firing position independently, much as they would in a radial engine. The secret was proper crankshaft balance. A vibration dampener was not used, and the cylinders were cast in blocks of three. The firing order was arranged so that an explosion in Block One was followed after 80 degrees of crank rotation by an explosion in Block Two, and again 80 degrees later by another in Block Three. Follow? In two complete revolutions of

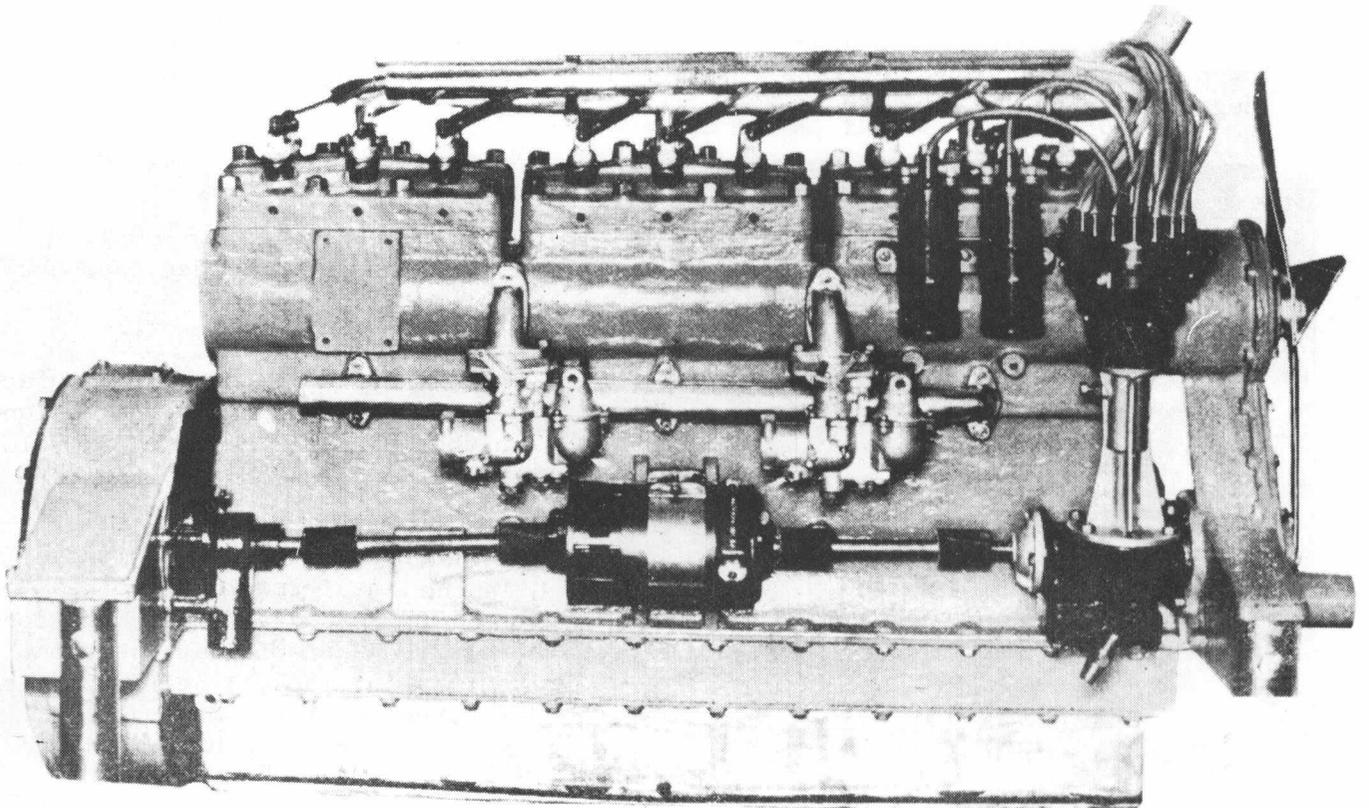
~>



The first Nine-In-Line automobile in the world, a converted Gardner brougham. Note disguised radiator shell.



The 9-Cylinder Willis Engine, left side (above) and right side (below).  
Note dual distributor, two coils, and two spark plugs per cylinder.



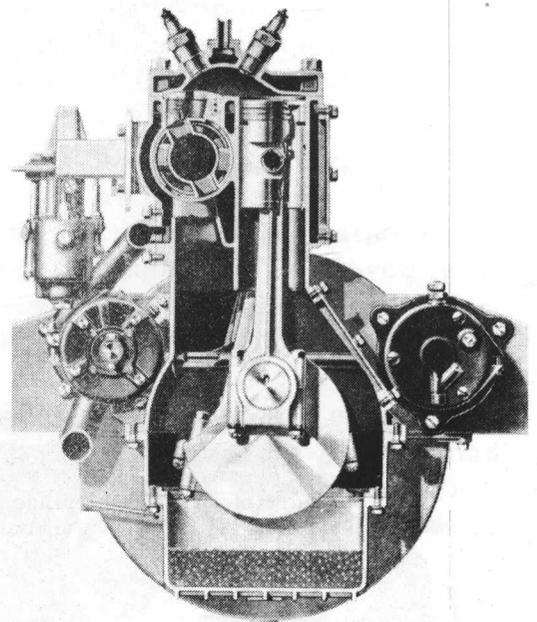
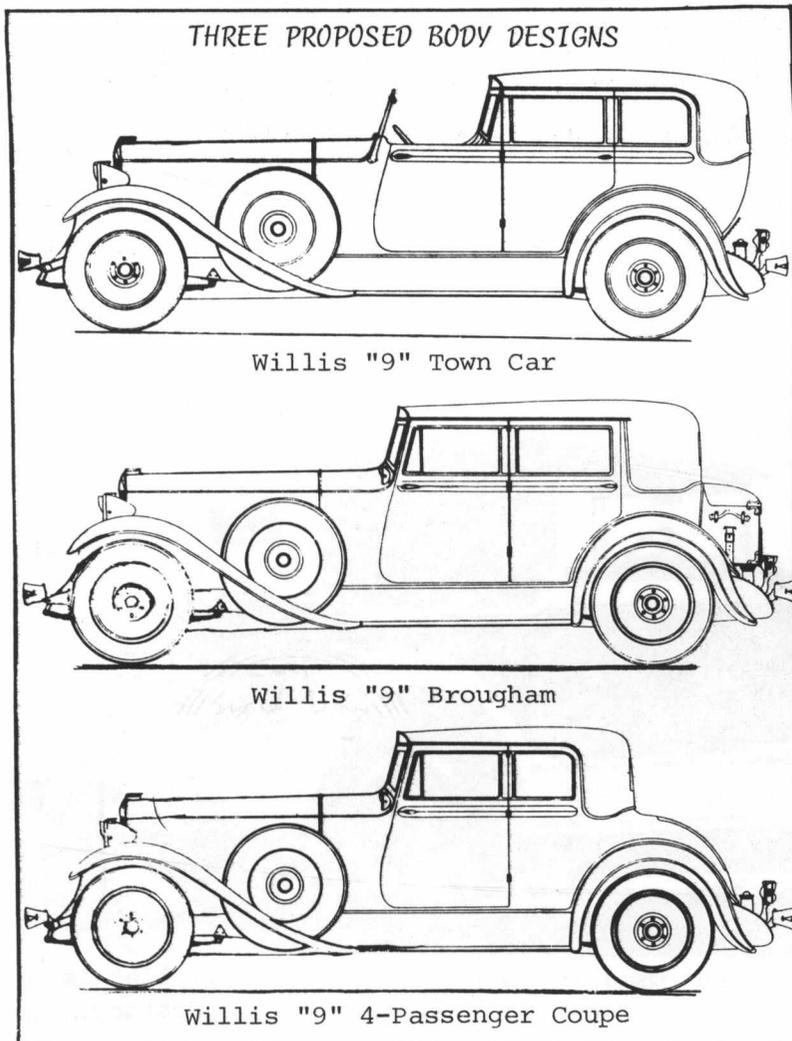
the crankshaft, all nine cylinders were fired once. This gives nine shots at 80 degrees for a total of 720 degrees. The three cranks under each of the three blocks were made 120 degrees apart, so there was a crank every 40 degrees about the crank circle. Now, isn't that what this whole thing is about?

