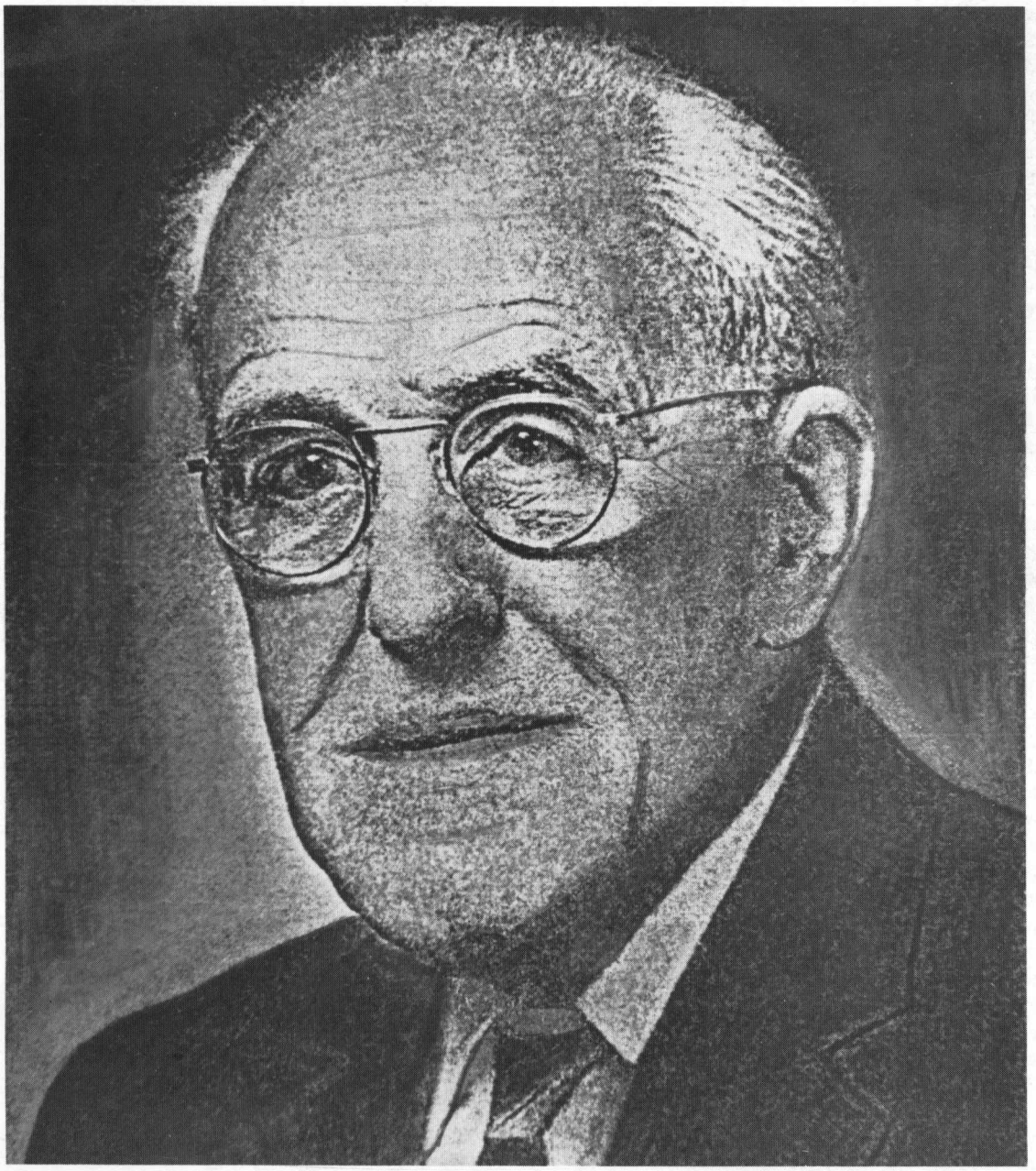
The Society of Automotive Historians

AUTOMOTIVE HISTORY REVIEW

SPRING 1990 ISSUE NUMBER 25



A PUBLICATION OF THE SOCIETY OF AUTOMOTIVE HISTORIANS, INC.

Editorial Comment

One of the most fascinating aspects of automotive history is the study of the many people who figure in the industry which grew up around the motor car. Many of these are giant figures, in terms of their reputation and lasting influence on the industry: Henry Ford the elder, Alfred P. Sloan, even Preston Tucker. For every industry giant, however, there are dozens of others whose lives and work fall in the shadows, but whose contributions to society are no less vital.

Texan D.J. Kava is a scholar of Hudson history, and in his travels came across an interesting figure in the persona of George W. Dunham, first chief engineer of Hudson Motor Car Company. Through a short-timer in the auto industry, by Detroit standards, Dunham was the designer behind several production cars before turning his attention to setting industry standards through the Society of Automotive Engineers. He then moved to other endeavors, and left us with the legacy of the modern spindry washing machine and the ubiquitous lawn sweeper. With Kava's treatise on Dunham's career, beginning on page 2, we return *Automotive History Review* to the field of biography which it championed many years ago.

Jim Hockenhull (page 8) has an irrepressible sense of humor (could a Crosley connoisseur survive otherwise?), and in this vein examines why, despite a clever attempt at innovation, the Ohio automaker is not remembered as the pioneer of the modern high-compression engine.

Dr. Jan Tulis, a Czechoslovakian member, is an authority on the automobiles and coachbuilders of his country. Here he presents a brief survey of the Tatra T77, which, while it did not upstage the Chrysler Airflow by beating it to the market (the Chrysler was introduced in January 1934, the Tatra in March) certainly did in sheer novelty of design. The story appears on page 10.

Charles Bishop, a founder member of the Society, literally wrote the book on Nicholas-Joseph Cugnot (alas, few of us have read it, as it has appeared only in French), and is an unabashed proponent of front-wheel-drive. In this issue he takes a look at early adherents to this means of propulsion, and begins to examine the reasons why front-wheel-drive has undergone repeated cycles of disfavor and revival.

My selection of the fanciful Fageol phaeton for the cover of *SAH Journal* last year stirred up a revival of interest in the marque. Jim Valentine presents some previously unheralded parts of the Fageol story beginning on page 14. Jim is a specialist in the lesser-known cars of California manufacture; his work has often appeared in *AHR*.

Fred Roe, a former editor of this magazine, says that "badge engineering" is nothing new. There was once a manufacturer who sold the same car under three different brand names during the same year. He presents the evidence beginning on page 18.

Finally, no issue of *AHR* would be complete without a contribution from Keith Marvin. Here Keith relates how he did his part in recording automotive history back before many of us were even born. Learn how to trace your automotive roots (or your Rootes or your Rolls) on page 20.

As an eminent scholar once said, "history is worth waiting for." I hope you agree.

Kit Foster

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Front Cover: *George W. Dunham, prolific inventor, advocate of standardization, and the first chief engineer of Hudson Motor Car Company. D.J. Kava Collection.*

Back Cover: *George Dunham's first and last Hudson, the 1909 Model Twenty, in the Michigan snow. Jack Miller Collection.*

Further information about the Society of Automotive Historians, Inc., may be obtained by writing to the Secretary, Society of Automotive Historians, Inc., P.O. Box 339, Matamoras, PA 18336.

George W. Dunham: Twentieth Century Engineer

by D.J. Kava

George Willis Dunham was the first chief engineer of the Hudson Motor Car Company, and designer of the first Hudson, but even the most knowledgeable of Hudson historians know little of his life. However, he obtained sufficient media coverage that many know about some of his general activities. He came to the attention of the University of Michigan-Howard Coffin "boarding house gang" while at Olds Motor Works, then took over Coffin's chief engineer's post at Olds when "the gang" left to form Thomas-Detroit. Dunham, too, saw a limited future at Olds and soon left, teaming with R. B. Jackson at the very beginning of Hudson. Yet he elected to switch from Hudson to Chalmers in less than a year. He became chief engineer and a vice president of Chalmers Motor Car Company but quit to run the fledgling Society of Automotive Engineers. During World War I he spent time in Washington on war-related activities.[1]

While this general outline is known, as soon as one scratches the Dunham surface one finds nothing but contradictory information. Even his obituaries list two different ages, 500 US patents and variety of accomplishments. But we can't be too harsh on modern newsmen, because as early as 1917, when he was President of the Society of Automotive Engineers, he seems to have gained two years in age, a college degree and an abbreviated work history. To add to the confusion he also claimed two different birthplaces! Most accounts list Cleveland as Dunham's birthplace but he told his fraternity he was actually born at his grandfather's mansion on Hogback Hill, a little east of Mt. Vernon, Ohio.[2]

Despite the general confusion on details of George Dunham's life, it has to be noted he had a long and productive career. He *did* receive over 150 patents, and certainly deserves forgiveness for any educational inflation thought best during war preparations. In addition to designing cars for Olds, Hudson, and Chalmers, he helped motorize the U.S. Army artillery forces during World War I, designed tractors for the Graham Brothers, and perfected the wringerless, spin-dry washing machine for the American household.

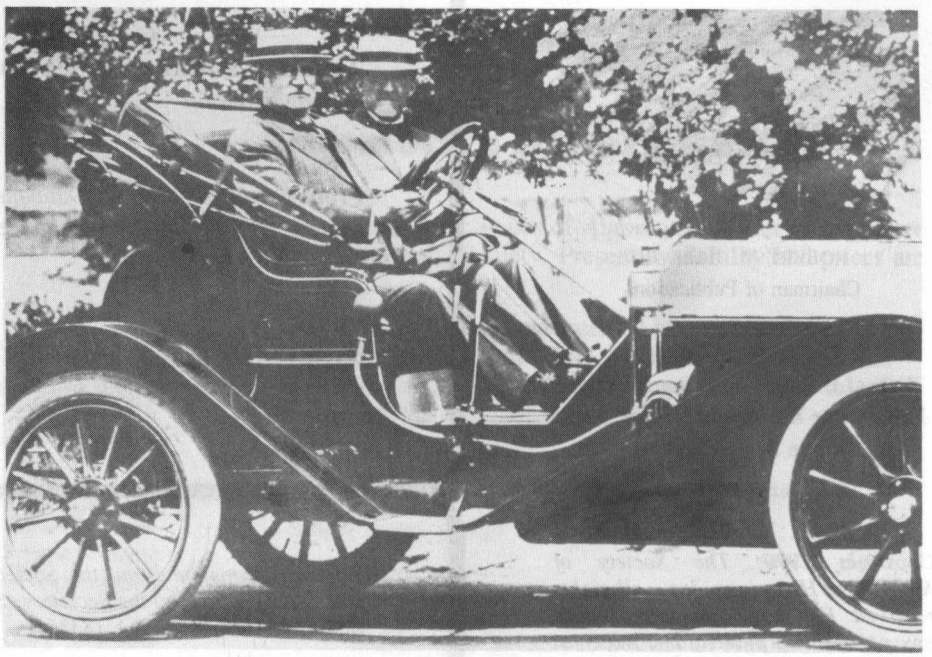
The very first Hudson ad in the June 19, 1909 *Saturday Evening Post* carried Dunham's first nationally published biography. The facts it gave were most accurate, embedded in the ad writer's hype:

> *Mr. Dunham was chief engineer of the American Motor Carriage Company from 1901 to 1904. In the latter year he became associated with the Olds Motor Works in a designing capacity. He was chief engineer of the Olds Motor Works from early in 1907 until March 1st, 1909. Mr. Dunham's success in the past as a designer of high-grade motor cars that gave satisfaction to their owners is the best proof that the Hudson "Twenty" will give satisfaction.*

The second edition of the *Standard Catalog of American Cars 1805-1942* notes that the American Motor Carriage Company is considered as the first substantial auto failure in Cleveland, Ohio, the city which was also home of Winton, Baker Electric, Stearns-Knight. The *Catalog* proved invaluable in grasping the width and breadth of the local industry and its publication served as catalyst for this article. I borrow extensively from it for the years 1900-05.[3]

Despite any confusion on his birthplace, there is little doubt Dunham had a close association with the city of Cleveland. His parents, W.H.H. and Mary Adams Dunham, lived there. Most accounts have him attending grade schools in the city. We first find him in February 1891 entering the University School in the middle of seventh grade and attending until June 1892 at the end of eighth grade. If we use the most widely accepted birthdate of 1876, he would be 16, or 14 using the family dating. School records listed his home as 1308 Euclid Avenue. In eighth grade he failed arithmetic and grammar, but passed history, German, and carving. While tardy only twice in the eighth grade, his "times absent from recitation or study" soared after January, and in the last two months totaled 69, indicating he barely attended.[4]

At this point, we lose Dunham for a year. The announcement for the 1909 Hudson introduces the fact he "studied engineering at Swarthmore and Kenyon Colleges" and omits his Cleveland automotive experience. Swarthmore College in Pennsylvania has no record of him at either the alumni or registrar's offices. The most obvious conclusion is that he did not attend.



George Dunham with Hudson president and namesake Joseph L. Hudson in the Hudson Model Twenty. D.J. Kava Collection.

Kenyon College records show him attending Kenyon Military Academy, located only a few miles from his grandfather's house, for the 1893-4 school year. He was enrolled at Kenyon College as a freshman for the school year 1894-95, but there is no further attendance record. The grade book for his last year noted there were three terms but no record of his attending in the third term, indicating he either flunked out or left of his own accord. The grade book showed very good grades in mathematics, but a poor showing in English, French, and Bible Study. Early in 1895 he returned to Cleveland for what is variously described as a "practical course" and a "master mechanic apprenticeship" at Warner-Swasey Company. Two years later he moved to Alaska to "engage in mining and prospecting" or work as a "mining engineer."[5]

There is also recurring mention of an unidentified year around the turn of the century spent in England attending engineering conferences. This is somewhat supported by his membership in the British Engineering Society. By 1900 Leake has him back home in Cleveland at Warner-Swasey. However the *Catalog* suggests other automotive activity afoot, by noting that early auto rosters listed a Clear and Dunham partnership producing a car in Cleveland in 1900 but comments, "This appears to be in error. Cleveland city directories for the turn of the century reveal that there was no one in town named Clear and the only Dunhams were not likely to have a mechanical bent." The Dunhams were undoubtedly his relatives, and it is not uncommon for a 24 year old bachelor to be missed by the directories even today. The details of this operation may be hopelessly obscured by time, but the next year the record firms.

During 1901 the *Catalog* has him investing in two fledgling Cleveland auto companies. The first was during the "summer of 1901" in the undercapitalized ($10,000) Cleveland Motor Carriage Company with F.D. Dorman, Charles Drabek, C.O. Ahn, and John T. Morris to develop prototypes designed by Thomas Shehan. The cars were known as Clevelands. The company was incorporated to manufacture gasoline, steam and electric vehicles but produced only prototypes and was finished by year's end. The Cleveland factory was at 66 Chestnut Street.

The second enterprise was the American Motor Carriage Company, in August 1901, with George F. McKay, president; Dorman, vice-president and general manager; J. F. Morris, secretary-treasurer; George H. Wadsworth, superintendent; and Dunham in charge of engineering. Both electric and gasoline cars were anticipated but only American Gasoline Automobiles were produced. The car was soon nicknamed "American Gas."

