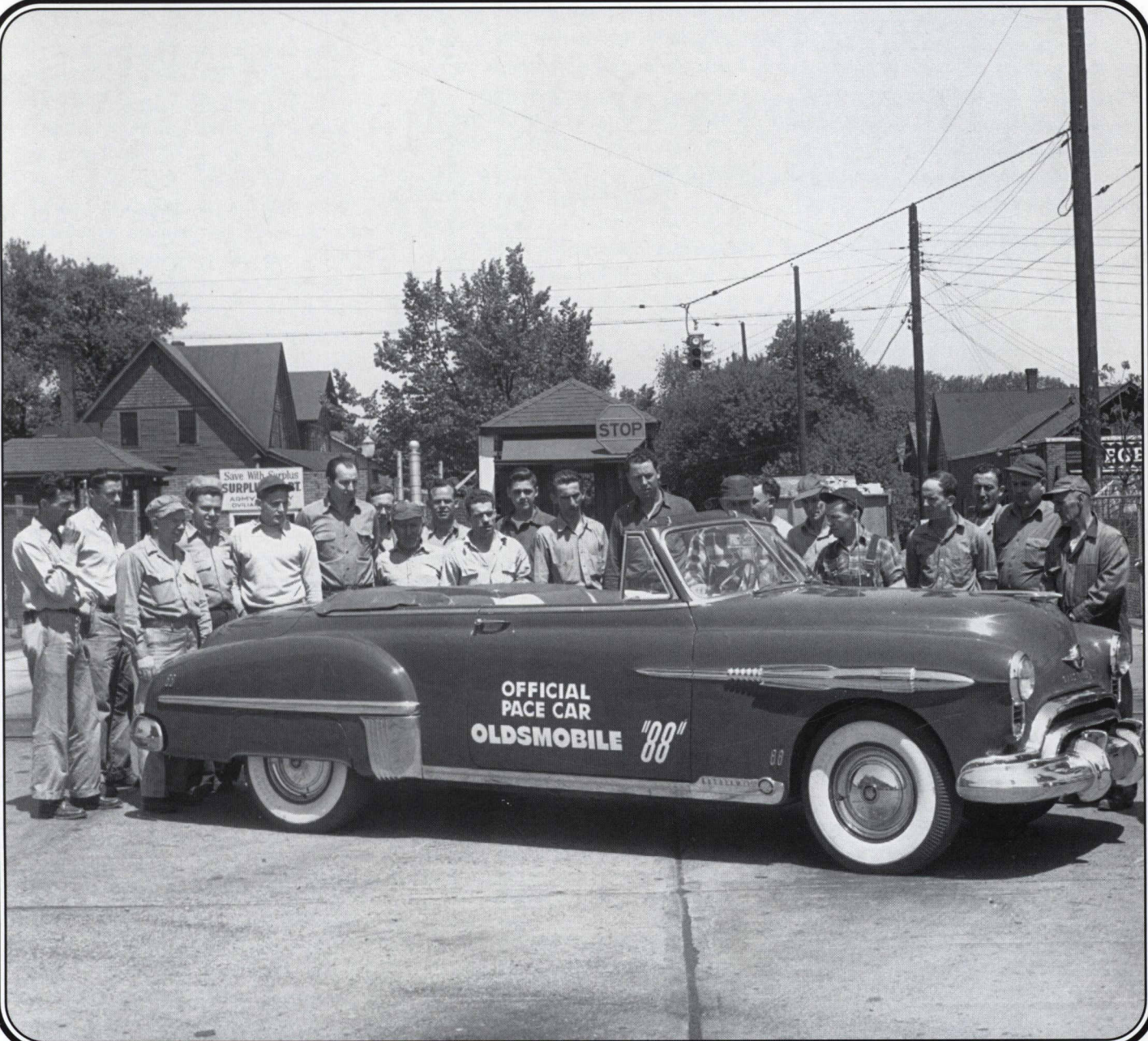


AUTOMOTIVE HISTORY REVIEW

Spring 2001



Issue Number 37



A PUBLICATION OF THE SOCIETY OF AUTOMOTIVE HISTORIANS, INC.