It did work, and the first testing was done by an independent lab in February of 1927. They again did the final testing in November of that year and wrote some very good reports. To compound the original idea, the engine had no valves. Fuel and exhaust were handled by a unique tubular cylinder arrangement that ran the length of the engine, with ports that opened at the proper time in relation to piston position.

At the time of testing, two vehicles were used with two different engines. The first was a commercial vehicle, make unknown, which travelled a number of miles, after which the engine was torn down. The second vehicle was a rather new Gardner brougham. This car was driven a good distance, with the testing lab checking water temperature, exhaust emissions, vibrations and general engine performance. All reports were kind to the engine, and bore out the Willis claims.

The engine had been under development for around 20 years and was actually a spin-off of the old Kessler aircraft engines that were shown in 1917-18. These are described somewhat in a story on the Kessler which appeared in CAR CLASSICS some time ago. Mr. Willis was an engineer for the government on this project and was really quite capable with the necessary engineering degrees from the necessary universities.

The final plans landed the group in Maywood, Illinois, a new suburb of Chicago, with adequate building space to get a start. A second automobile was the Dew, a name which obviously was made from the initials of Durward E. Willis. This was a three-cylinder machine, to be built for export only. Contracts had been signed to supply this car to European companies for the continental market. There was supposed to be



CROSS SECTION VIEW OF WILLIS MOTOR

a yearly delivery of 4000 units, after which any excess number could be sold in the United States. The several models that were built were on a 105 inch wheelbase. The engine was rated at 45 horsepower. The heaviest model weighed 1785 pounds, and, as a 4-door, was to sell for \$515. Also planned were a 2-door, a coupe and a roadster. The immediate project, however, was to be the 9-cylinder big car.

The effort was given no publicity, with the exception of a leak during the first tests. After that, complete secrecy was the order. Until the doors in Maywood were opened in September, 1928, the public was kept in the dark. At that time the public was invited to inspect the new facility, and working, running engines were there for all to look at. The passenger car was there to ride in and testing reports were there to read.

Seven quite beautiful bodies were projected, some of which are shown here. The base price was to be \$5400 for the 7-passenger sedan. There was a lot of interest in Maywood, and news reports indicate that the office was kept open into the late evening hours to accommodate a steady stream of visitors. It was said that a large number of those in attendance were engineers and mechanics.

The future seemed to look promising, but the only thing it really brought was oblivion.

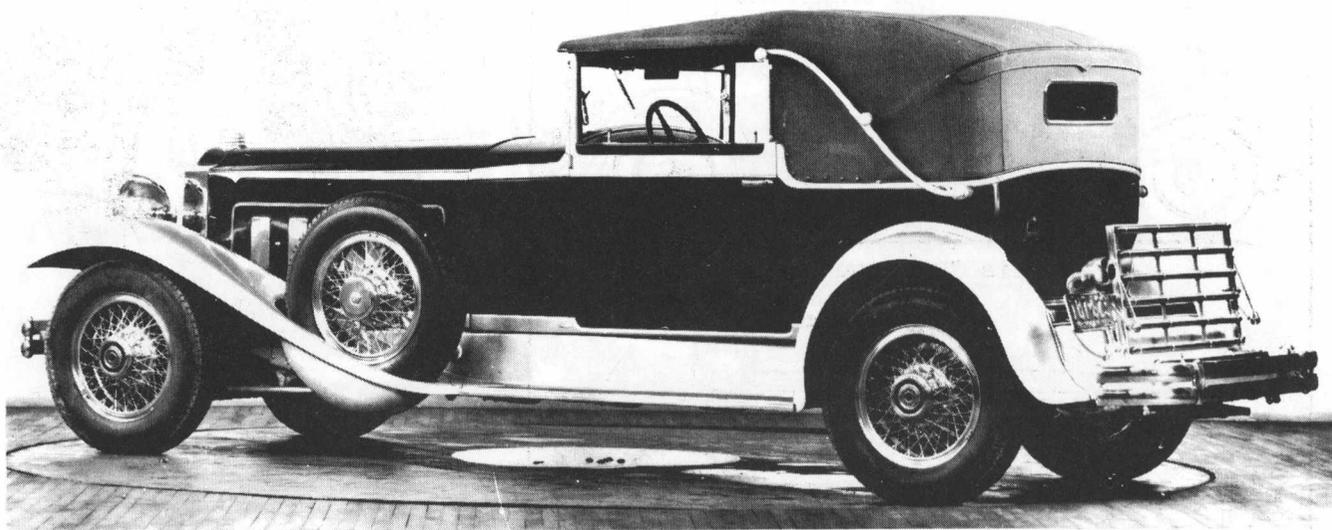
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### THE MONOBLOCK 12 - A PACKARD EXPERIMENT

The following information, plus the accompanying picture, is based on an article by SAH member Jack E. Triplett published in the Summer, 1974, issue of "The Cormorant", a publication of Packard Automobile Classics, Inc.

This was a one-of-a-kind experimental Packard which was built in 1929. The engine's 12 cylinders were cast in a single block which followed the design of the Packard 6. The cylinder head and crankcase were each single castings, but the moving parts of this engine were stock Packard 6 items. The crankshaft was made by coupling two 6-cylinder shafts together. Bore and stroke were 3.5 x 5 inches, creating a displacement of 577.27 cubic inches.

The body was a Dietrich Convertible Victoria, mounted on a chassis of 145" wheelbase.



This picture, which was one of several used in connection with Mr. Triplett's article in The Cormorant, was originally supplied by the Automotive History Collection of the Detroit Public Library.