This August 1901 date seems to conflict with Richard Wager's 1986 book *Golden Wheels, The Story of the Automobiles Made in Cleveland and Northeastern Ohio 1892-1932.* Wager states that the initial prototype for American Gas was designed by Dunham during the summer of 1902 and entered in the first Cleveland Auto Club races on September 16th of that year. A month later the American Motor Carriage Company was incorporated in Delaware with $50,000 capitalization. Perhaps there is only a little conflict, and both accounts are basically correct. The American could easily have started with an Ohio charter incorporated at $10,000 then become a Delaware stock company. A detailed description of the 22,000 sq. ft. AMCC factory and showroom (a converted interior decorator's building) appeared in a June 1902 periodical, and this, too, supports the earlier date.[6]

The September 1902 race was a good opportunity for the aspiring company to show its wares. Ten thousand Clevelanders attended the Tuesday races, with locals Alexander Winton and Rollin White claiming gas and steam world track records for various distances up to 10 miles. This grabbed the bulk of the headlines, with Dunham barely mentioned by virtue of placing third in the "Five Miles, Gasolene, 1,000 Pounds and Under" class. The winner was an Elmore and second place was a "Cleveland" driven by J. D. Dickson, in one of Ramus Hansen's early cars generally listed as Hansen. This also appears to be the only competitive race in which George Dunham personally drove.[7]

The American Gas was a 1,000 pound, $1000 version of the popular $650 Olds runabout. Wager notes the "original pro-

Howard Coffin (driving), George Dunham (back seat), and an unidentified passenger in what is believed to be a prototype 1905 Oldsmobile. D.J. Kava Collection.

duction model was a gasoline runabout with one cylinder (4½-inch bore, 6-inch stroke) producing 5 horsepower. The wheelbase was seventy inches. The engine was under the seat; the drive was by single chain from a planetary transmission that had 'two speeds forward and one back.' (Some later models had a chain drive from engine to a midship transmission and a second chain to the rear axle; some also had an eighty-three inch wheelbase.)" Only seven-horsepower engines are mentioned in the *Catalog*.

The little runabout was not without its Dunham touches: a tilting steering wheel (Olds had only a tiller), and a throttle regulated by a foot button and which automatically adjusted the spark. A lever at the side of the engine opened the ignition switch and lubricating system in one motion. The car would run a creditable 25 mph with its Mudge (Mudge Engine Company, Milwaukee, Wisconsin) engine.

Things began to unravel in May, 1903. Wager probably explains it best:

> *Though $50,000 in stock had been authorized, only $10,000 had been subscribed. The car was a success, and the company needed $100,000 more in working capital for expansion and to meet the steady rush of orders. But such help did not materialize.*
>
> *In May 1903, George F. McKay, American president, asked Common Pleas Court to appoint a receiver. At the time, American had in its factory a number of incomplete cars, which, McKay maintained, could be finished for sale in six weeks. A company official told reporters of orders on hand, but through lack of factory space and inability to secure prompt delivery of materials the company was unable to make deliveries as readily as had been expected, which made impossible early collections of payments on goods produced. Within three months, at the court's discretion, all of the uncompleted cars were finished and all but eight were sold. While reorganization was pending, the receiver resumed production under the direction of George Dunham, the original engineer.*

The *Catalog* tells us that in late September 1903, the company was taken over by the Prudential Trust Company and George Dunham was put in charge of the factory.

Wager notes that these last models had "minor changes, were a little heavier, and the price was pared to $750; with tonneau, $850." Each chassis was also road tested 100 miles before the body was put on. The factory capacity was reported to be 200 cars a year but production never reached that "lofty realm," according to the *Catalog*.

AMCC was considered the first failure of a substantial auto company in Cleveland. In April, 1904 the American Automobile Company took over the factory but no production seems to have occurred.

Dunham escaped American Gas in time to get listed in the 1904 Detroit city directory, living at 242 Bellevue Avenue and working as a "draughtsman." Also in 1904 he married a local Mt. Vernon girl, Mary Norton Clarke. He went to work for Oldsmobile chief engineer Howard Coffin and soon became his "righthand man." No specifics are known of his early work at Olds, but he moved to Lansing, Michigan late in 1905 when the company operations shifted to that city.[8]

In January 1906, he attended the New York Auto Show as a factory representative, along with the Smith brothers, Coffin, Chapin, Brady and others.[9] These were chaotic years at Olds. The company was known for its rapid turnover of employees. Many, such as R.E. Olds himself, had better ideas and formed their own enterprises. Late in 1905 Coffin had a hot rod 40 hp car on the drawing board, but it was killed after the suppliers had already been contacted by the purchasing department. Sales were poor at the 1906 New York Show, only 100 of the once-popular single cylinder models were ordered, along with 100 Model L two cycle, two cylinder cars and 1500 of Coffin's newly-designed 24 hp four cylinder Model S Gentleman's Roadster and Palace Touring cars. This is a far cry from the 1905 production of 6500. This prompted Coffin, Chapin, Brady, and Bezner to depart and form Thomas-Detroit Company with Buffalo's E. R. Thomas of Thomas Flyer fame. George Dunham took over Coffin's chief engineer's position at Olds in June, 1906.

The next year Dunham brought out Coffin's cancelled 35/40 hp design priced at $2750, identical to the Thomas-Detroit entry. The Olds Models A & H shared several design characteristics with the Thomas-Detroit, including a particular distributor location at the rear of the motor. It failed to stem the falling production, with only 1200 of the cars produced in three or four different body styles. Coffin, meanwhile, produced 500 of his car in 1906 and 750 the following year.

Much has been written about the Smith brothers' mismanagement of Olds before Billy Durant's takeover, a great deal of it correct, in tone if not in detail. Production continued to fall after Coffin's departure. The single cylinder model was continued through 1907 but barely sold a hundred cars a year. For 1908 Dunham and a not-very-well-known staff increased the bore a quarter inch on the four, produced both $2750 and $1900 chassis, added two cylinders, and presented the Model Z six cylinder. (This car is a direct predecessor of the famous Limited models of 1910-12.)

It didn't help. Total production fell to 1,000 cars. By the autumn of 1908 Dunham felt his future also lay elsewhere and started looking for another proposition. He

Dunham, Coffin, and friend in the same experimental 1905 Olds. D.J. Kava Collection.

was well connected by then, having joined the Society of Automotive Engineers. He would later serve an important role in the organization.

Dunham started filing patents during his later days at Olds. No complete list of his applications has come to light, but at least four were granted and assigned to Olds. These were a dashboard pull button throttle which replaced a lever on the steering column, an inside front fender shield acting as a mud guard which also acted as an added brace, an engine valve operating mechanism, and a capped gas pedal control. The latter was filed on March 5, 1909, five days after he officially resigned.

* * *

The original University of Michigan "boarding house gang" lived at Howard Coffin's mother's house in Ann Arbor and was composed of Coffin, Roy D. Chapin and Roscoe B. Jackson. Jackson, the only one to graduate, followed his friends to Olds and was later recommended to E. R. Thomas and hired as assistant general manager in Buffalo, New York. In September 1907 Jackson married his best friend's sister, Louise Webber, who also happened to be the niece of the very rich bachelor, J. L. Hudson of Detroit department store fame. The Thomas factory had numerous quality control problems and when Hudson offered to help finance Jackson's own car company, the newly-weds were soon on their way back to Detroit.

Jackson felt there was a good market for a low-priced, high production, up-to-date, lightweight car. That must have suited George Dunham also, for he signed on in October 1908 while still holding his Olds position. Plans were laid for a two cylinder model. Dunham must have done much of the design work, while Jackson started arrangements with his old friends now in high places at the Chalmers-Detroit Company, who ended up paying salaries and setting them up in a small empty Detroit factory building. Dunham claimed to be in charge of both engineering and production at the start of Hudson.[10] That probably didn't last long, no more than a few months at most. Drawings were produced for two different two-cylinder models. Then Coffin and the Chalmers partners decided on a four cylinder, the staff grew, and something happened to change Dunham's mind about the whole affair. Perhaps it was the demand that he put up the cash for his 200 shares that prompted a revision in the final paperwork in February 1909, redistributing 199 of his shares to the other partners and leaving him but one share. A year later a patent "steering and control mechanism for motor vehicle" was granted in Dunham's name and Dunham was credited as being the designer and chief engineer in the introductory Hudson Twenty advertising.

The Hudson was an immediate success, and during 1909 the original Thomas-Detroit trio decided to take over the Hudson company and go independent of their previous partners. In a generally amicable separation Dunham was traded for Coffin and Dunham was specifically mentioned as not to be recruited by the new owners in the separation contract.

In January 1910, Dunham stepped right in as Chalmers' chief engineer, and would also eventually take over Coffin's position as second vice president at Olds. This time, Dunham inherited a better product line. The original Coffin "Forty" had been worked into a relatively fast and reliable auto, but at $2750 its sales were limited. In June 1908, dealer shipments of the Model F "New Chalmers Detroit" 24 hp began. After the first batch, the "Fs" became "Thirties," and production and sales were still climbing. The bulk of them were the $1500 roadsters and touring cars, but during 1910 $3000 limousines and landaulets were offered. This basic lineup was continued through 1911; then the big "Forty" was dropped and a new short wheelbase Model 10 "Thirty-Six" hp four cylinder and a new Model 12, 54 hp "Six" cylinder, both designed by George Dunham, were introduced as 1912 models.

On October 14, 1911, the Secretary of the SAE sent to all members a bulletin, "Standardization of Drawings and Methods of Dimensioning." This article, written by Dunham, suggested 15 ways to standardize engineering drawings which would help prevent mistakes. In later versions he went on to explain the system he established at Chalmers, standardizing everything from paper size to print style and notations, noting, "It is simply another form of increased efficiency, which is a good thing to work for always."

Dunham patents at Chalmers were production-oriented. The first was a hinged flap at the bottom front of the radiator to be used as a guard. It was filed May 1910. It was followed by an oil can holder, and then in February 1911 a ventilator for the Chalmers motor was filed. While not all information is available on all filing dates for all of Dunham's patents, the year of approval is a good indicator, with patent approval usually occurring from six to 12 months after filing during that era. In 1913 a tank holder was approved. Then, in 1914, probably just before he left the company, another flurry of applications resulted in four patents approved the following year. These included combined lubrication of engine and transmission, a gear pump, and a primer for internal combustion engines. They were most likely applied to the 48 hp 1915 Light Six or Master Six.

When Dunham left Lansing for Detroit in 1909, he and his wife moved into 155 Euclid Avenue West until 1911, then moved to 375 Iroquois Avenue for 1912 with an infant daughter, Mary Ellen. By 1912 Dunham was famous enough to appear in the Paul Leake's authoritative *History of Detroit.* From it we learn Dunham was the designer of the 1912 Chalmers "Thirty-Six" and "Six" models.

In November 1913, Dunham participated with Chalmers, Ford, and Owens in the start of Saxon, producing 3,000, of the $395, two passenger, four cylinder cars in three months.[11]

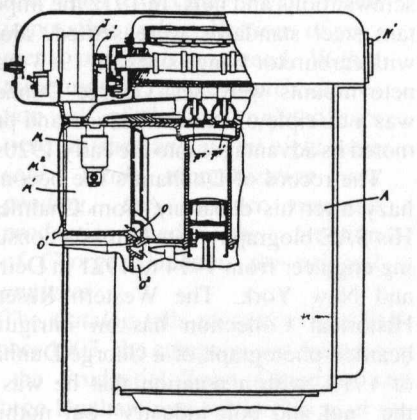
In 1914 he severed his connection with Chalmers, while the company was still prosperous, then served as the second chairman of the Detroit branch of the SAE during 1915-16. The following year, he became the 1917 national SAE president under Coffin's guiding hand.

Howard Coffin and standardization go hand in hand. Coffin was drafted in 1910 to become president of the group which had to fill the gap left by the disbanding of the ALAM mechanical branch. Coffin was familiar with the problems of procuring material to manufacture autos and how every engineer was proud to design everything from nuts and washers to tubing. Coffin paid Coker Clarkson to manage the national office and went about gathering engineers into various committees to establish standards for various material. In 1911 standards were set for annular ball-bearings, non-ferrous metals, rod-ends and pins, seamless steel tubing and screws, bolts and nuts. In 1912 the important steel standards were settled, along with carburetor flange sizes. In 1913 magneto mounts were set. George Dunham was a disciple of standardization and promoted its advantages into the early 1920s.

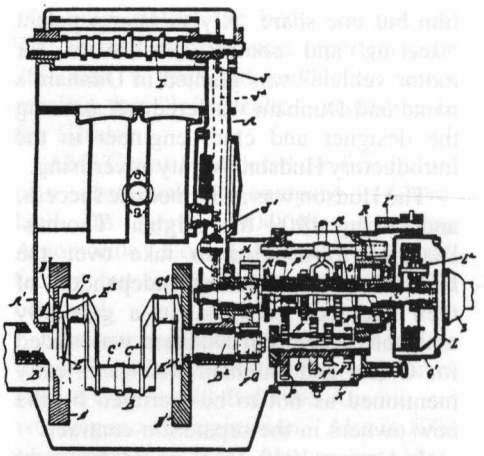
The record of Dunham's life becomes hazy after his departure from Chalmers. His SAE biography lists him as a consulting engineer from 1914 to 1921 in Detroit and New York. The Western Reserve Historical Collection has an intriguing bearded photograph of a George Dunham of 1915, with a notation that he was in the "nut and bolt industry" but nothing else is known of this activity. This would be a logical enterprise for him since the SAE had standardized bolt and screw threads in 1911.

The patent records also give some tantalizing hints. For instance, in 1916 Fred A. Close filed for a device to bore axially curved holes, and assigned half the rights to Dunham. Leonard C. Kenen of Detroit also assigned two patents to him. One was a crankshaft design for a vee type engine and the other was a complete engine and transmission unit featuring a four cylinder motor with an overhead camshaft. All this points to another, possibly independent, automotive or tractor operation, but no other details have surfaced. Dunham was also busy designing a tractor stabilizing bar assigned to the Graham Brothers of Evansville, Indiana. In February 1917, he filed his last patent for two years. This was a compact, shielded gasoline motor which seemed to be a development of the Kenen patents.

Dunham's attention then focused on Coffin's master plan for combining all the various engineering specialties under the newly revised Society of Automotive Engineers to provide a single civilian engineering contact in preparation for World War I. These included marine and aeronautical groups along with truck and tractor designers. In March 1917, the SAE *Bulletin* published his speech made at the Kansas City Tractor Meeting, entitled "The Standardization Work of the S.A.E." The same bulletin published "Possibilities of Tractor Standardization," by Coker F. Clarkson, general manager of the Society. Later, Dunham's president's address to the Washington, D.C. dinner was published, detailing the rapid changes that were occurring in the organization. Dunham also enlarged the Society publication and changed its name to the *Journal*. In the August issue, Dunham wrote of the "Future of the Farm Tractor Industry." On October 10, 1917, he addressed a joint meeting of the Buffalo Section of the SAE and the Engineering Society of Buffalo. It was entitled "Automotive Engineering in the War" and was published in the October *Journal*.