EDITOR'S NOTES

October 2000 marked five years since I took over the editorship of the *Review* and this is a suitable moment to answer a few questions about its past, present, and future, before proceeding on to discussing the issue you are reading.

How and when did the Review start?

During 1973, when SAH had only 150 members, the Board decided to supplement the *Newsletter*, as the *SAH Journal* was then called, with a magazine, in order to accommodate longer articles. The first issue of the *Automotive History Review*, as it was called then and now, was dated Winter 1973-74, with Richard Brigham as editor. Mr. Brigham was one of the two founders of SAH and edited 17 of the 37 issues to date.

What is the Review's publication schedule?

There is no set schedule. The original intent was that the magazine appear every three months, but the reality has been an average of one issue every nine months. This is likely to continue for the foreseeable future. However, in recent years the magazine has grown from 28 pages to an average of 44 pages.

Why do issues take so long?

The current editor is not retired which means the *Review* competes with other aspects of life for his free time. When the manuscript is delivered to the printer, seven more weeks are required for production, proofing, and printing, and a final week for the editor to label and mail approximately 950 copies.

Back issues cost \$7 each; how is this figure derived?

The total of all costs to produce, print, and mail Issue No. 36 averaged \$6.70 per copy printed (1100 copies). Thus, we're doing only a little better than breaking even on sales of back copies.

Where does the Review get its articles?

Aside from Issues Nos. 32, 34, and 36, which consisted of materials from the Automotive History Conferences, the magazine is usually comprised of unsolicited manuscripts submitted by members. There is no shortage of articles

awaiting publication. The usual waiting period, unfortunately, is two to three years. I appreciate the patience of the contributors.

What's coming next?

Issue No. 38 (Fall 2001 or Winter 2001-02) will be a single-topic issue on some pre-1940 cars of Eastern and Central Europe. Tentative contents include articles on the Hungarian Magosix, Czech cars of the 1930s, and the cars and trucks of the Polish Army in 1939. We may look into the Aero marque of Prague. We've been promised one for Russian cars of the pre-World War II era. Your comments or contributions on this topic would be welcomed.

Down the line may be another single-topic issue: the way the car of the future was perceived in the years 1910-45. Materials presently on hand for this include the Stanley booklet of 1917 "Your Car of 1951," a 1928 article on "The Car of 1938," Gabriel Voisin's "La Voiture de l'Avenir" (translated), and an article published in *Science et Vie* in 1944, during the Occupation. Your comments or contributions to this issue would also be welcomed.

Future issues may feature clusters of articles as well (See Issue No. 33, "General Motors at 90"). One cluster would feature articles by younger writers (i.e. under 40). In the stockpile for this cluster are articles on the legal problems of Auburn, a short history of DeVaux-Hall Motors, and the story of Pontiac's Club de Mer show car. Another cluster could relate to U.S. cars abroad; articles have arrived on the Kaiser plant in Rotterdam and Packards in France. For motorcycle enthusiasts, a third cluster could include Glenn Curtiss's V-8 and those produced by Riley.

There's a lot more on hand, including a history of steam carriages in Germany 1803-73, armaments manufacturers who also produced cars, Howard Coffin and the standardization of parts, and the Skorpion and Ralph Roberts to name only some. Articles have been promised on Crosley's smaller car, midget racing in Los Angeles, the Pennsylvania car, George Weidely and his engines, the