# Casket and Bathtub "Bodies" Form the Link

by Rolland Jerry

Historically at least, funeral caskets and bathtubs had a good deal in common with automobile fenders, hoods and body panels. The connection is pressed steel, now a universal technique in automotive production. But it wasn't always so — American automobile manufacturers only got into the field after the producers of pressed steel bathtubs and metal caskets showed them how. It's an obscure but pertinent fact of automotive development

The one piece pressed steel bathtub was a difficult presswork feat in 1907 when an American plumbing outfit produced the first on its new specially-built 1,400-ton capacity Toledo steampress. It was a very tough "draw". The tub had to be drawn in three stages with three sets of dies to its depth of 17-1/2 inches.

But the results were worth it. The new tubs were described as "free of wrinkles and distortion". They weighed less than cast iron and they couldn't leak because there were no soldered seams as in galvanized tubs. Like the Model T, the pressed steel tub was cheap and reliable, and a developing trend to indoor plumbing helped sales.

As yet, though, the innovation didn't attract automobile manufacturers. Manually-shaped sheetmetal formed by panel beaters was the order of the day. This was an area which often involved skills approaching artistry but it was also a slow and a costly process. Nor were there ever enough experienced panel beaters: it was a premium skill in no way compatible with rising production. For the moment, though, it wasn't a concern.

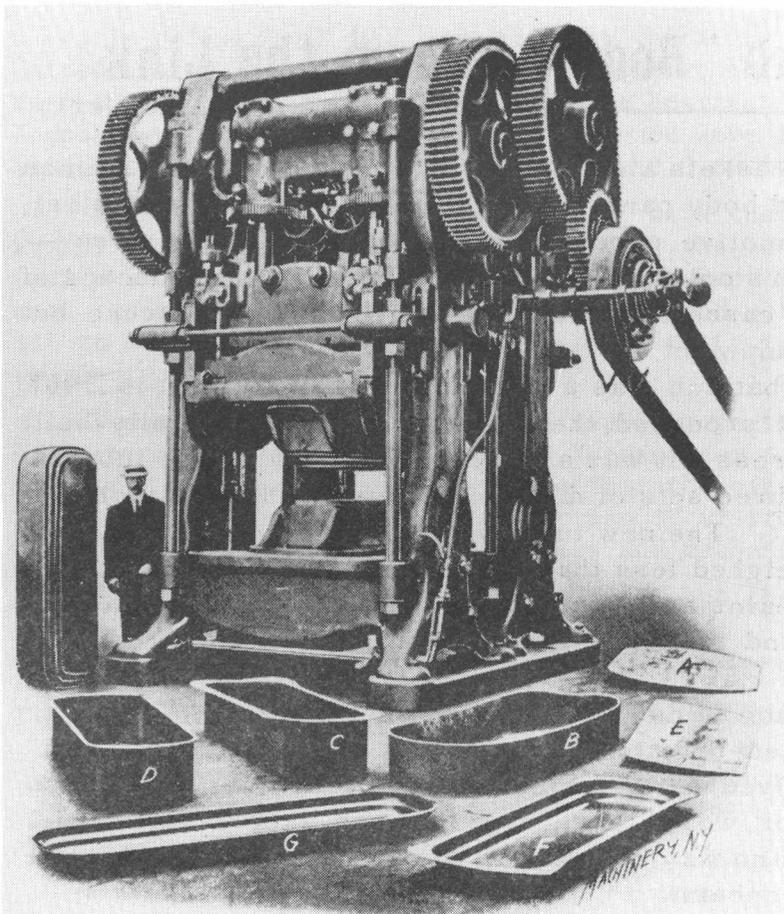
If automobile companies and bodybuilders were not attracted to the new technology, the suppliers of metal caskets were: they faced many of the same product problems which had beset tub manufacturers before a switch to pressed steel! From 1908 on several metal casket producers swung over to pressed steel, too. Again the results were admired. The caskets were smooth, free of seams, light for shipping purposes, while the lids were a "perfect fit". All would be important advantages to automobile manufacturers.

The press and machinery builders who produced the deep draw, double-acting presses — typically Bliss, Toledo, Ferracute and one or two others — looked to wider and less lugubrious markets. After all, how many bathtub and casket manufacturers were there? Even before car manufacturers moved into pressed steel operations, press and machinery suppliers had advertised their wares as "suitable for automobile work", also for "horse troughs", it might be added.

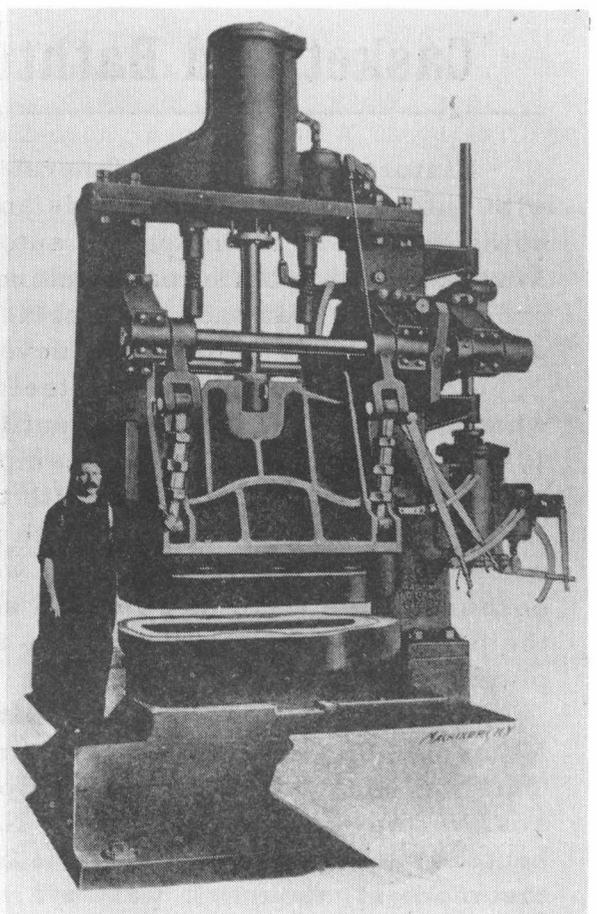
Of course, Detroit already had some experience in pressed steel, essentially the chassis frame and other thick gauge components, typically rear axle housings and sundry chassis fittings. After all, the pressed steel chassis frame had become standard practice almost from the moment of its inception with the first Mercedes in 1900.

An immediate outgrowth of the pressed steel chassis frame was the pressed steel heavy gauge wheel. Arbel, France, produced one as early as 1903, capitalizing on its experience with pressed steel frames. Apparently this failed to appeal to automobile manufacturers, although the Sankey pressed steel wheel gained a strong following in England a few years later.