Novel shielded engine patented by Dunham. The carburetor (M) and magneto (J) are enclosed within a cover, which also houses the overhead camshaft.



The Kenen power unit, patent assigned to George Dunham. This engine features dual flywheels, the transmission mainshaft runs at camshaft speed, and the clutch is at the transmission output.

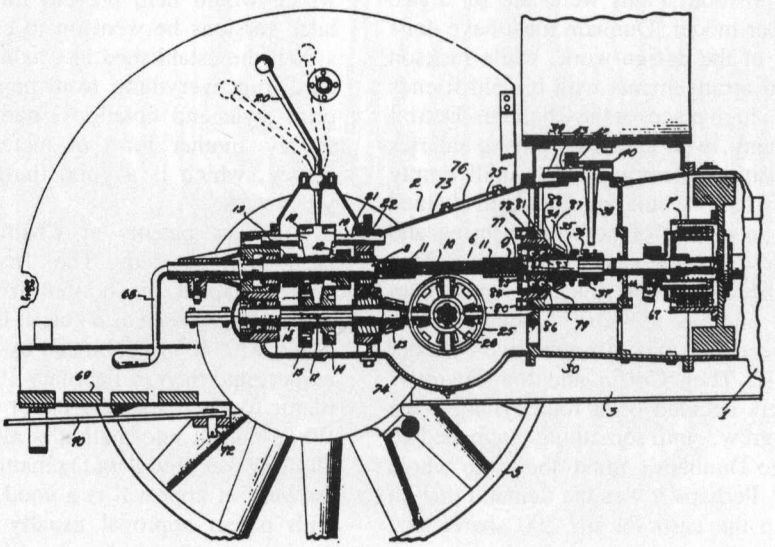
Dunham also joined Coffin, Chapin, Jesse Vincent and many other Detroit notables in Washington doing defense work. A Society office was established in Washington, D.C. Dunham listed himself as the civilian advisor on the Board for Motorizing Field Artillery at the Bureau of Ordnance. Another source listed him as the chief of the Civilian Advisory Committee to the General Staff. He was involved in two major projects. The first was with the Motor Transport Board and the officers of the Quartermaster Corps to develop specifications for "Class A" and "Class B" military trucks. The other was designing motorized artillery pieces with caterpillar-type treads. In 1920 he published a 44 page paper describing tread problems and seeking additional help on future designs. He was recommended for the Distinguished Service Cross for his work but declined it.

By 1919, he was living in New York City and had two patents issued, assigned to the Militor Corporation there. One was for an engine lubricating system, and the other, with L.C. Freedman, concerned axle construction for a tractor. He continued his work on tractors, filing, late in January 1920, two more patents assigned to the Graham Brothers. The latter of these is interesting because it features a starting crank that passes through most of the tractor permitting it to be started from the rear! When he published his "Artillery Motorization" article in March 1920 he listed himself as a consulting engineer for Militor Corporation of Jersey City, New Jersey.

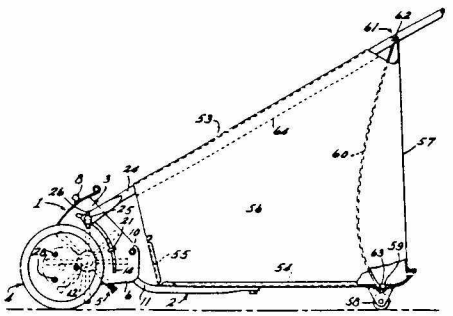
During 1921-1924 he turns up in the Utica, New York, city directories working as chief engineer and assistant general manager of Savage Arms. He listed himself as consulting engineer to Savage Arms when he published "S.A.E. Standardization" in December, 1921.

In 1922 Dunham, now in his mid 40s, married a second Mount Vernon, Ohio, resident, 25-year-old Ruth Rolston, in New York City. It is not known what happened to his first wife and daughter, perhaps victims of the flu epidemic. Ruth then moved to Utica.

In 1923 he filed a comprehensive, 40-claim washing machine patent, assigned to the Savage Arms Corporation. The firm advertised it as the "Spin-Rinse, Spin-



Dunham's tractor patent, assigned to Graham Brothers. The rear-mounted crank is adjacent to the clutch petal, allowing the operator to start the tractor from a single position.



The familiar lawn sweeper was patented by Dunham on December 20, 1955, and assigned to Savage Arms.

Dry" and the "fastest in the world." For the next twenty years, his work concentrated on washing machines, as evidenced by numerous patents assigned to Whirldry (first in Utica and later in New Haven, Connecticut) and Winchester Arms of New Haven. In June 1944 he filed for a toaster and assigned it to his wife Ruth. From 1933 to 1944 he was a consulting engineer for General Electric at Bridgeport, according to his SAE obituary.

Nothing is known of his World War II activities other than his work with GE. During 1947, "spin-dry type" patents were once again assigned to Savage Arms. In the early 1950s he patented a commonly-used push lawn sweeper, also assigned to Savage. He also patented an exercise apparatus, assigning it to himself. As early as 1947, his interests turned to shuttle-less weaving machinery. During the early 1950s he established Dunham Laboratories for textile research in Knoxville, Tennessee. Some of this later patent work was shared with John R. McDowell, of Knoxville. However, this must have been fairly low key as neither the laboratory nor McDowell appears in Knoxville directories. He was associated with the Cherokee Textile Mills of Sevierville, Tennessee, and conducted independent consulting work through the George W. Dunham Company.

George Durham officially retired in 1955 and took up painting, after his wife gave him an anniversary gift set of oils and lessons. His SAE obituary noted, "George Dunham found great happiness during his later years, extending his creative talents into the field of art. Many fine paintings flowed from his brush to decorate his home and his studio-workshop ... where he worked also on his engineering design and inventions." Ruth and George wintered each year in Delray Beach, Florida as members of the Bath & Tennis Club. He was also a member of the Sons of the American Revolution, the Mayflower Society, the American Society of Mechanical Engineers, and the British Society of Engineers. On May 22, 1959, a loom patent, number 2,971,540 was filed. In 1961 it became his last approved filing, ending a half century association with the US Patent Office.[12] George Dunham died February 17, 1965 in Norwalk (Connecticut) Hospital, a few months before his 87th birthday.

George Dunham made his mark on America: from the earliest automobiles to the way we wash clothes today. There were no "Dunham" cars or "Dunham" washing machines or looms. There didn't have to be. His contribution to the world was doing his job: Twentieth Century American Engineer.

NOTES

1. *Roy D. Chapin* by J.C. Long, privately printed, 1945. This family authorized biography is the standard reference point which most accurate stories use for the 1906 through 1910 era evolving Hudson, Thomas-Detroit and Chalmers. The book is not without its flaws, but serves as a guide to the Chapin Papers at the University of Michigan, which enlarge the perspective considerably. In addition to Coffin, R.B. Jackson also lived at the boarding house. Chapin was a frequent visitor. By 1902 all three were in place at Olds. Coffin in engineering design, Chapin in sales and Jackson as the Smith brothers' secretary. They added James J. Brady as factory manager, and this group stayed together through 1910.

2. *New York Times*, February 19, 1965; *Town Crier*, February 20, 1965; *Alumni News* Lambda of Delta Kappa Epsilon, May 1958, Kenyon College, Ohio. The earliest published reference to his age appears to be in the January 11, 1917 *The Auto*, which lists his birthdate as May 4, 1876 instead of the family-provided obituary information of May 1978.

3. *Standard Catalog of American Cars, 1805-1942.* Beverly Rae Kimes and Henry Austin Clark, Jr., 1988. Krause Publications, Iola, Wisconsin.

4. Paul Leake, *History of Detroit*, Vol. III, p1205-6, 1912. The Lewis Publishing Company, Chicago & New York. There still exists, as a historic building, a Dunham Tavern on Euclid Avenue in Cleveland, but George has not been conclusively tied to the place. Correspondence with Mrs. Trina Perry Sikorovsky, Director of Alumni Relations, University School, Cleveland, Ohio, November 29, 1989.

5. Correspondence, Thomas B. Greenslade, Kenyon College Archivist, June 10, 1975. Comparison job descriptions from *History of Detroit*, Paul Leake, 1912 and Society of Automotive Engineers obituary, April 1965. Dunham maintained his Deke membership for the rest of his life, becoming the fraternity's oldest member by the late 1950s.

6. *The Automobile and Motor Review*, June 14, 1902, p5.

7. Cleveland *Plain Dealer*, September 17, 1902. Richard Wager, *Golden Wheels*, 2nd corrected edition, 1986, John T. Zubal, Inc.

8. *The Automobile*, January 25, 1906, p.257; Lansing, Michigan city directories.

9. *The Automobile*, January 25, 1906 p.257.

10. SAE *Journal*, April 1965.

11. *Antique Automobile*, March-April, 1981, p.28, published by the Antique Automobile Club of America.

12. I must acknowledge the help of the late Hudson-Essex-Terraplane Club member John Thomas, of Buffalo, New York, in getting me started in patent research and for providing much of the initial information.

Savage advertisement from the 1925 Utica city directory.

The Crosley "Quicksilver" Engine

by Jim Hockenhull

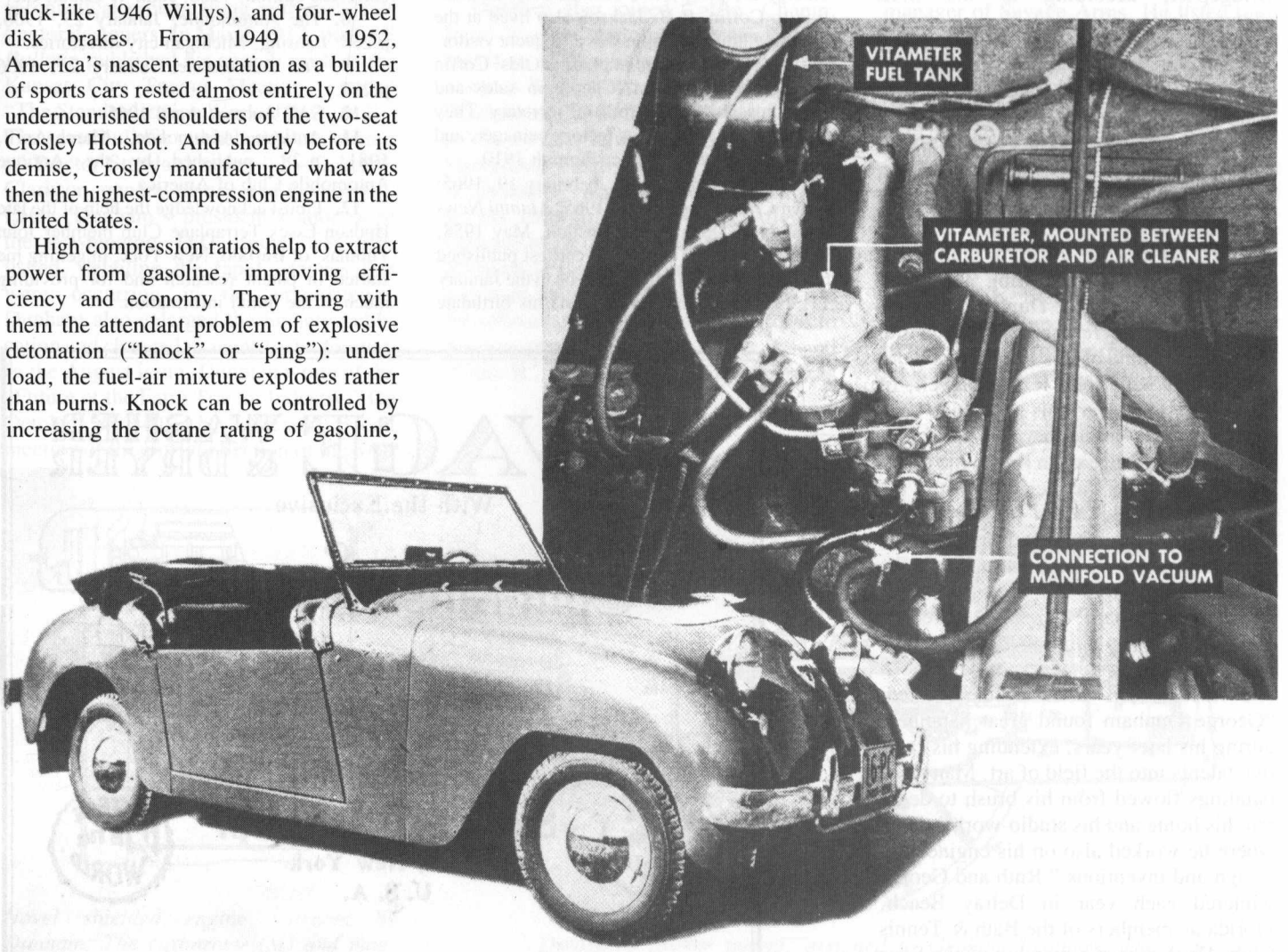
Of all the hopeful makers of post-WWII "midget" cars, Crosley Motors, Inc. of Cincinnati came the closest to success. It failed, of course. But while the King Midgets and Towne Shoppers and Imps and Eshelmans were little more than lawnmower-engined kiddie cars, the Crosley was recognizably an automobile, albeit a tiny one. It came in an impressive variety of models. It would go down the road at a reasonable speed with a tolerable amount of discomfort, delivering impressive fuel economy in the process. Crosley Motors managed to build over 70,000 cars, and during its postwar lifetime proved to be a willing innovator. Many standard features of modern automobiles appeared over forty years ago on Crosleys, including the overhead-cam engine, the all-steel station wagon body (preceded somewhat by the truck-like 1946 Willys), and four-wheel disk brakes. From 1949 to 1952, America's nascent reputation as a builder of sports cars rested almost entirely on the undernourished shoulders of the two-seat Crosley Hotshot. And shortly before its demise, Crosley manufactured what was then the highest-compression engine in the United States.

High compression ratios help to extract power from gasoline, improving efficiency and economy. They bring with them the attendant problem of explosive detonation ("knock" or "ping"): under load, the fuel-air mixture explodes rather than burns. Knock can be controlled by increasing the octane rating of gasoline, but in postwar America, high-octane fuels were expensive and not readily available. Furthermore, studies showed that the conditions under which premium fuel was required – starting, climbing hills, accelerating – accounted for only a fifth of normal driving. In theory, a high-compression car could burn regular gasoline 80% of the time without any problem, provided compression could be lowered or octane raised under full-throttle conditions.

In the late 1940s, I. B. Humphreys developed a "controlled compression" cylinder head for side-valve engines. It used auxiliary pistons to change the size of the combusion chambers, reducing compression under load, increasing it otherwise. Ratios on his modified 1949 Oldsmobile 76 ranged from 6.5:1 all the way to 14:1. Humphreys reported a 50% increase in gas mileage, and claimed it would be cheaper for manufacturers of L-head engines to use his device than to re-tool for overhead valve designs.