Two Italian manufacturers saw a wider potential in heavy gauge steel pressings than merely chassis frame construction. Fiat introduced a novel pressed steel rear axle housing in 1906, in fact a remarkably complex set of stampings



Ferracute drawing press for shaping all-metal caskets, developed in 1908. Draws were achieved through successive tooling changes to draw out casket "body" to 14 inches depth. Press was a double-acting type, i. e. one stroke to secure or lock the blank in place, and the second stroke to achieve the drawing. The same technique would be needed to press-form fenders, body panels and doors in later years. Specimens of different drawing stages in foreground.



Toledo's advanced steam press for bathtub production. This was a 1907 development and perhaps was the first large press of its kind, the sendoff for a new generation of press equipment conceived for lighter gauge work rather than heavier pressings.

which also included the integral torque tube assembly. Press-forming of these elements obviously posed blindingly difficult problems, perhaps eased with a good deal of annealing to negotiate the deep and angular draws. It appears to have been the first axle of its type, that is, in pressed steel.

Lancia conceived a novel application for the new technique in 1910 with the adoption of a pressed steel front axle for its 24 hp. car. The assembly consisted of twin stampings welded at the lips of the flanges for a box-like configuration. Rigidity must have been excellent without a weight penalty.

However, chassis frame components and fittings were heavy gauge stampings without much reference to the problems encountered in press-forming the much thinner gauges needed in bodywork. Shaping frame members by hydraulic press was a slow operation, and a ripple here and there didn't matter much as the chassis was out of sight anyway. Highly visible fenders, hoods and door panels were different, which was the problem: thin gauge steel could (and did) buckle and wrinkle.

Mechanical-type presses were seen as the answer for volume. These offered much higher output than the slower hydraulic unit. And they were very large, too. A big mechanical press might be two stories high and take five flatcars to ship. Costs were in proportion - anywhere from \$350,000 up. The size triggered new concepts in factory and industrial architecture, not to mention the piles and foundations which went down 50 feet to support some of even larger presses delivered in the early 1920's.

Who was first with what in pressed steel body panels seems a moot point. Ford may have been into pressed steel as early as the Model T in 1908: many heavier gauge stampings went into the T's chassis. Ford was intrigued by the process and may have also produced some of his touring car body panels the same way. He bought out one of his pressed steel suppliers and moved the presses to Detroit.

Hupmobile was another early user of pressed steel panels, apparently as early as 1909 in a venture which also involved Edward G. Budd before the formation of his own company. Garford and Oakland used Budd pressed steel bodies in quantity by 1912, and of course Budd really hit his stride with pressed steel bodies for Dodge in 1914.

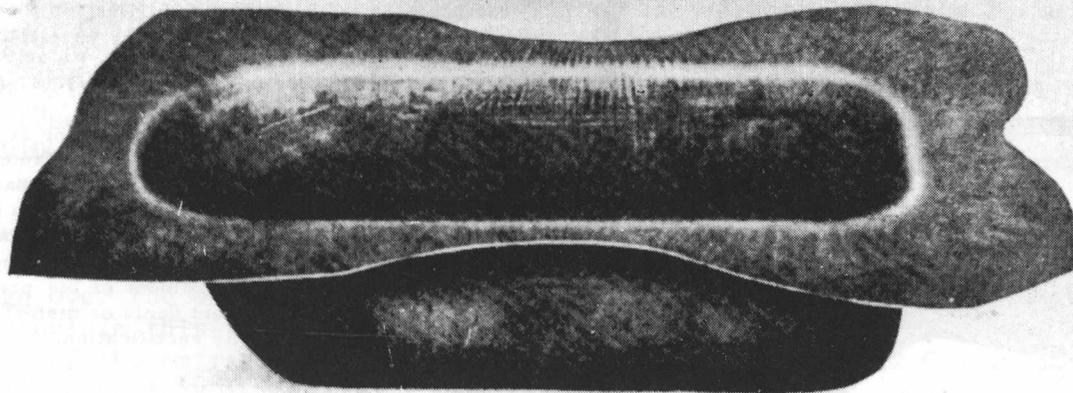
Writing in the "Horseless Carriage Gazette" some years ago, John G. Perrin, Lozier's chief engineer, comments that he may have innovated the pressed steel crowned fender, as opposed to the flat fender popular in 1910. Perrin says that he saw hand-formed rounded or crowned fenders in Europe and he took the idea to Fred Fisher, then head of a Detroit stamping plant, to see if the same thing could be achieved in pressed steel.

Apparently Fisher (later to head Fisher Body) had his problems, but eventually he press formed the new fenders to Perrin's specs. Perrin adds that other automobile manufacturers who saw the prototype fenders in Fisher's plant wanted them too. Fisher didn't want to produce the fenders for anyone, as the compound curves were diddicult to negotiate in pressed steel. Obviously he stuck with it, though.

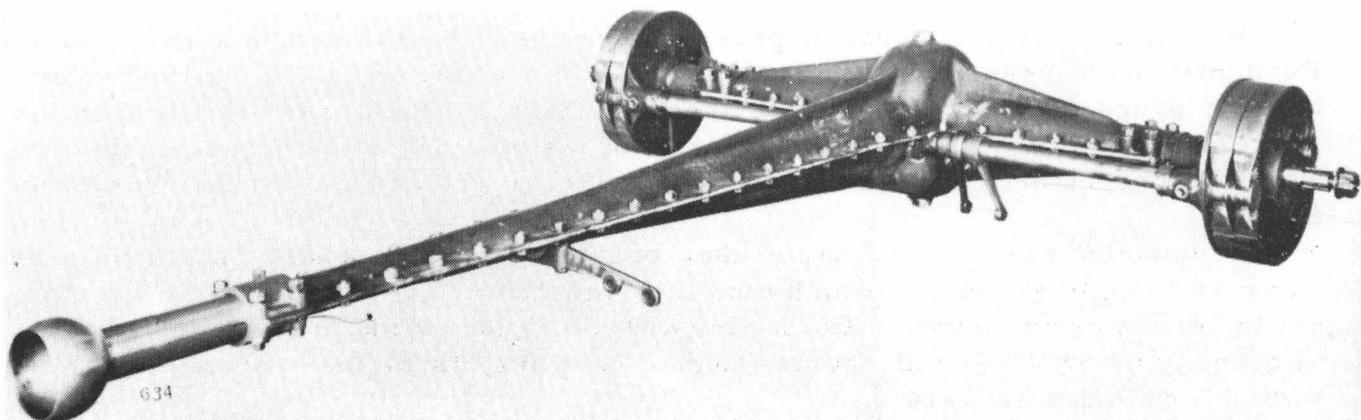
At least two manufacturers - Studebaker and the Parish Manufacturing Company (chassis frames) - bought out bathtub suppliers to gain the presses and the new expertise in handling thinner gauge steel for panels.

Early automotive pressings were on the small side until the late 1920s when Budd introduced some very large ones indeed (typically the one-piece body side panel for the Dodge Victory Six.) And while many were smaller panels than they are now, a number were of blinding complexity. The one-piece cowl shrouds on the Ford center door sedan, also early Dodge and Essex sedans, was an exceedingly deep and difficult draw, apparent to anyone who examines them with an eye to this detail.