Most experimenters chose to vary the fuel supply. Socony-Vacuum proposed a rather straightforward solution: a car with two tanks, one for regular, one for "high-test," and a carburetor that supplied the higher-octane fuel only when needed, need being determined by engine vacuum. Others worked with the fact that a metered injection of water vapor would "cool" the mixture of gasoline vapor and air to prevent explosive detonation.

Now the little Crosley 44-cid four-banger, with its single overhead camshaft



The "Quicksilver" alcohol-water injected high-compression engine, and a 1951 Super Sports roadster in which it was an option. Details of the Vitameter installation are shown. Jim Hockenhull Collection.

and five main bearings, seemed capable of putting out more grunt than its stock 26.5 horsepower. Indeed, builders of H-Modified racing specials proved that *very* high revs and significant power increases could be milked from the lightweight mill with lots of tender, loving care – and money. But Powel Crosley, Jr. always kept one eye firmly on the bottom line while the other searched suppliers' shelves for marketable innovations. His gaze fell on the Vitameter water-injection system made by Thompson Products.

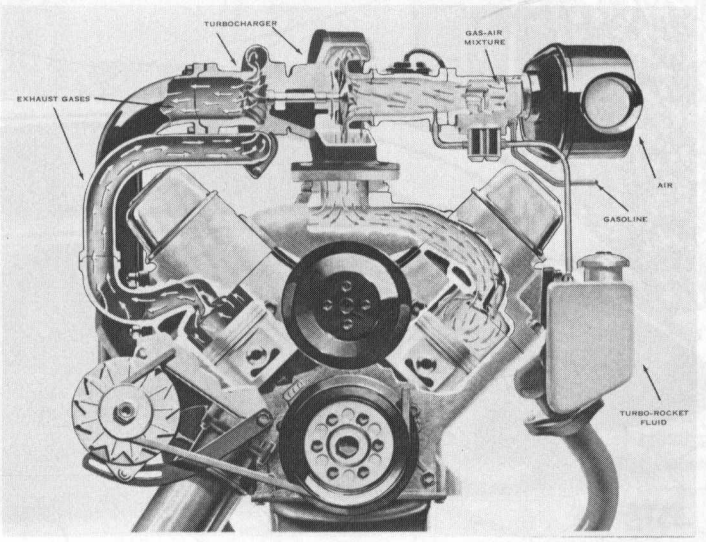
Yellow Cabs around Cleveland, Thompson's location, had been running on 58-octane gas since April, 1948, using the Vitameter, a sort of secondary carburetor which squirted an anti-knock fluid into the fuel stream when needed. As in the Socony dual-fuel system, low engine vacuum triggered the event. The fluid, called "Vitane," was a solution of water and alcohol with just a pinch of lead tetraethyl. (In 1962, Oldsmobile revived this concept on their turbocharged *Jetfire* engine. They outdid Thompson in inflated nomenclature by calling the water-alky mixture "Turbo-Rocket Fluid.")

For 1951, Crosley offered an optional engine called the "Quicksilver" in its Super Sports roadster. An astonishing 10:1 compression ratio was made possible by the Vitameter attached to the carburetor and a little tank of Vitane screwed to the firewall. By contrast, the contemporary Pontiac 8, which had the words "HIGH COMPRESSION" cast into its cylinder head, ran at 7.5:1, as did the Olds Rocket 88, every hotrodder's dream engine.

The Quicksilver's injection system sprayed Vitane at about 20% of the total fuel mixture under conditions when knocking was most likely to occur; it did nothing when nothing was required. Vitane consumption was estimated to be 600 mpg for city driving and up to 2000 mpg on the highway.

Although Crosley made vague claims of additional horsepower, better hillclimbing, and higher speed, the Quicksilver was rated at the same 26.5 hp as the standard engine. 35 hp seems a more likely figure. It is not known how many units were built. By the time the option was introduced, Crosley Motors was busy dying the Death of the Independents. It succumbed in June, 1952. The 10:1 Quicksilver engine stands as one of several faded historical markers, bearing the name of Crosley, along the road of American automotive evolution.

COBRA in his lap: Powel Crosley with a standard four cylinder engine. This is not the "Quicksilver," but the earlier steel block (COpper BRAzed) engine. The CIBA (Cast Iron Block Assembly), on which the "Quicksilver" was based, had a similar appearance, but would have been less comfortable. Jim Hockenhull Collection.



Old technology revisited: When Oldsmobile needed a way to control detonation in the 1962 turbocharged "Jetfire," they used the old alcohol-water injection technique. Instead of "Vitane," they called it "Turbo-Rocket Fluid." From the editor's collection.

Tatra T77: Pioneer of Streamlining

by Dr. Jan Tulis

During the thirties, many car makers were interested in aerodynamic car bodies. In accordance with the new construction of the time, Czechoslovak automobile firms were very active.

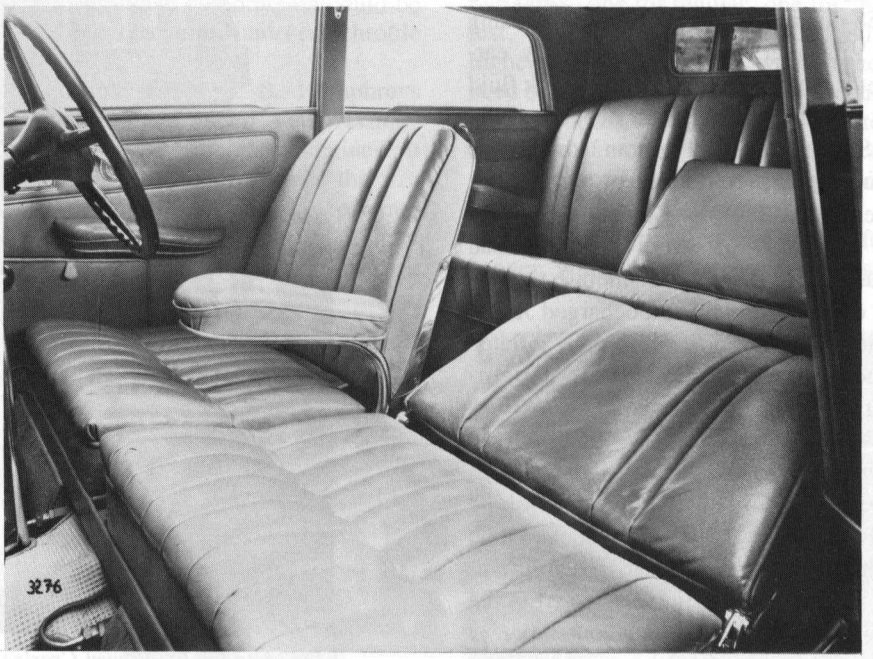
In Tatra Kopřivnice the first design studies of streamlined bodies were realized by the team of designers with Mr. Hans Ledwinka from 1932. In 1933, project T77 was the milestone in the development of Tatra streamlined car. Mr. Uebelacker, a Tatra engineer, had experience with the small forerunner of the prototype, the V570 with 2 cylinder rear air cooled engine and streamlined body.

The new Tatra T77 was presented near Prague on March 5, 1934. The car, with rear mounted V8 air cooled engine, swing axles, central steering, and ample interior space, had completely streamlined coachwork. The top speed of the car was 145 km/h (90 mph) and fuel consumption was 15 litres per 100 km.

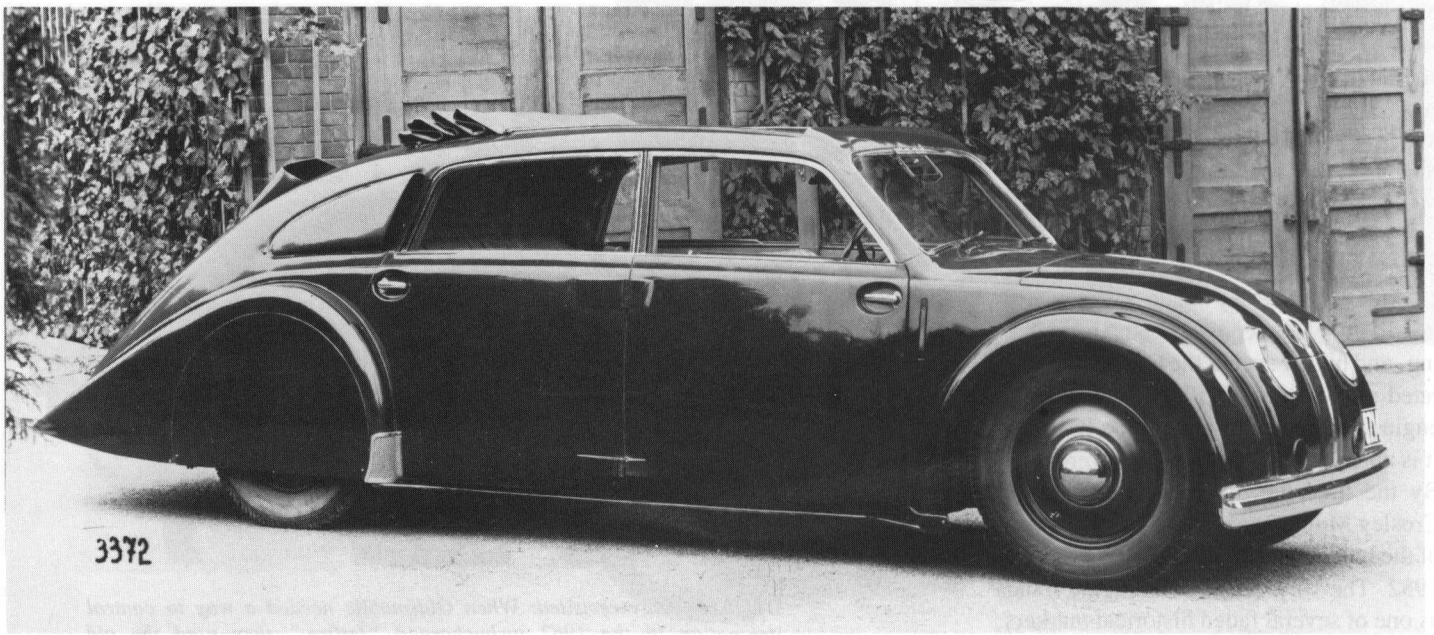
The Tatra T77 was greatly admired by experts and car fans, too. The Prague, Berlin, and Paris motor shows appreciated the new construction. The T77 received a number of changes between 1934 and 1935. The changes were required for mass production – the central steering, windscreen, headlamps, rear wing, and air intakes.

Only 105 Tatra T77s were built. The basic price was 8000 Marks in Germany in 1934. For comparison, the 8 cylinder Mercedes 500 K Cabrio was priced at 22000 Marks. In 1935, all the experience gained from the Tatra T77 cars was included in the T77-A with a more powerful engine.

The Czechoslovak Tatra T77 is a very important point in world car history: it is the first streamlined car of advanced engineering to reach production.



Interior of the Tatra T77. When pioneers in the use of reclining seats are cited, Tatra is rarely mentioned. From the author's collection.



Tatra T77's advanced features went below the skin. The car featured a backbone chassis, independent suspension, and rear-mounted air-cooled V8 engine. From the author's collection.

The Origins of Front Wheel Drive

by Charles W. Bishop

About 60 years ago considerable excitement in the automobile world was occasioned by the *re*-introduction of front drive cars, Cord in the United States, Tracta in France, and Alvis in England. Tracta and Alvis made their debuts at Le Mans in 1927 and 1928 respectively. Tracta was the more persistent, competing six times in all between 1927 and 1934. Alvis came back but once, in 1929. No Cord appeared at Le Mans during those years, although the family was represented by Duesenberg in 1933, when its splendid performance was negated by Prince Nicolas of Romania, its driver, who ignored a refueling restriction. Tracta's influence, thanks to the effort of its creator, J.A. Grégoire, led D K W to introduce a three cylinder front-drive light car in 1929, and Rohr to bring out the Adler "Trumpf", which was in turn licensed back to Rosengart in France in 1932. The Cord was launched in the inauspicious depression year, 1929, with the L29, which was then abandoned in 1932, and the 810 came on line in the fall of 1935. Errett Cord rang down the curtain on the 812 in 1937. Production of the three types was slightly less than 7000, a respectable figure for a car of its special appeal.

Those who favor the unknown may recall the Donnet (1931), the Super-Aigle (1934-5), and the Astra by Impéria of Belgium (1933). They may prefer to study the Bucciali sixteen cylinder, one only, or a few powered by Mercedes supercharged six cylinder or Voisin twelve cylinder engines, or the T.A.V. powered by an eight cylinder Continental engine, which made its deput at Paris-Nice before a 1931 tour of the United States and Canada, vainly hoping to convert a prototype to a production car. That inauspicious year also saw the appearance of a German make, the Brennabor, in front drive version. Citroën began its 55 year addiction to front drive by introducing it to the world at the Olympia Show in October 1934. Its many remarkable characteristics beyond front drive are quite beyond review here. For this essay it is perhaps sufficient to say that it took the concept out of the theoretical and experimental and established it as the way to go. That it is the dominant solution in today's market is not an exaggeration. Austin, for economy cars, enlarged the market in 1959, and General Motors might be said to have legitimized it for the American market with the 1966 Toronado. (I find it personally too difficult to avoid repeating a comment in my 1971 book that as released to the public it should not have been plagued with rear wheel lock-up, the generic fault of the breed.)

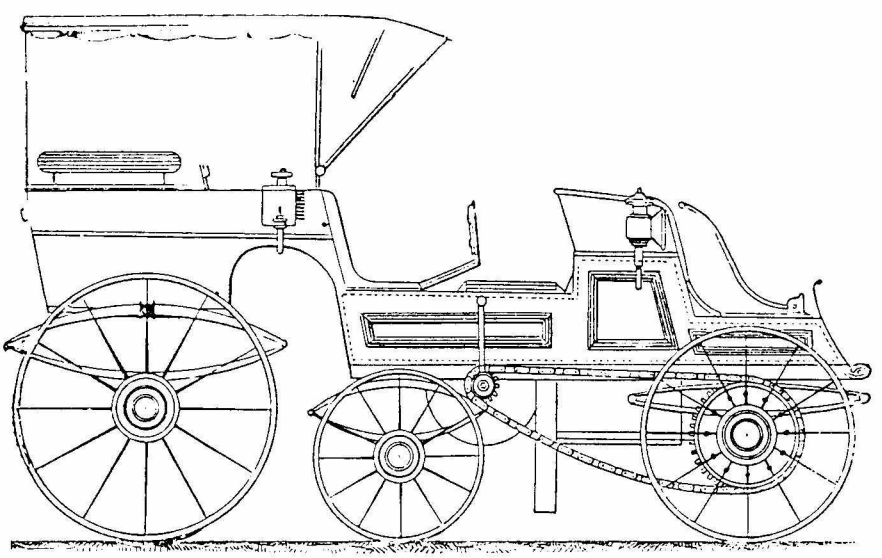
THE INNOVATORS

In the beginning there was the Cugnot *Fardier*. Its presence in the seal of the Society of Automotive Historians is sufficient in itself. A translation of the pamphlet published by the museum which guards this mechanical treasure was furnished members a few years ago. (See *La Voiture à Vapeur de Cugnot, Automotive History Review* Number 21.) It told the story.