The one-piece front was even tougher with its introduction in the mid-1920s, variously by Packard, Lincoln and one or two others. LaSalle's "teaspoon fenders in 1927 were a good example of the new technique. Earlier, fenders had been assembled from two stampings, the upper curved crown and the attached inner skirt or valance, with assembly by lock seams or spot welding. The one-



Bathtub pressing from the Toledo press. Flanges were trimmed and rolled. Dies were adjustable for three lengths. The work was done cold except for local annealing to form the rolled edge. It's another early double action unit which weighed around 90,000 pounds.



Complex Fiat pressed steel rear axle and torque tube assembly formed from two pressings bolted together at the flanges. This is a later example but typical of Fiat's earlier pressed steel efforts with housings.

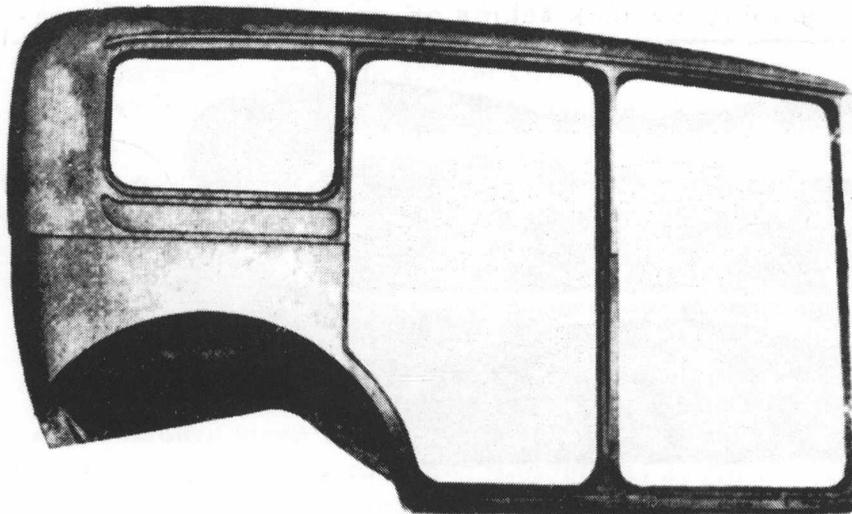
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piece fender was a neater job.

The very deep inner skirt posed difficult "off balance" drawing stresses: formation of this area tended to rip the blank or dislocate it for malforming of the crown panel. New and much higher capacity double-action presses were needed to form one-piece fenders, also to securely lock the blank in place during the deep draw. Few modern stampings are quite as difficult as a typical 1930s-style one-piece front fender.

On this point, one of the parts reproduction houses supplying replacement Model A Ford sheetmetal items reports that it had great difficulty in producing one-piece fenders to round out its selection of replacement panels and sheetmetal for the car. The firm states that its facsimile fenders proved an awkward, taxing project not much easier with the aid of modern press equipment and improved tooling. That Ford and other volume producers could produce these large and complex stampings by the hundreds of thousands, within acceptable rejection limits, was an obvious accomplishment.

Similarly, many of the earliest integral or pressed-in moldings from 1927 or so on are fine examples of early presswork technique in which the workmanship and tooling complexities are clearly evident. In general, the vital and continuing role played by pressed steel in automotive development has not been as clearly documented as other phases of design programs. Perhaps this is because much of it is considered "outside" the primary interest, of course the vehicles themselves.



Big one-piece body pressing achieved by Budd as early as 1928, variously for Dodge, Citroen, Wolseley and Morris, including the Ruxton produced off ex-Wolseley tooling. Pressings like this had to wait until the steel industry could produce special "autobody" ductile steel. Actually, the main problem at the time wasn't so much a matter of either steel or press capacity, but simply a materials handling headache in the movement of big pressings like this without dents or distortion involving costly rectification.



Good example of complex integral molding detail on '32 Buick/Fisher bodywork. Cowl panels were always tough to form. No matter what the press/tooling setup, solder loading was almost always needed to clean up basic stampings. Drawing of complex molding shapes within a small confining panel insufficient to "ease out" forming stresses added to the problem.

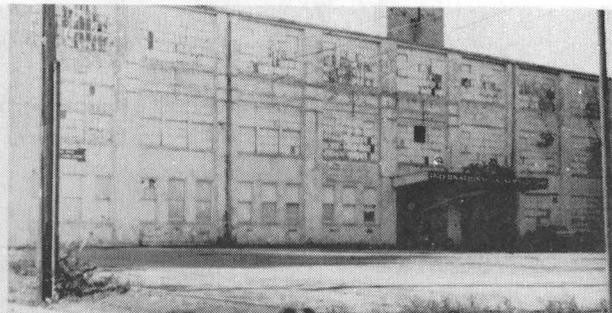


Well on the way. 1923 Overland exhibits pressed steel front end sheetmetal. Fenders are two-piece pressings and not yet fully crowned. Of the Overland's sheetmetal, the drum headlights were perhaps the toughest pressings to negotiate, involving several sets of dies and draws. Steel industry supplied extra special stock for this, in fact designated as "headlight grade" at the time.

When automobile manufacturers and bodybuilders did get into pressed steel, they learned very, very fast. Take a look at a good cross-section of their efforts at the next meet or museum.

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*All of the pictures used in connection with this article were loaned by the author.*  
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#### FORMER AUTOMOBILE FACTORY -



In keeping with the opinion expressed in the editorial on page 2, we present what we hope will be a continuing feature of Automotive History Review.

This is the original factory of the Ohio Electric Car Company, 1501 West Bancroft Street, Toledo, Ohio, as it appears today. The Ohio Electric was made here from 1910 to 1918. Later the plant was occupied by the Airway Electric Corporation, makers of vacuum cleaners and other home appliances.