A philosophical observation may be appropriate here. At the advent of automobiling, vehicles were not pushed, they were *pulled*. The logical transition was from horse-drawn to motor-drawn. The pioneers powered the rear wheels because of the added complication attendant on powering the steering axle. Lepape, as we shall see, solved his problem by front drive and rear steering. Prétot and others combined the traction problem with the adaptation of existing vehicles by substituting a *fore-carriage* for the front axle and wagon pole.

The first gasoline car using front drive appears to have been the Lepape, first mentioned in 1897, but fully described in *Voitures à pétrole* in the same year, and in the English version, *Petroleum Motor Cars* the following year. That first car had three cylinders set 120 degrees one from another, forming a Y, weighing 475 pounds and developing six horsepower. Gas was vaporized in the carburetor by hot water (from the coolant). At this stage, many cars clung to the governor to control the speed of the engine, and hence that of the car. The author, Louis Lockert, who brought considerable expertise to his task, makes no mention of it, but does describe a hand throttle in the second vehicle, so inference that the same may have been found on the first seems reasonable. Both cars used friction drive, gaining simplicity and problems. The first car was offered not later than 1887. Both cars separated the chassis and its machinery from the body, an imperfect solution on rough roads or uneven surfaces as the controls would bob up and down with reference to the driver's seat, but the method was adopted by many pioneers at this early stage of development.

The first car seated 4 or 5 persons, but removing the rear bench seat permitted the attachment of a carriage, in this instance a break, a style favored by many for country living, and particularly hunt-

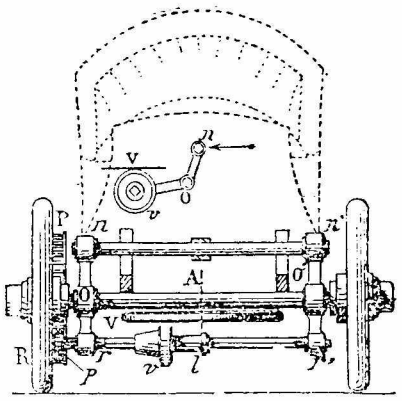


Lepape's first car, offered not later than 1887, with the break attached at the rear.

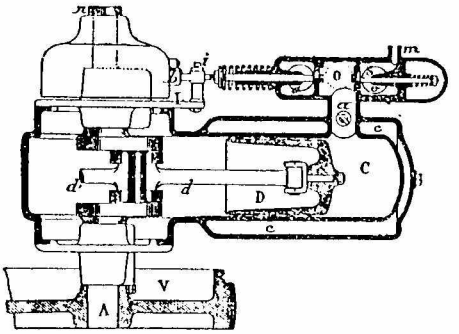
ing. It was an early equivalent of the station wagon. The second car was a two seater, and Mr. Lepape again chose to steer with the rear wheels, an anticipation of the layout of the forklift truck. Illustrations of the semi-trailer system of the first car and its three cylinder engine, and of the second car in a rear three-quarter view and front elevation, are self-explanatory, but brief comments are provided in the captions. Lockert's description required 5 pages, more than space considerations of this publication allow. Lepape was one of many makers who thought being able to use a carriage already in his possession would motivate prospective buyers, being spared the cost of custom coachwork.

Lepape carried the divorce of chassis from body a bit further in his second car. The side pieces of the chassis frame can be seen in the illustration, and he has achieved what later came to be called a "double drop frame," favored about ten years later to keep floor levels lower, particularly with closed bodies. The body rests on two full-elliptic springs at the rear and a transverse spring (not visible in the illustration) supporting the body at the toe-board. All the controls move with the chassis and the driver has to deal with the relative movement as best he can.

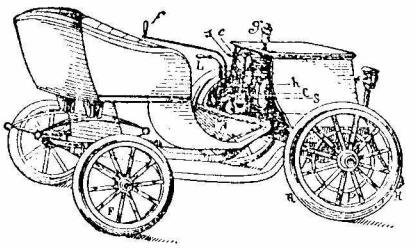
A feature of the car is the use of pneumatic tires on all four wheels, a radical advance on the practice of the day. The chassis complete weighed 660 pounds, the body, whether aluminum or wood, about 300 pounds, and 10 mph was claimed when carrying two passengers. No explanation was offered for not making both front wheels drivers, which could have been accomplished by adding a differential. One may surmise that it was to keep the cost down. It is odd that Doyle (*The World's Automobiles*) omitted Lepape, as Lockert (op.cit) provided the illustrations used here and voluminous description, and Lepape's name and works address appeared in *Annuaire Général* in 1897 and 1898. He was mentioned in *Le Chauffeur*, 1897, and listed as an exhibitor in the Paris Salon in *La France Automobile*'s Show Number.



A front elevation of the drive mechanism in Lepape's second car. The mechanism shown in the "dotted" region is a side view of the linkage for engaging the friction driving disk (V) *with the driven disk* (v). P *is the gear attached to the right front wheel (the left wheel idles), driven by pinion* p. *Movement of* v *varies the forward speed; sliding* v *to the left of center (right side of the diagram) gives reverse. Moving the transverse rod* n-n' *forward disengages the drive.*



A sectional view of Lepape's motor, showing one of the three cylinders with water jacket c, *piston* D, *conrods* d *and* d'. S *and* s *are the valve boxes cast in one piece with the cylinders, cam* b *presses on finger* i, *raising* s *for exhaust.* I *interacts with* i *to open* s *for each of the three cylinders in sequence. The flywheel* V *serves also to drive the friction transmission. Carbureted fuel enters at* m. *Chamber* O *has the dual function of intake and exhaust.*



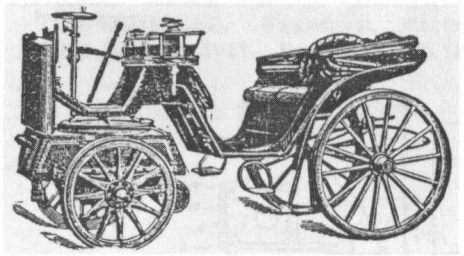
Lepape's second car placed a single cylinder motor under a japanned hood. The sight feed lubricator is seen at g, *rear steering is by lever* f, *speed control by lever* L. C *is the cylinder,* c *the gas tank,* s *the hand throttle connected to valve* S. *Power is applied to front wheel* P *at 300 rpm.* H *is a spoon brake.*

THE FORE-CARRIAGE

Another solution to the application of power to road vehicles was the fore-carriage. Among those choosing this route were Prétot in France, and Kuhlstein-Volmer in Germany, the latter being an electric. The Prétot works were at 42 & 46 avenue Philippe-Auguste, Paris, and Ernst Kuhlstein's "wagenbau" was in Charlottenburg, Germany. The Prétot seems to have been the first of these constructions, having been displayed at the Salon du Cycle et de l'Automobile in 1896, described succinctly in Hasluck's *The Automobile, Its Construction and Management*, a translation of Gérard Lavergne's monumental French work. Hiscox disputes this, stating that the Kuhlstein-Volmer was first, and the Prétot a French version. There is no mention of either firm in the massive listing of Doyle, but Prétot appears in the aforementioned *Annuaire Générale*, 1897 and 1898, and *Le Chauffeur* 1897. Kuhlstein-Volmer missed 1897 in *Annuaire Générale* but was listed in 1898, and was featured in *der Motorwagen* in 1899 and again in 1905 with illustrations. However, Hiscox supplies the interesting information that the Automobile Fore Carriage Company of Astor Court, New York was the American manufacturer of this Kuhlstein-Volmer, but the description includes reference to a four cycle motor. The *der Motorwagen* reference is no longer available to me, but a speculation might be that K-V had indeed produced electric fore-carriages and subsequently switched to the Prétot. For good measure, plans of the Amiot-Péneau and Ponsard-Ansolini motor fore-carriages are subsumed, as are the Jeantaud, the Doré, the Wing truck, and Walter (see *SAH Journal* numbers 118, 119, and 120).

For most of these the illustrations are self-explanatory, many inventors seeking a workable solution to a good idea. The Wing truck deserves separate consideration. Quoting from Hiscox: "The arrangement for steering, stopping and starting are all made very strong, but these operations are all done mechanically and require but little power on the part of the 'Moteer,' in fact, this wagon has less labor for the operator than the small electric carriages." He further states: "The motor has the outer end of each cylinder arranged as an air compressor ... compressed air for starting the motor ... air brakes, blowing a whistle ... etc."

Jeantaud may be unfamiliar to American readers, so his work as a *carossier*, which extended over at least two decades, should be mentioned. It included the "Jamais Content," the cigar-shaped electric which was the first vehicle to exceed 60 mph, some elegant Serpollet steam tricycles, and some petrol-electric vehicles.



The Pretot fore-carriage attached to a victoria carriage.

Last but not least of the fore-carriages is the Riancey which enjoyed some attention in the 1950s when it was one of a set of prints of cars of the millenium, prettily colored and intended for framing. The others were standards of the day. *Automobile Quarterly* pictured it in volume 1, number 4.

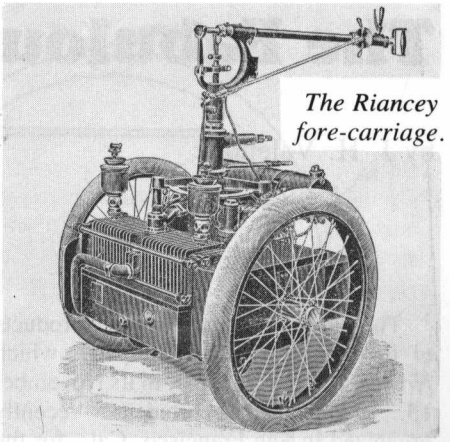
RELATED VEHICLES

Related vehicles fall into two categories. There is the trailer appended to a tricycle, such as that merchandised by millionaire expatriate Earnest Archdeacon. Intended primarily for the ladies, it afforded a more discreet and comfortable conveyance in a day when ladies did not ride astride. The second type was a tricycle with a motor mounted directly over the front wheel. A Cyklonette embodying this system was illustrated on the back cover of *SAH Journal* number 117. Another was the pretty little three-wheeler whose unwieldy name, J. De Boisse & Veuve Levassor, marked the investment by Emile Levassor's widow in the 1900 inspiration of J. De Boisse. Its appearance on the market was brief. Either of these tricycles could be mistaken for a fore-carriage; the dividing line is faint.

I had long thought that the stem through which all commands must pass would be a tenuous and uncomfortable control, oscillating and wracking the driver's hands and arms, but in the course of reviewing the materials for this essay came across the illustrations of the very large fifth-wheel incorporated in the design. Contemplation of its broad support of the structure suggested that my first impression was ill-founded and that it would work reasonably well and hence was a reasonable solution to the particular problem, which was to salvage the investment in carriages of the prospective motorist. It was not unusual for the affluent to have several vehicles, each appropriate to a particular need: a break or dog-cart for hunting, a runabout for shopping and social calls, an opera coupé for soirées and theater nights, and even a wagon for freighting their household needs. It did seem like a good idea. Perhaps it was; we have no figures on production.

If this was indeed a market waiting to be exploited, and almost every book about automobiles as late as 1907 assured the reader that it was, why was it an ephemeral thing? Why did this system not prosper, why was production so limited?

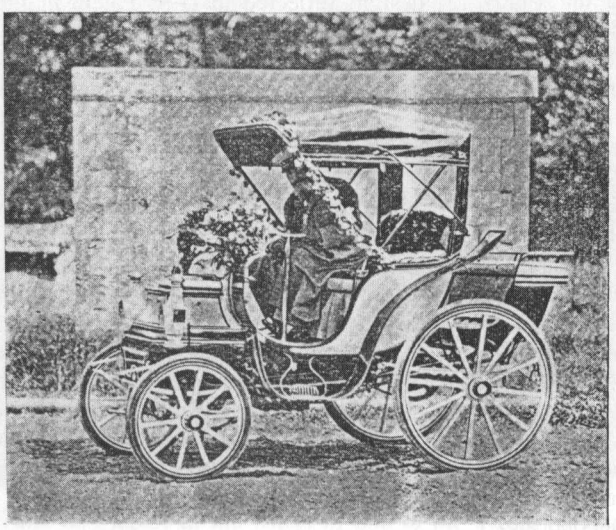
When one remembers that Panhard & Levassor, beginning in 1891 or 1892, did not achieve a cadence of 336 cars until 1898, Peugeot, with a first sale in 1891, produced 78 cars in 1896, 47 in 1897, and 157 in 1898, Daimler produced 2 in 1889 (apparently unsold), 3 in 1892, and 124 more by 1898, and that these three major manufacturers had not yet evolved a true standard model one may reasonably assume that none of the dozen or so makes of fore-carriage offered to the public during this period had moved beyond the experimental state. Benz was the 19th century giant, 1142 cars through 1898, 2317 through 1900. Only Locomobile steamer, about 2000 by 1901, and De Dion Bouton



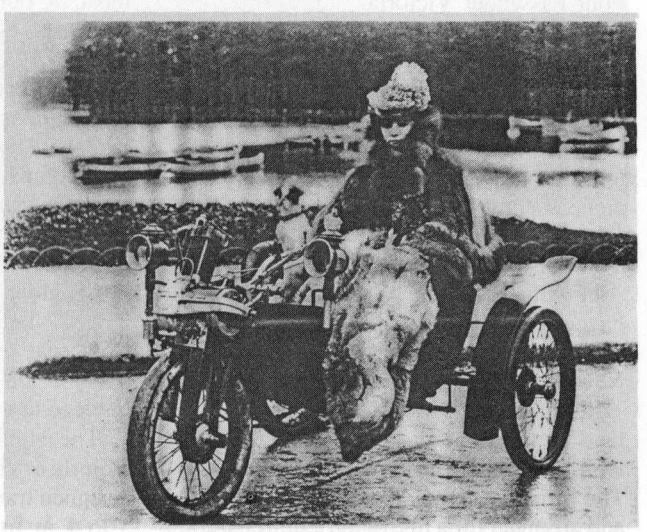
The Riancey fore-carriage.

from 1894 out-produced all others, particularly supplying motors to other car manufacturers. This appraisal is valid not only for the fore-carriage, but also for those other front wheel drive vehicles of more "standard" design. On the other hand, except for the persistence of chain drive on the big cars for a few years, one finds a general acceptance of features which remained standard practice in the industry to the end of the 1920s. Attention to perfecting those standards was the order of the day. The only true advances in those years were the adoption of front wheel brakes and balloon tires.

As the horse dropped out of the picture, fewer minds saw pulling as natural, and pushing became the norm. Nonetheless, a few held to the simple truth that front wheels *fight* the propulsion supplied by the rear wheels while powering the front wheels weds the driver's intent and the angle of the wheels. Tracta, Alvis and Cord revived the sleeping principle in France, England and America. Perhaps falling sales as the Depression took hold influenced them to offer a distinctive product, and an excuse for an overdue change.



The Jeantaud automobile of 1897.



The J. De Boisse et Veuve Levassor motor tricycle of 1900.