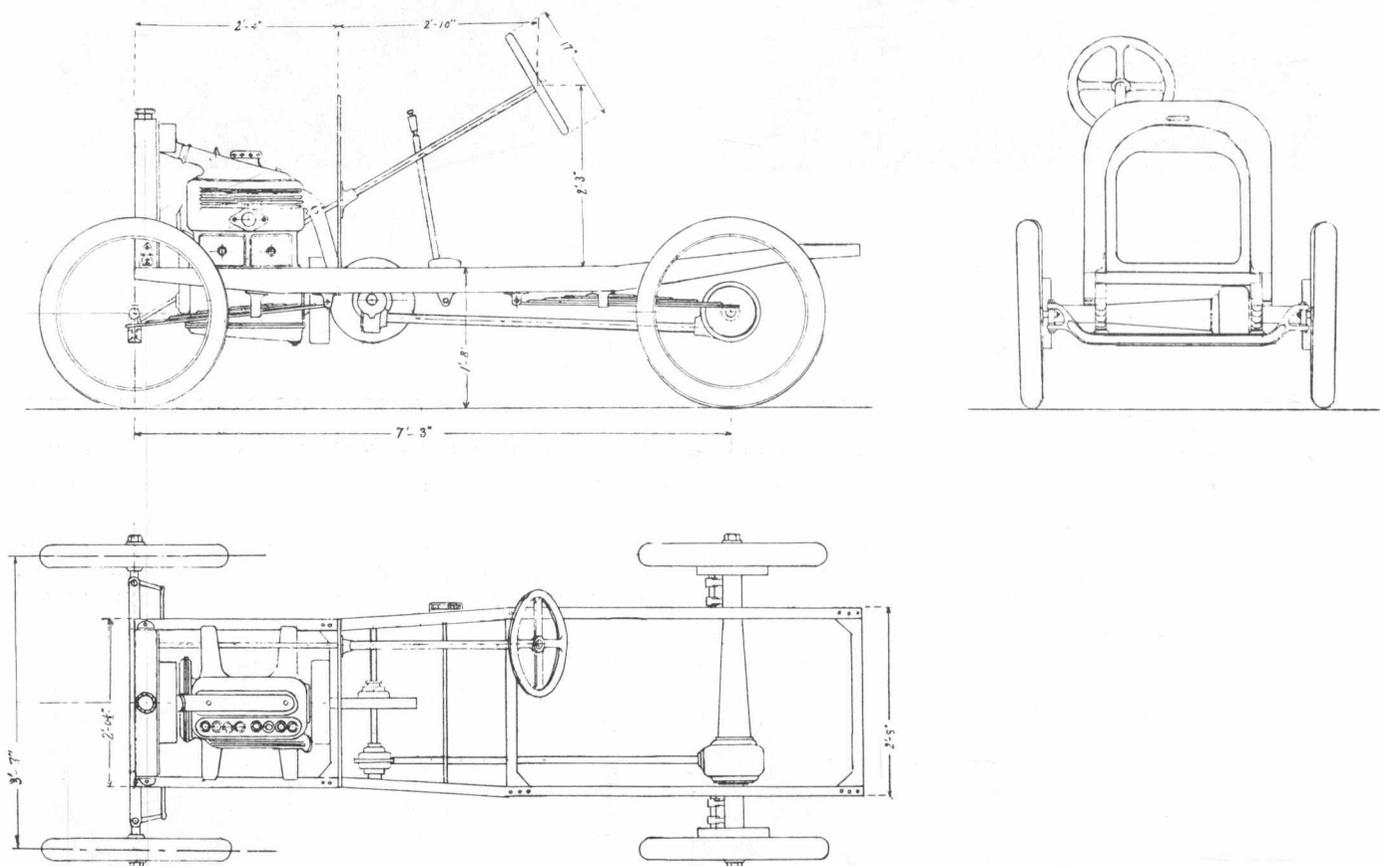
Because this picture was taken on a Sunday morning, the employees parking lot is empty. For the same reason, there was no one at the plant to be interviewed. The sign over the entrance reads "International Assemblix Corporation". Smaller signs proclaim this to be the home of Craft House Products. Still another sign, to the left of the entrance says "Always First Quality. Money Back Guaranteed. Serve Yourself to Quality".

This red brick structure has been completely covered with white paint, including the windows.

# Identification Requested

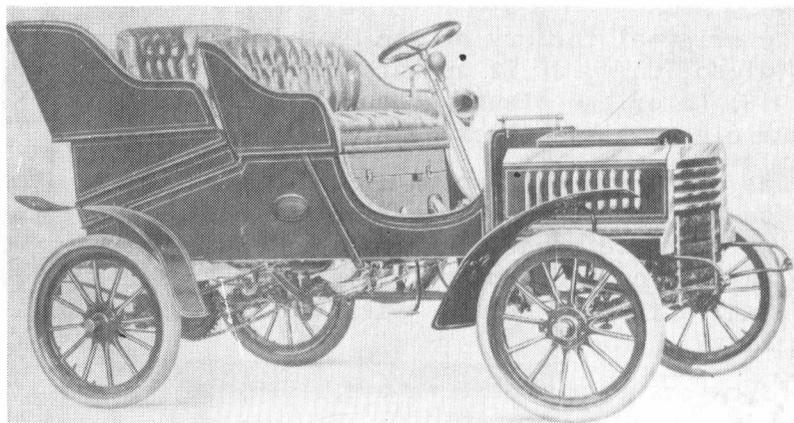
From Michael Worthington-Williams, of Hassocks, Sussex, England, a set of drawings and the following note has been received:

New member A. B. Demaus has just sent me the enclosed drawing of a 'mystery' cyclecar, and I am wondering whether it would fill a hole in AHR. My own thoughts are that it might be a Trumbull — they did play about with both friction transmission and live rear axles but not at the same time — possibly a prototype or transitional type. Perhaps some of the more knowledgeable members will be able to provide the answer.

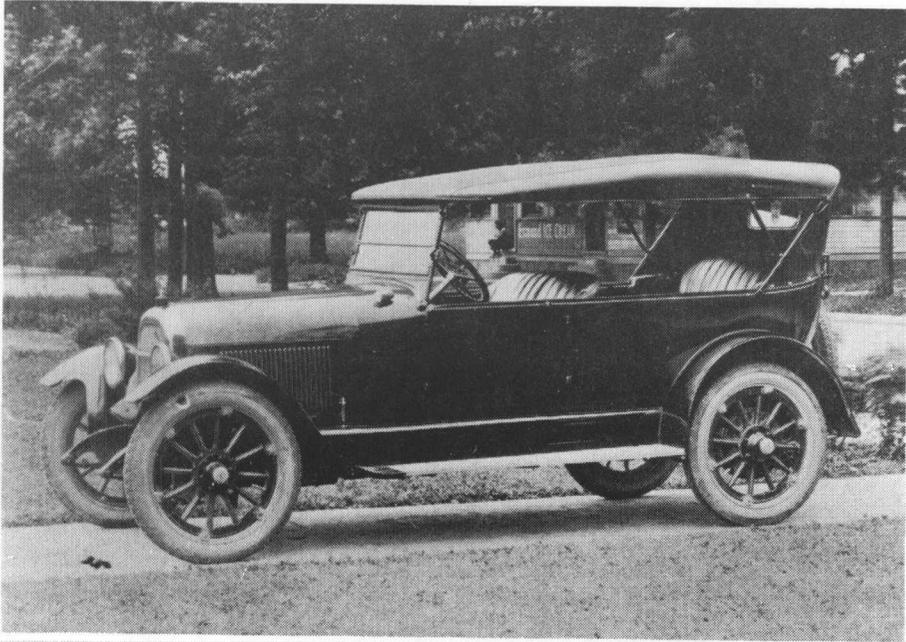


Stanley K. Yost, Royal Oak, Michigan, has sent four pictures for identification. No. 1, below, looks suspiciously like an Oldsmobile, 1904 or 1905, but it could be something else. No. 2 appears to be an American-made car of the early to middle 20's. No. 3 and No. 4 could be European.

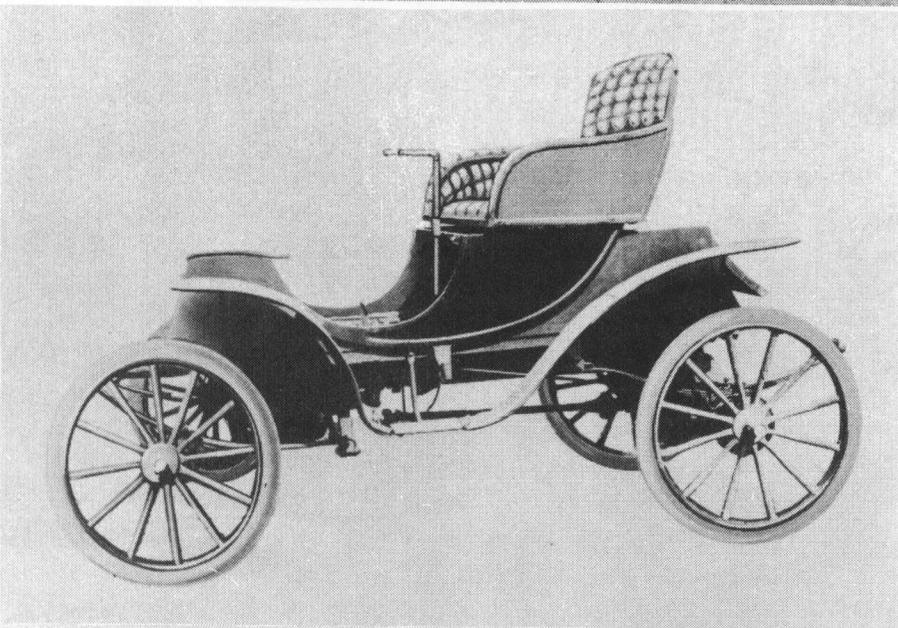
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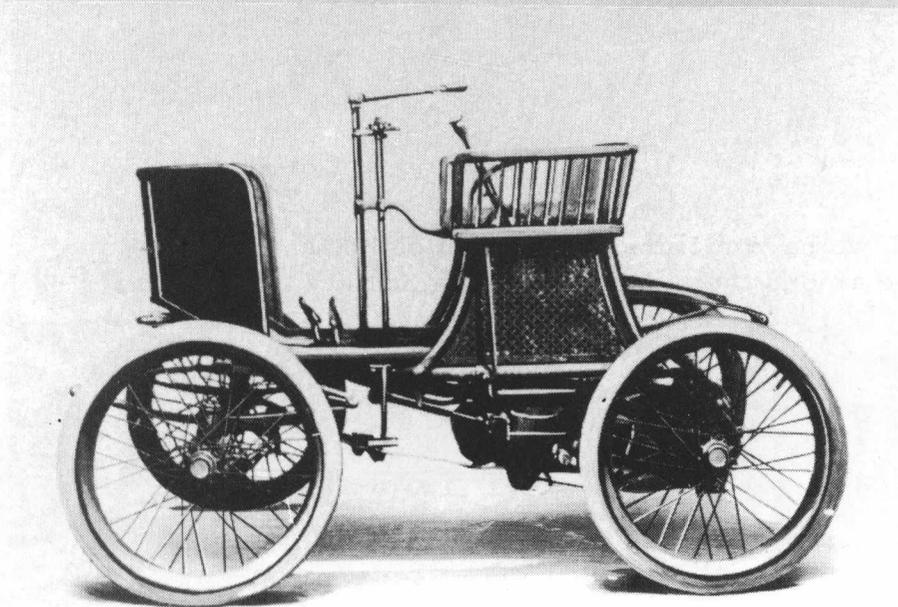
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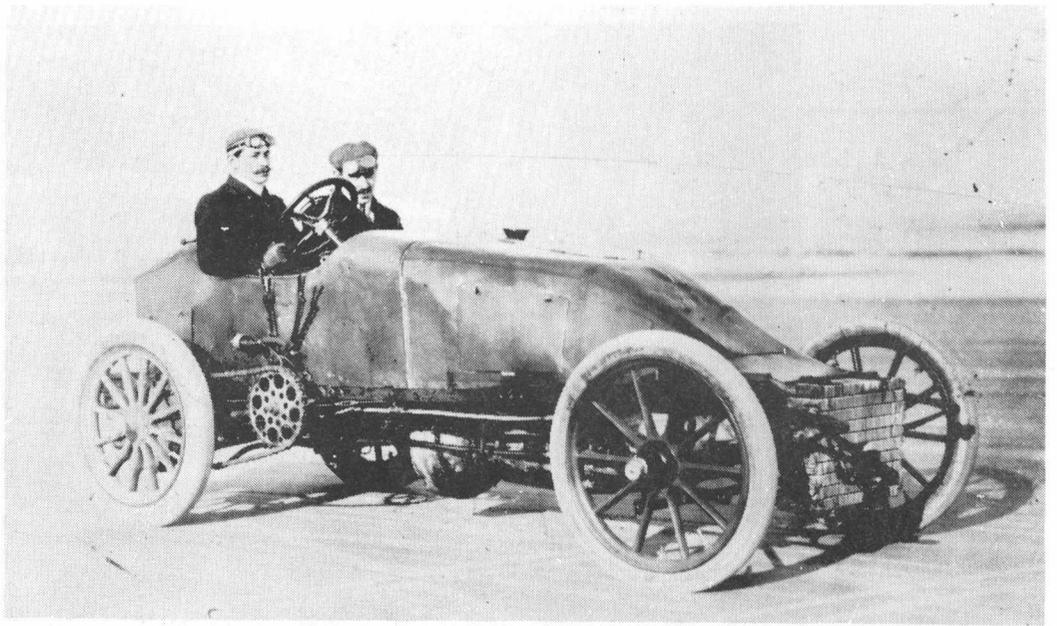
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No. 4