The Fabulous Fageol

by J. H. Valentine

The Fageol automobiles were products of the Fageol Motors Company, which *Horseless Age* magazine, in its November 15, 1916 issue, reported as "recently organized in San Francisco, Cal., for the purpose of producing a car to sell in the neighborhood of $10,000." Several sources indicate the firm was incorporated on November 20, 1916, a California corporation capitalized at $3 million. The organization was composed of Louis H. Bill as president, with Frank R. Fageol as secretary and general manager. William B. Fageol, Horatio W. Smith, Dr. Arthur E. Hackett and Rush Hamilton were directors. The initial organization may have included Webb Jay as a vice president.

Louis Bill was an old friend of the Fageols, being the Rambler distributor at the time Frank began selling them in San Francisco and later in Oakland. Mr. Bill later became the factory general manager, and Frank was named Pacific Coast distributor.

The Fageol auto was unveiled at the Hotel Oakland, and later shown at the Oakland Auditorium. It appeared at the 1917 New York show in January and then at the Chicago Salon beginning January 29. One appeared again in New York at the Hotel Astor showing in January, 1918. Known photographs of the cars show 1917 California dealer plates A15 and B15 on two similar, but not identical, two-door touring victorias, neither quite matching the factory brochure's drawing of a Fageol Four Passenger Victoria.

The Automobile magazine for January 25, 1917 reported the Fageol chassis price as $9500. The following week, both *The Automobile* and *Motor Age* indicated the price to be $12,000 with the Kimball touring body and Victoria top, the engine alone costing $5400. A year later, *Motor World* of January 9, 1918 priced the New York display car as $13,000. The book *Automobiles of the World* priced the Fageol chassis at $12,000 in 1921, with showrooms at Hexter (sic) Motors in New York.

Construction of their $500,000 Oakland factory was begun in June 1917 at Hollywood Boulevard and 107th Avenue. The firm had already relocated in Oakland and arranged for a line of agricultural tractors, designed by Rush Hamilton. The intended production of four sizes of trucks designed by Cornelius T. Meyers of Detroit was announced at ground-breaking time. The first of four buildings was occupied in October. Clearly, the Fageol autos and their components had been manufactured at another facility, with much work accomplished before the formal corporation was chartered.

The engine was the Type A-5 aviation unit built by the Hall-Scott Motor Car Company of nearby Berkeley. It was an upright, water-cooled six with a five-inch bore and seven-inch stroke, giving a displacement of 824.7 cubic inches. A vertical bevel-geared shaft drove the single overhead camshaft intake and exhaust valves were both 2½ inches in diameter, inclined at a mere 16 degrees over a curved combustion chamber, far too shallow to be considered hemispherical.

The individual cylinder castings and pistons were grey iron, and the crankshaft, camshaft, and connecting rods were forged steel. The one-piece cylinder head and upper and lower crankcase castings were of aluminum. The crankshaft had seven main bearings. The oil pump produced 30 pounds of pressure. A two-barrel Zenith updraft carburetor was used. Splitdorf dual magnetos fired two spark plugs in each combustion chamber; ignition and lighting used a twelve volt system.

The engines were guaranteed to produce 125 bhp at 1300 rpm. These huge engines weighed 565 pounds, lighter than most of our V-8 engines of the 1950s, despite being over twice the displacement.

The chassis had a 142 inch wheelbase. Most references indicate a range of 135 to 145 inches was offered to suit the body chosen. The wire wheels were 34 by 4½ inch clincher rims, with dual spares appearing on the autos shown. The position of the spares was a bit unique, being near the center of the car. The use of a center door position on each side, rear-hinged, required the use of a sliding front seat to permit entry and exit. The rear of the body had a "substantial" luggage carrier.

The engine drove through a Hele-Shaw twin-disc clutch to a midship Fageol-designed transmission. Its gear ratios were 5 to 1 in first, 2½ to 1 in second and 1 to 1 in high. Final drive in the Fageol-designed differential was but 1.50 to 1.

The chassis frame rails were located under the body sides except near the front. A subframe carried the Gemmer steering, engine, clutch and transmission assemblies. The rear transmission shaft bore the emergency brake, which used a 12 inch diameter ribbed drum. The rear-wheel service brakes used 16 inch diameter ribbed drums. Longitudinal semi-elliptic springs were positioned directly below the frame rails at all four positions. Ground clearance was nine inches. Gasoline capacity was 25 gallons.

The radiator, hood and windshield were a bit unusual. The radiator's honeycomb core was tilted back 15 degrees, which was found to enhance the cooling. The design of the radiator sheff was the subject of Frank's U.S. Patent number 1,263,543, entitled "Vehicle-Radiator Mounting and Inclosing Member."

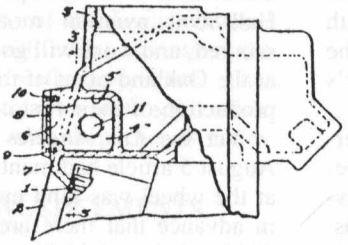
The upper center of the radiator shell held Frank's illuminated nameplate, carved from ivory. The construction was the subject of U.S. Patent number 1,255,521, "Name-Plate Construction for Motor-Vehicles."

The hood and cowling had the now-famous Fageol "dragon's teeth" down their center, a row of six curved, triangular, rear-facing vents. These were intended for underhood cooling, but could be closed using a dashboard-mounted lever.

The slanted two-piece adjustable windshield was also a Frank Fageol design, reflected in U.S. Patent number 1,294,642, "Wind-Shield Construction." The actual windshield had an overlap of three inches between the top and bottom segments, enough, supposedly, to keep out rainwater.

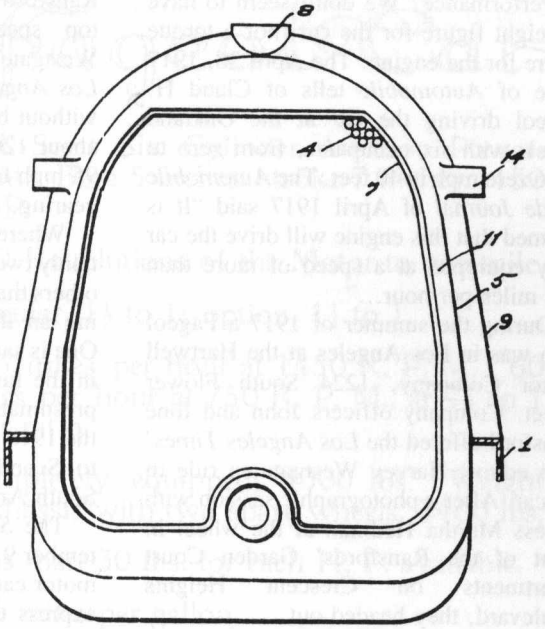
The front seats had forward and lateral adjustment of 18 inches. The floor was mahogany, with silk carpeting. The victoria top had mohair on the outside, and was lined with silk within. All handles, inside and out, were of ivory. Lights were provided inside, under the hood, and even in the lined mahogany toolbox. The aluminum dashboard was glass-covered. The steering wheel angle was adjustable. The emergency brake and shift levers were both to the driver's right.

1,255,521. NAME-PLATE CONSTRUCTION FOR MOTOR-VEHICLES. FRANK R. FAGEOL, Oakland, Cal. Filed June 20, 1917. Serial No. 175,789. (Cl. 40—132.)

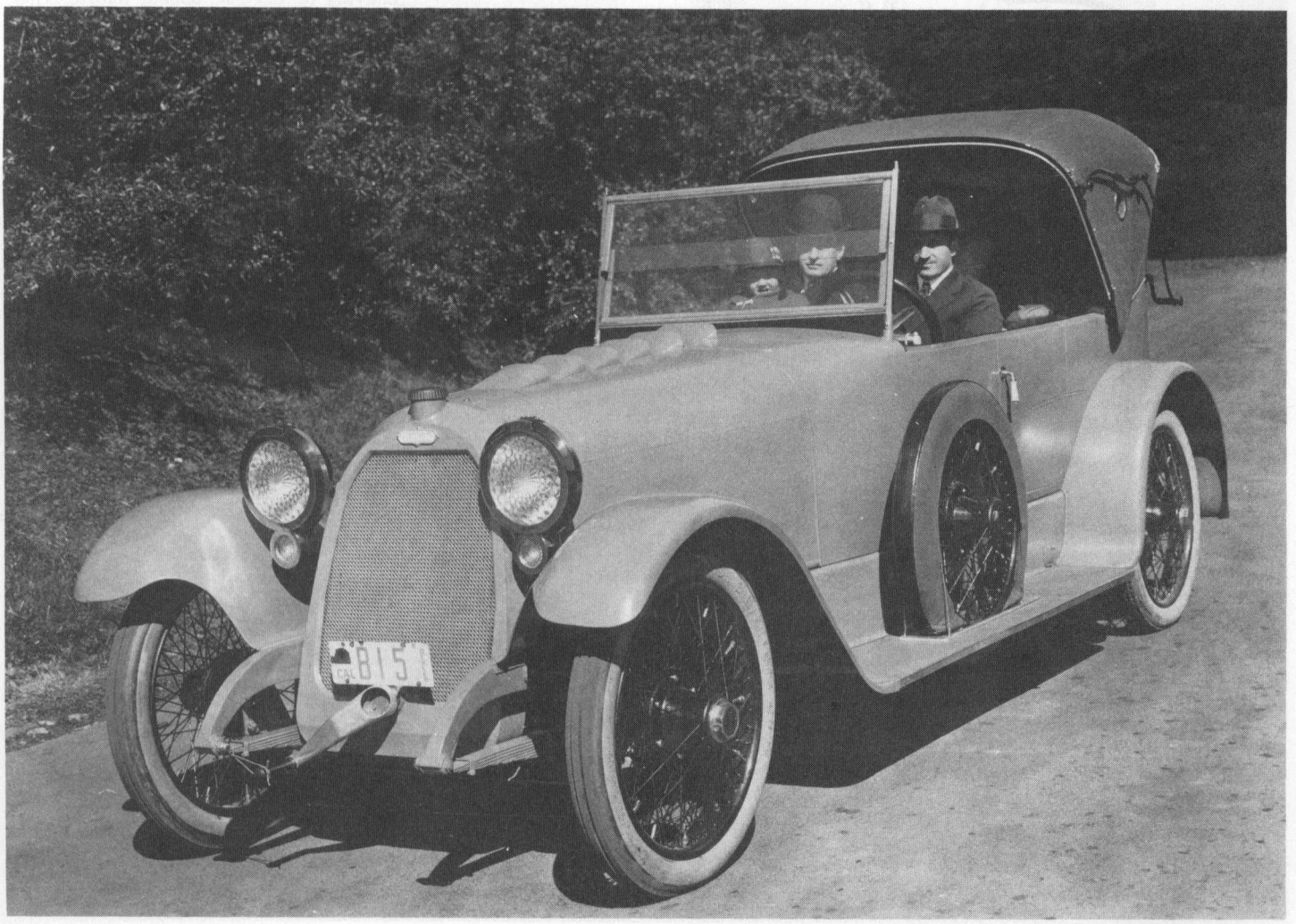


A vehicle radiator shroud of cast metal provided in its upper portion with an elongated integral compartment or chamber closed at its side and end walls by portions of said shroud and having an opening through the front wall thereof, a transparent plate positioned over the opening in the front wall of said shroud for closing said compartment or chamber, an open elongated frame engaging the edges of said plate, and means for clamping the said plate to the radiator shroud surrounding the said opening to retain said transparent plate in position over said opening.

Part of the patent disclosure for Frank Fageol's illuminated name plate. The invention provided "illumination at night in order that the name or make of the vehicle may be easily seen."



Fageol also patented the cast radiator shroud used on his cars. Designed to mate a sloping radiator to a conventional hood, the arrangement was found to cool more efficiently.



Frank R. Fageol at the wheel of one of the Fageol phaetons. Beside him is L.H. Bill, and barely discernible in the rear seat are their wives. The identity of the child on Bill's lap we know not. Henry Austin Clark, Jr. Collection.

Performance? We don't seem to have a weight figure for the car, nor a torque figure for the engine. The April 26, 1917 issue of *Automobile* tells of Claud H. Fageol driving the car at the Oakland Hotel, with six occupants, from zero to 25 to zero mph in 40 feet. The *Automobile Trade Journal* of April 1917 said "It is claimed that this engine will drive the car fully equipped at a speed of more than 100 miles per hour...".

During the summer of 1917 a Fageol auto was in Los Angeles at the Hartwell Motor Company, 1224 South Flower Street. Company officers John and Ione Ransford offered the *Los Angeles Times'* auto editor, Harvey Westgate, a ride in the car. After a photographic session with actress Martha Hedman at the wheel in front of the Ransfords' Garden Court Apartments on Crescent Heights Boulevard, they headed out.

Westgate chose which streets to try out for hillclimb comparisons. Each one they tried resulted in far less elapsed time than he had done with any previous auto. Ransford offered to show him a 95 mph top speed, but the editor declined. Westgate's article in the August 5, 1917 *Los Angeles Times* indicates the chassis without body in place was "credited with about 120 miles an hour." Certainly the 95 mph figure was possible with the car's gearing, in spite of the open body.

Where did the cars go? There were certainly two built. Some have thought three, others that perhaps one was rebodied, giving an illusion of three different autos. One is said to have remained in California in the family of a politician. The other, presumably that shipped to New York for the 1918 show, was rumored to have gone to Scandinavia, later arriving in either South America or Cuba.[1]

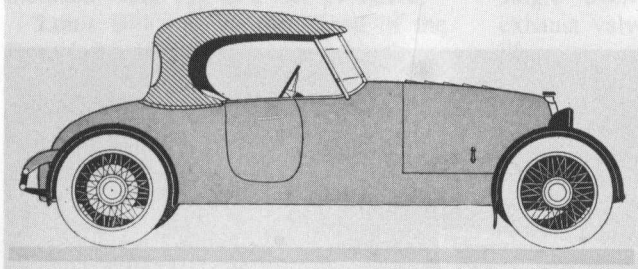
The *San Francisco Chronicle* of September 9, 1917 reported "The first Fageol motor car de luxe will be shipped East by express this week to the Hester Motors, Inc., of New York, and will be the first of a shipment of twenty-five cars ordered by them following the sensational display of the Fageol at the 1917 automobile shows in Chicago and New York. ...

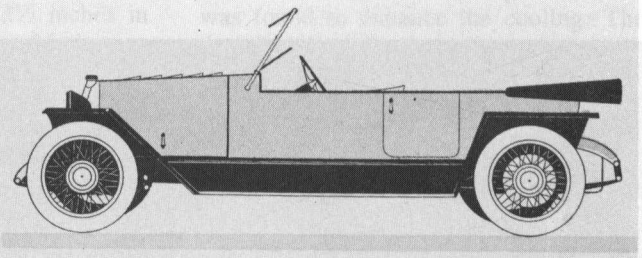
"By special arrangements between the Fageol Motor Company and the Hall-Scott Motor Car Company, twenty-five Hall-Scott aviation motors have been secured, and work will go forward at once at the Oakland plant of the Fageol on the production of their first car allotment."