No. 5

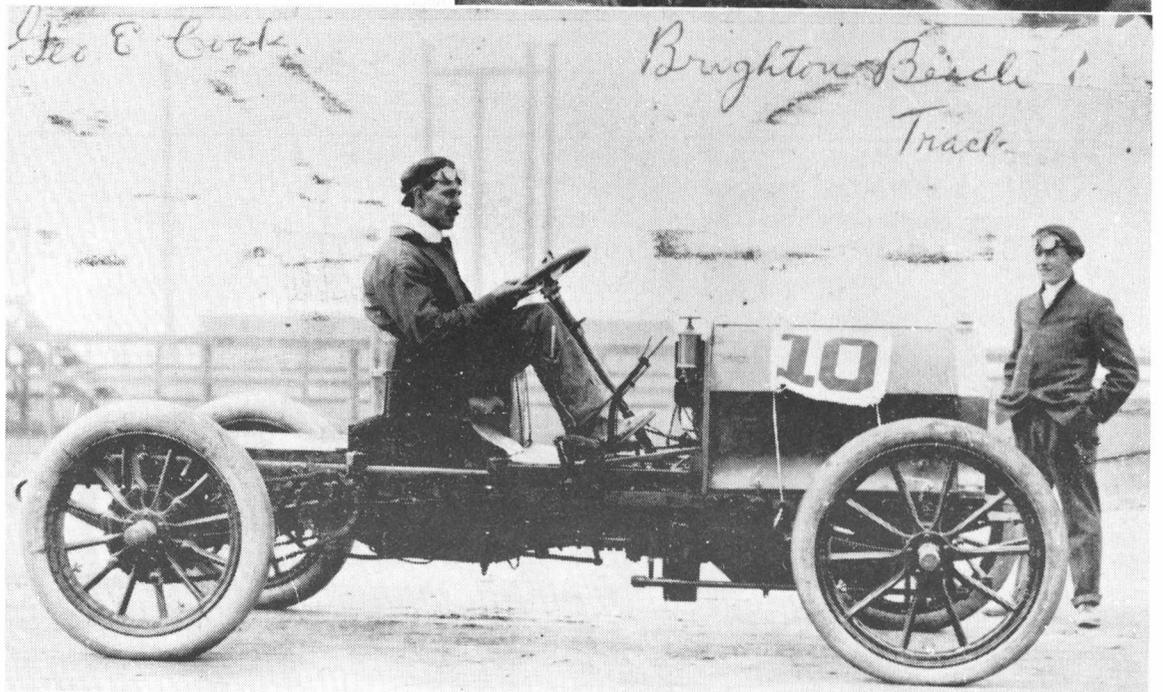


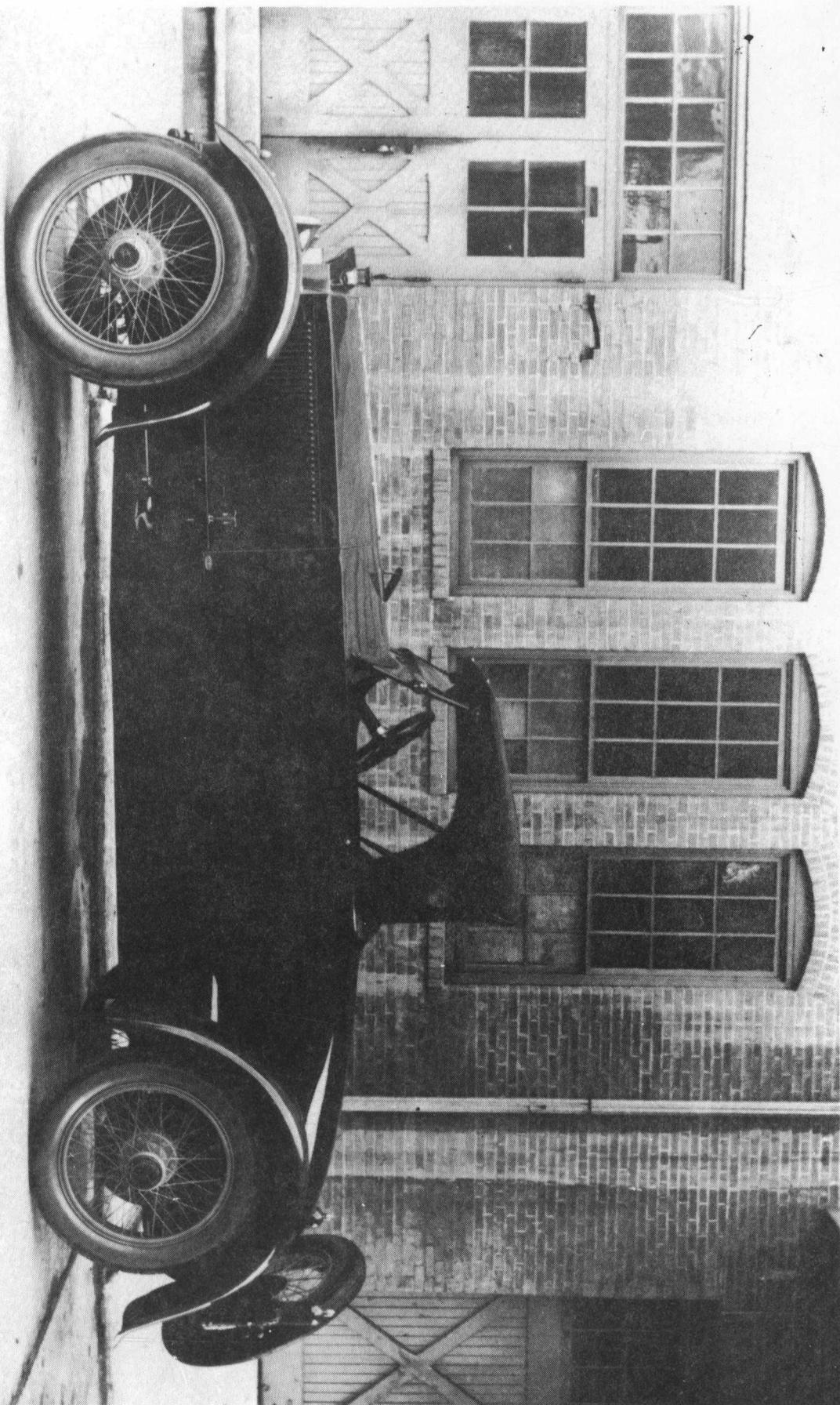
These pictures were sent by Walter E. Gosden, Floral Park, N. Y., and referred to in his letter on the "Viewpoint" page of this issue. These cars were driven by racing driver George E. Cook at Brighton Beach, England, in 1905. Can anyone tell us more about them?

No. 6, front view



No. 6







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## Think small.

Thirteen years ago, the first Volkswagens were imported into the United States.

These strange little cars with their beetle shapes were almost unknown.

All they had to recommend them was 32 miles to the gallon (regular gas, regular driving), an aluminum air-cooled rear engine that would go 70 mph all day without strain, sensible size and a sensible price-tag too.

Beetles multiply; so do Volkswagens. By

1954, VW was the best-selling imported car in America. It has held that rank each year since. In 1961, about 175,000 Volkswagens were sold, including 25,000 station wagons and trucks.

And again in 1961, Authorized VW Dealers sold a higher average number of units than any other dealer selling any other kind of car.

The VW's snub nose is familiar in fifty states of the Union; as American as apple strudel.

As any VW owner will tell you, Volkswagen service is excellent. Parts are plentiful, prices low. No small factor in Volkswagen's success.

Today, in the U.S.A. and 135 other countries, Volkswagens are being sold faster than they can be made.



Volkswagen has become the world's fifth largest automotive manufacturer by thinking small. More and more people are thinking the same.