Yet the *Los Angeles Times* in their August 5 article had mentioned, "the man at the wheel was kind enough to tell me in advance that there are no Fageols on the market – that the government has taken over all of the six-cylinder Hall-Scott motors..."

As early as March 29, *The Automobile* reported "The Fageol Motor Co. has agreed to allow ... its allotment of motors for this period to help in filling the demands of the government. Consequently, the Fageol Motor Co. will accept no further orders for the cars..."

Automotive Industries of January 3, 1918 felt the Fageol was still available, printing a line entry for it in their annual passenger car specification table.





The Fageol Car

THE FAGEOL CAR was conceived and created to increase the luxury of living—and from its minutest refinement to its powerful aviation motor the car abounds in features to which the word luxury most faithfully applies.

As a new but sound departure in motor car engineering practice, a Six Cylinder Hall-Scott Aviation Powerplant is used for the first time in pleasure cars. The aviation motor has been developed to a greater efficiency than any other type of internal combustion engine and the Hall-Scott has excelled in the severest of speed and power tests. Aviation engineers from every part of the world are now coming to the Pacific Coast for the best motor money can buy.

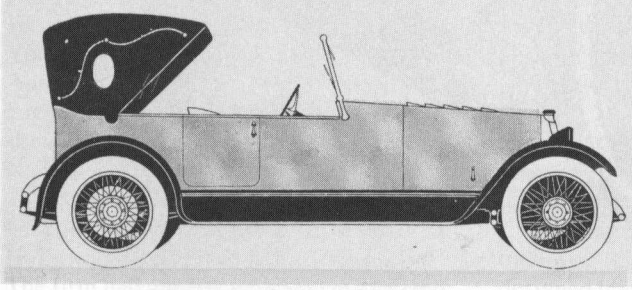
The use of the Hall-Scott Aeroplane motor makes possible any speed, from that of a snail in a crowded traffic center to the onrushing of an aeroplane over unobstructed highways.

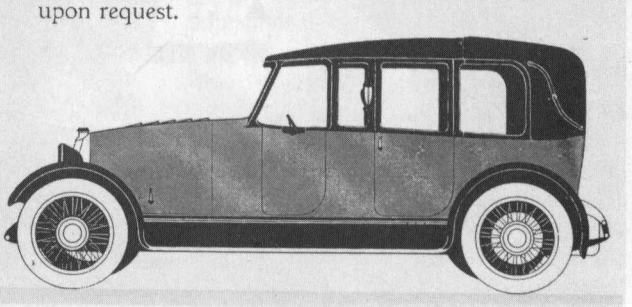
In the Fageol Chassis is found the same excellence of construction and close attention to detail that has characterized the production of fine European cars.

Fageol bodies are custom made–produced individually for you as abroad. The luxury of the appointments is inviting. Fageol upholstering is of the very finest. The color scheme is chosen to suit your individual taste.

Naturally the production of Fageol cars is limited that much time may be given to each individual car.

Catalog will gladly be sent to those interested upon request.





Phantom Fageols: Of the four body styles illustrated in this rare Fageol catalog, only the "rickshaw" phaeton, seen here lower left, was ever built. Henry Austin Clark, Jr. Collection.

The cars were not heavy, considering their size. Nor were they an overpriced assembled auto, as so many components were of unique Fageol manufacture. Were they guilty of displaying excess? Certainly, but with a flair for what the wealthy would really appreciate. One wonders why both autos were sold, while Frank Fageol's wife kept her Simplex salon.

ACKNOWLEDGEMENTS

The author would like to thank SAH members Ralph Dunwoodie, Elliott Kahn, Bill Lewis, Jeff Minard, and Frederick Usher for assistance in the preparation of this material. Further reading on the subject may be found in *Automotive Industries* of August 30, 1917, Alex Ullman's engine-related article in *Bulb Horn* of March-April 1977, and Frederick Usher's fine "Fageol's Folly" in *Automobile Quarterly*, First Quarter, 1984.

1. *Frederick Usher (see* SAH Journal *No. 119, March-April 1989) has presented evidence, gathered by F.H. Bradford, a former employee of the Hall-Scott Company, which placed one car in Havana, where it was eventually dismantled and the engine used in a boat. The other was reportedly sold to William Andrews Clark, Jr., son of onetime California Senator W.A. Clark, Sr. – Editor*

The Fageol Car

MOTOR	Hall-Scott Six Cylinder Aviation Power-plant. Bore 5 inches, stroke 7 inches. 150 H. P.
MOTOR REVOLUTIONS	750 Revolutions of the Motor to one mile.
GEAR RATIO	Regular, 1½ to 1; option, 1¼ to 1.
SPEED	116 miles per hour at 1450 R. P. M. 60 miles per hour at 750 R. P. M., at 1¼ to 1 gear ratio.
WEIGHT OF CAR	Completely equipped, 4300 lbs. Weight of chassis with two spare wheels, 3400 lbs.
WEIGHT PER HORSEPOWER	Less than 30 lbs. for each H. P. available.
GASOLINE CONSUMPTION	12½ miles per gallon.
PRICE OF CHASSIS	$10,000.
BODIES	Custom made to order, $1000 to $3000.

Folder or catalog will be sent those interested on request.

Hester Motors, Inc.

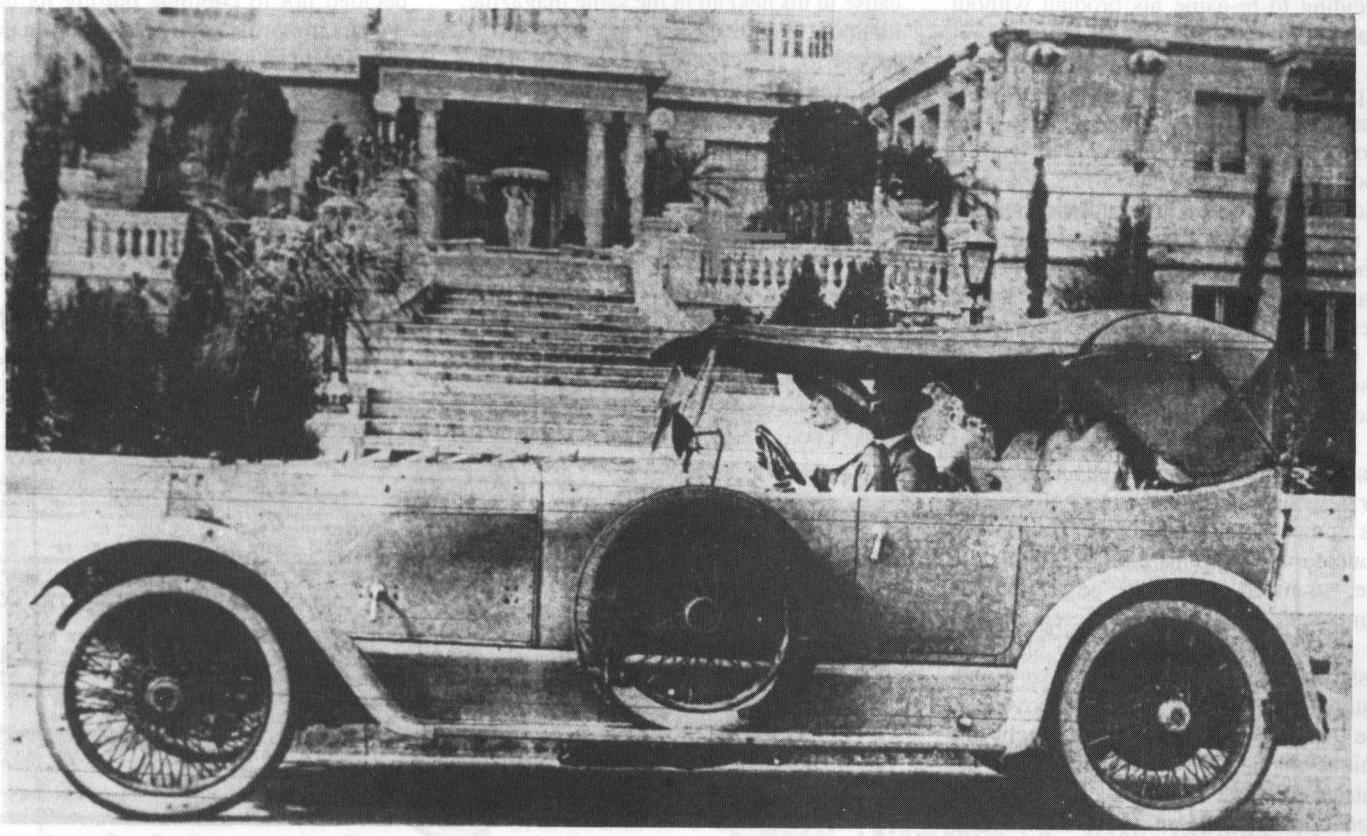
Eastern Agents FAGEOL MOTORS COMPANY

GENERAL OFFICES
24 STONE STREET

NEW YORK

TELEPHONE
BROAD 4656

Factory: OAKLAND, CALIFORNIA



The same Fageol or the other? Actress Martha Hedman is at the wheel, John E. Ransford at her side, Ione Ransford and Mrs. William Jenkins in the rear. J.H. Valentine Collection.

Nothing is New But the Name

by Fred Roe

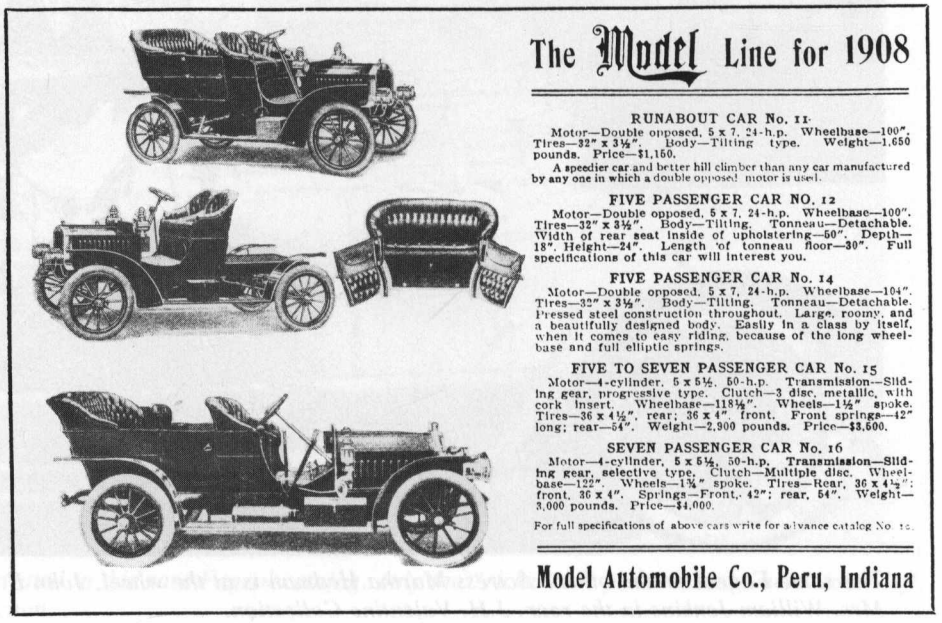
As recorders of the events past we are sometimes at fault for attempting to classify precious tid-bits of information into categories not truly reflecting the circumstances which created them. Take "badge-engineering" as an example. This term has acquired a slightly derogatory connotation as a practice embarked upon by unscrupulous operators bent on unloading sub-par merchandise on the unsuspecting public. It certainly seems as if there have been instances where this was the object in attempts to sell cars known by one name under another. But history has a flow, day-to-day, week-to-week, which we tend to compress and distort as we put things on a yearly basis. In the real world it takes only a very short time for a change to become a necessity in any business. So while some promoter may have switched nameplates on the cars he was selling in order to make the best of a bad lot, another businessman may have had a perfectly legitimate reason for deciding to re-name his product without making any other changes.

In the twenty years the Society has been exploring the diversity of makers and their brand names, we have revealed that the Stork Kar was really a Piedmont, learned about the Bush and others that could be had with any name the purchaser wished to use, and of the kits supplied to dealers who had left over Ajaxes so that they could make them into Nash Light Sixes. All of these are examples of "badge-engineering" if you want to call it that, but in each instance there was a different business decision behind the move.

In this story we have the case of a manufacturer who had a sound business reason for desiring to change the name of the cars his company was producing. But he had trouble making up his mind what name to use, so much so that he advertised the same cars under three different names in the same magazine in the space of less than six months. We have Ralph Dunwoodie to thank for his discovery of the three advertisements that brought this unique chain of events to light, and to the entries for these names in *The Standard Catalog of American Cars, 1805-1942,* second edition, for the story of the circumstances.

Mr. E. A. Myers was the man behind the "Model" car. He had produced both cars and engines for other makers beginning in 1902 in Auburn, Indiana. In 1906 he had moved the company to Peru, Indiana where he set it up as two distinct entities: the Model Automobile Company and the Model Gas Engine Works. While continuing to sell proprietary engines and mechanical parts to other manufacturers under the "Model" name, he was still using the same name on the complete cars that he marketed with considerable success. He came to realize that, in effect, he was competing for sales of complete cars with the people who were buying his engines to use in the cars that they were building and selling. Not only could this cause him some embarrassment, it could lead to loss of customers for his engines. Perhaps he was threatened with such a loss after he had already placed an ad in *The Automobile* in December 1907 announcing the 1903 "Model" line, because in his next ad in the same magazine, identical in all respects to the previous one except for the deletion of one model, the cars were named "Star." This might have been the end of the story, but for some unrecorded reason the "Star" name did not last very long. The third ad in the series, in May 1908, is still identical in format and content, but by that time Mr. Myers had selected another name and the cars were called "Great Western," though still produced by The Model Automobile Company. The step that cut all ties with the "Model" name came in 1909 when the company itself was renamed The Great Western Automobile Company. Finally satisfied, Mr. Myers made no more name changes and the company remained in business until 1916. The May, 1908 date of the third ad indicates that the "Great Western" name came into use well before 1909, the usual year quoted as its inception.

Automobile companies continue to place different names on substantially similar vehicles, although rarely, if ever, in such a rapid sequence as this example. With the industry rapidly evolving into a global pattern, the practice will surely remain with us. Already the US-based makers each have examples, one being the "Geo," which came into being when Chevrolet decided not to continue putting its name on cars imported from Suzuki, or on those that are products of its association with Toyota at a California plant. Formerly the latter was the Chevrolet Nova but it is now the Geo "Prizm." At the dealer down the street it is all but the Toyota "Corolla."



The Model Line for 1908

RUNABOUT CAR No. 11.

Motor—Double opposed, 5 x 7, 24-h.p. Wheelbase—100". Tires—32" x 3½". Body—Tilting type. Weight—1,650 pounds. Price—$1,150.

A speedier car and better hill climber than any car manufactured by any one in which a double opposed motor is used.

FIVE PASSENGER CAR NO. 12

Motor—Double opposed, 5 x 7, 24-h.p. Wheelbase—100". Tires—32" x 3½". Body—Tilting. Tonneau—Detachable. Width of rear seat inside of upholstering—60". Depth—18". Height—24". Length of tonneau floor—30". Full specifications of this car will interest you.

FIVE PASSENGER CAR No. 14

Motor—Double opposed, 5 x 7, 24-h.p. Wheelbase—104". Tires—32" x 3½". Body—Tilting. Tonneau—Detachable. Pressed steel construction throughout. Large, roomy, and a beautifully designed body. Easily in a class by itself, when it comes to easy riding, because of the long wheelbase and full elliptic springs.

FIVE TO SEVEN PASSENGER CAR No. 15

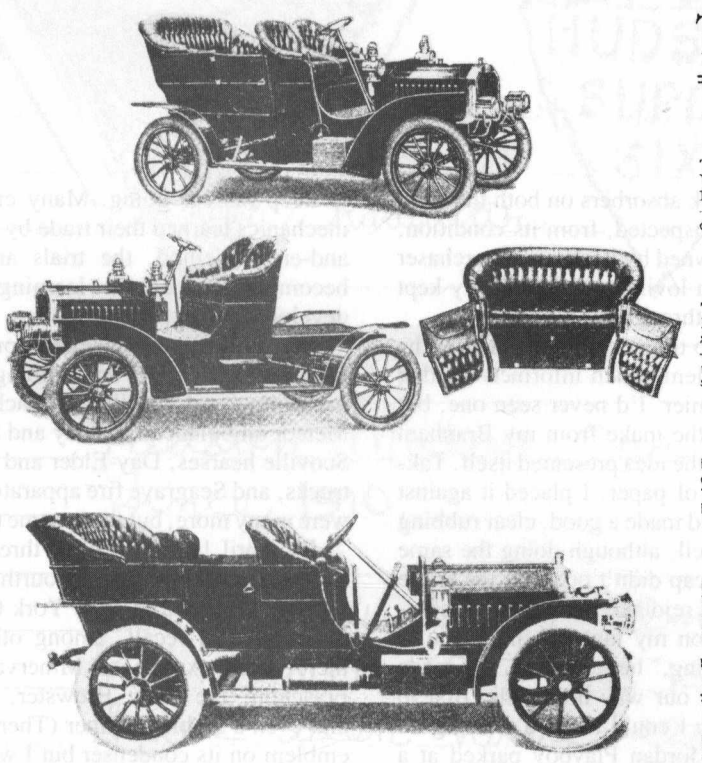
Motor—4-cylinder, 5 x 5½, 50-h.p. Transmission—Sliding gear, progressive type. Clutch—3 disc, metallic, with cork insert. Wheelbase—118½". Wheels—1½" spoke. Tires—36 x 4½", rear; 36 x 4", front. Front springs—42" long; rear—54". Weight—2,900 pounds. Price—$3,500.

SEVEN PASSENGER CAR No. 16

Motor—4-cylinder, 5 x 5½, 50-h.p. Transmission—Sliding gear, selective type. Clutch—Multiple disc. Wheelbase—122". Wheels—1¾" spoke. Tires—Rear, 36 x 4½"; front, 36 x 4". Springs—Front, 42"; rear, 54". Weight—3,000 pounds. Price—$4,000.

For full specifications of above cars write for advance catalog No. 15.

Model Automobile Co., Peru, Indiana



The "STAR" Line for 1908

FIVE PASSENGER CAR NO. 12

Motor—Double opposed, 5 x 7, 24-h.p. Wheelbase—100". Tires—32" x 3½". Body—Tilting. Tonneau—Detachable. Width of rear seat inside of upholstering—50". Depth—18". Height—24". Length of tonneau floor—30". Weight—1,800 pounds. Price—$1,250. Full specifications of this car will interest you.

FIVE PASSENGER CAR NO. 14

Motor—Double opposed, 5 x 7, 24-h.p. Wheelbase—104". Tires—32" x 3½". Body—Tilting. Tonneau—Detachable. Pressed steel construction throughout. Large, roomy, and a beautifully designed body. Weight—1,800 pounds. Price—$1,350. Easily in a class by itself, when it comes to easy riding, because of the long wheelbase and full elliptic springs.

FIVE TO SEVEN PASSENGER CAR No. 15

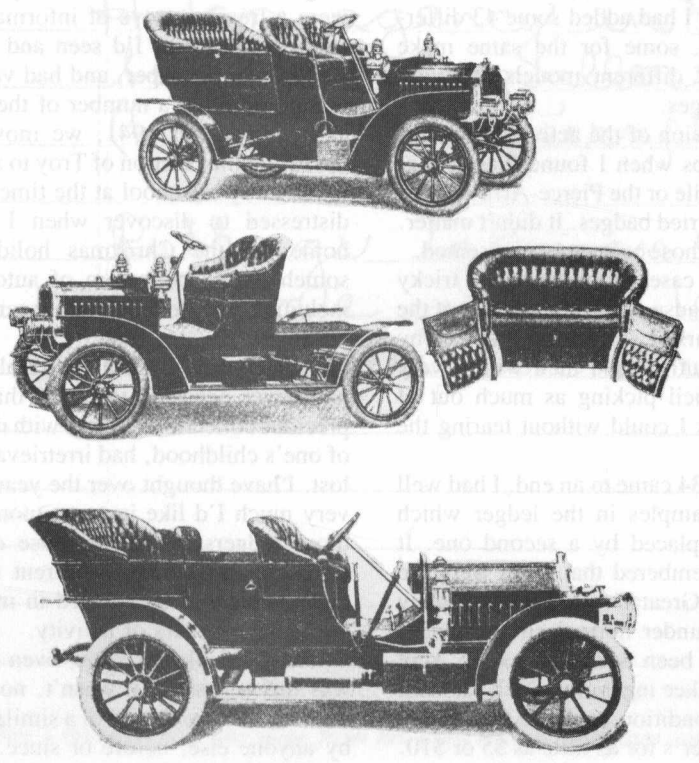
Motor—4-cylinder, 5 x 5½, 50-h.p. Transmission—Sliding gear, progressive type. Clutch—3 disc, metallic, with cork insert. Wheelbase—118½". Wheels—1½" spoke. Tires—36 x 4½", rear; 36 x 4", front. Front springs—42" long; rear—54". Weight—2,300 pounds. Price—$3,500.

SEVEN PASSENGER CAR No. 16

Motor—4-cylinder, 5 x 5½, 50-h.p. Transmission—Sliding gear, selective type. Clutch—Multiple disc. Wheelbase—122". Wheels—1¾" spoke. Tires—Rear, 36 x 4½"; front, 36 x 4". Springs—Front, 42"; rear, 54". Weight—3,000 pounds. Price—$4,000.

For full specifications of above cars write for advance catalog No. 10.

Model Automobile Co., Peru, Indiana



The Great Western Line for 1908

FIVE PASSENGER CAR NO. 12

Motor—Double opposed, 5 x 7, 24-h.p. Wheelbase—100". Tires—32" x 3½". Body—Tilting. Tonneau—Detachable. Width of rear seat inside of upholstering—50". Depth—18". Height—24". Length of tonneau floor—30". Weight—1,800 pounds. Price—$1,250. Full specifications of this car will interest you.

FIVE PASSENGER CAR NO. 14

Motor—Double opposed, 5 x 7, 24-h.p. Wheelbase—104". Tires—32" x 3½". Body—Tilting. Tonneau—Detachable. Pressed steel construction throughout. Large, roomy, and a beautifully designed body. Weight—1,800 pounds. Price—$1,350. Easily in a class by itself, when it comes to easy riding, because of the long wheelbase and full elliptic springs.

FIVE TO SEVEN PASSENGER CAR No. 15

Motor—4-cylinder, 5 x 5½, 50-h.p. Transmission—Sliding gear, progressive type. Clutch—3 disc, metallic, with cork insert. Wheelbase—118½". Wheels—1½" spoke. Tires—36 x 4½", rear; 36 x 4", front. Front springs—42" long; rear—54". Weight—2,900 pounds. Price—$3,500.

SEVEN PASSENGER CAR No. 16

Motor—4-cylinder, 5 x 5½, 50-h.p. Transmission—Sliding gear, selective type. Clutch—Multiple disc. Wheelbase—122". Wheels—1¾" spoke. Tires—Rear, 36 x 4½"; front, 36 x 4". Springs—Front, 42"; rear, 54". Weight—3,000 pounds. Price—$4,000.

Write us for new catalogue

Model Automobile Co., Peru, Indiana

Tracing Automotive History

by Keith Marvin

In most pursuits of endeavor, we pretty well make do with ideas invented by others and gradually improved down through the ages. In rare instances, we can take those improvements a step further. The Patent Office will, I think, bear me out on this. However, now and then, one thinks of something new, and whether it is a product or simply an idea, it "takes," and becomes a way of doing things.

At the age of ten, I got an idea which seemed like a practical one, for a different way of preserving a part of the history surrounding the automobile. Car crazy since my cradle days, I had amassed quite a library of automotive material, something very much off the beaten track for a kid back in 1934. My bookshelf was loaded with material ranging from Branham's *Automobile Reference Books* to a vast collection of ads taken from *The National Geographic*, *The Saturday Evening Post*, *Colliers*, and other periodicals of that time. They ranged from the first black and white automobile ad in a 1909 *National Geographic* to the gorgeous color spreads in *The Saturday Evening Post*, two pages smack in the center of the magazine illustrating a huge Buick or a complete set of line drawings for all models of Chevrolet in various colors.

The magic evening when the idea first occurred to me came in the summer of 1934. I'd driven downtown with my father in my native Troy, New York. Dad was a newspaper editor, and had some work to do at the office, so I opted to ride down with him and wander about the city for an hour or so before we headed for home.

One thing Dad had taught me ever since I'd learned to write was never to go anywhere without a pencil and some paper. "You might just see something you'd want to remember which you'd otherwise forget," he advised. It was good advice and was a great help to me in jotting down the unusual out-of-state license plates I saw – things like that.

On this hot summer's night, I spotted a large green touring car I couldn't identify parked at a curb. I knew most of the cars by sight, orphans as well as those still in business, but I'd never seen one like this – in immaculate condition, too, although it was many years old – just parked there with whitewall tires and Westinghouse "bottle" shock absorbers on both the front and rear. I suspected, from its condition, that it was owned by its original purchaser and had been lovingly and carefully kept in condition through the years.

I sidled up to the car and looked at the radiator emblem which informed me that it was a Premier. I'd never seen one, but knew about the make from my Branham books. Then the idea presented itself. Taking a square of paper, I placed it against the badge, and made a good, clear rubbing with my pencil, although doing the same with the hubcap didn't occur to me at the time. When I rejoined my father, he commended me on my idea. "I think you're on to something," he remarked. We made two stops on our way home, the first to let me out so I could make a rubbing on a bright red Jordan Playboy parked at a curb, and the second at a stationer's shop where he bought me a small hardbound ledger. "You can paste them in as you get them," he suggested, "and then, as you learn about them, you can write the information down below them."

I spent the whole next day wandering about my neighborhood, and before the day was over I had added some 43 different rubbings, some for the same make of car but of different models and with different badges.

The extension of the activity branched to the hubcaps when I found that neither the Locomobile or the Pierce-Arrows I encountered carried badges. It didn't matter. By the hubs, those cars were represented.

In certain cases, rubbing was a tricky business, because of the complexity of the badge contours. I solved the problem by tracing the outline and then with a very soft lead pencil picking as much out of the design as I could without tearing the paper itself.

Before 1934 came to an end, I had well over 150 examples in the ledger which had to be replaced by a second one. It must be remembered that these were the years of the Great Depression and many cars, which under normal circumstances would have been scrapped, were kept going by Yankee ingenuity. Such cars still in running condition could be had at any used car dealer's for as little as $5 or $10, and, once the sale was made, it was up to the buyer to become an instant tinkerer to keep his car going. Many crack auto mechanics learned their trade by this trial-and-error method, the trials and errors becoming less as the learning process developed by experience.

My collection included some non-passenger car badges and rubbings as well including, as I recall, one each from a Meteor ambulance, Henney and Sayers & Scoville hearses, Day-Elder and Larrabee trucks, and Seagrave fire apparatus. There were many more, but these come to mind.

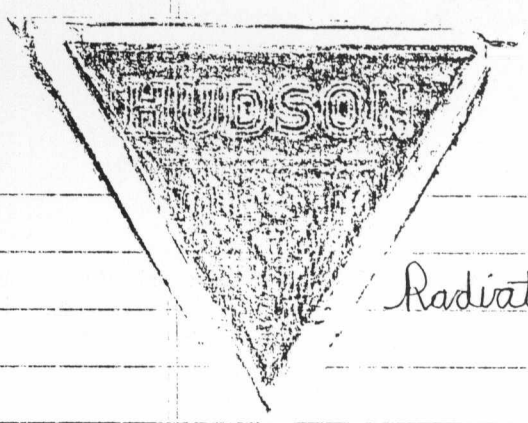
By April 1936, I'd filled three ledgers and was working on the fourth, when I spent a week-end in New York City with my mother. I recall, among other finds there, such exotica as Minerva, Isotta-Fraschini, the early Brewster, Renault, and even a Doble Steamer (There was no emblem on its condenser but I was happy enough to have the hubcap rubbing.) The last entries I can recall adding to the collection included the Bay State, ReVere, Rollin and Marion-Handley.

By this time, however, I had become greatly interested in collecting automobile literature and sales material, and put the ledgers on the shelf for safekeeping. They were a treasure trove of information. I'd studied those cars I'd seen and recorded with pencil on paper, and had vast information on quite a number of them.

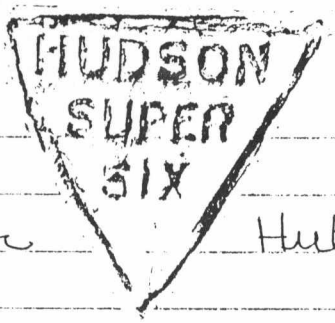
In November 1941, we moved from the residential section of Troy to suburbia. I was away at school at the time and was distressed to discover when I returned home for the Christmas holidays that somehow my collection of automobilia, including the ledgers had been lost in the move.

It was a rude awakening to reality which had never occurred to me – that such a precious collection, replete with memories of one's childhood, had irretrievably been lost. I have thought over the years of how very much I'd like just one more look at those ledgers, to relive those days and check on how many different cars and other vehicles I'd recorded in more than two halcyon years of activity.

What I'd like to know even more is, was this a first? If it wasn't, no one has ever told me they knew of a similar pursuit by anyone else, before or since. I'd like to think that it was my own idea and that it was a "first".



Radiator



Hubcap

HUDSON

Hudson Motor Car Co. Detroit, Mich.
Since 1910.

Commonly seen almost anywhere, back to about 1917 or 1918 - Oldest ones I have seen have been in Albany - two touring cars, both light blue with cream colored wire wheels. The above from a 1925 Hudson Super Six sedan. Later models are comman and there is a Hudson agency in Troy, N.Y. Also builds a smaller car edled Essex (+ now called Terraplane).

Rubbings taken on October 4, 1934, on State Street between 3rd and 4th Streets in Troy, N.Y.

John Keith Marvin

The author's recreation of one page from his 1934 ledger. Rubbings courtesy of "Angus," the editor's 1925 Hudson brougham.

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