Hall and Scott trucks of Canada, why the Bugatti EB-110 didn't come to the United States, and autos in the stories of John O'Hara. One of our French members has written on the meetings between Adolf Hitler and Louis Renault, but the article needs to be translated. The following are some topics that need developing: the influence of Alfonso XIII on the development of motoring in Spain (Griff Borgeson called this "a great untold story"), the history of vehicles and equipment for handicapped drivers, the 1940-45 wartime career of Enzo Ferrari as a tool and die manufacturer (we've been offered illustrations for this one), the causes of the 1921-22 recession and its effect on the auto industry (two of you have shown an interest in this topic), and the story of how Honda became such a noted manufacturer of engines. Anyone interested in tackling these subjects? My e-mail is TVinson@nhtsa.dot.gov, home address: 1314 Trinity Drive, Alexandria, Va. 22314 USA.

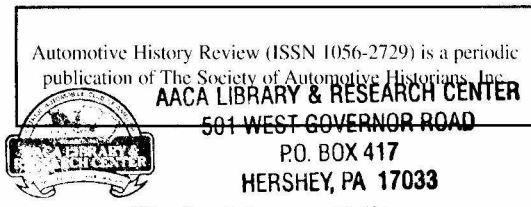
What's in No. 37?

I call it "Grandma's attic" because it contains a little bit of everything. We return to the eclectic format that has served the *Review* so well over the years. The current issue begins with an unusually large number of letters, including one by Keith Marvin on the Oldfield car, which he sent after reading the article on Barney in No. 36.

Our first article can legitimately be called a scoop: "Bunkie Knudsen's Bumpy Ride at Ford," as told to Professor David Lewis. This is the first published account of Knudsen's own conclusions as to why Henry Ford II brought him to the company and then fired him. And it wasn't because of Lee Iacocca. Dave is one of those rare persons who has served as president of SAH and who has received the Society's Cugnot and Friend of Automotive History awards.

Of course, autocrats were no strangers to the Ford family, and one of our British members, David G. Jones, has provided an example of how Henry Ford I treated someone who was close to being a peer. "Sir Herbert Austin Courts Henry Ford" is a short but intriguing bit of "what

continued on page 37



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Front Cover: 1949 Olds 88 Pace Car, courtesy of the Indianapolis Speedway Museum, appearing in Pace Cars of the Indy 500 by L. Spencer Riggs.

Rear Cover: Nash-Healey X-7 prototype, courtesy of James C. Mays.

Acknowledgments: Photographs illustrating their articles were provided by Keith Marvin, David L. Lewis, John A. Conde, Grace R. Brigham and James C. Mays. The remaining photographs are from the collection of the editor.

Back Issues of Automotive History Review

We can offer sets of the 23 issues remaining in stock (numbers 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 23, 24, 26, 27, 28, 29, 30, 31, 34, 35) for \$75.00 postpaid in the USA. Single copies are \$7.00 each plus \$1.00 postage, except for heavier #30, #34, and #35 which requires \$2.00 postage in USA, \$5.00 postage internationally. All payments in US funds, please, Mastercard and Visa accepted as well as checks. Orders and inquiries should be sent to Fred Roe, 837 Winter Street, Holliston, MA 01746-1159. Make check or money order payable to Society of Automotive Historians, Inc. Inquire for shipping costs outside the USA. This supersedes all previous lists and prices, which are no longer valid.

LETTERS TO THE EDITOR

(No. 35, Winter 1999-2000)

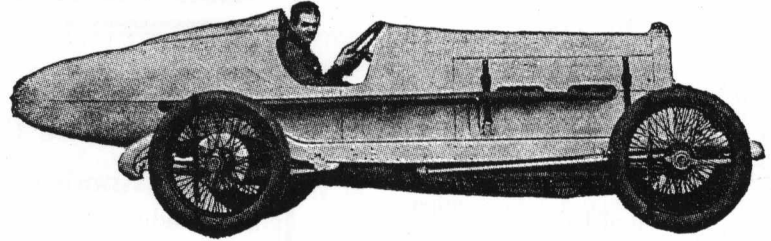
Flyin' High: Some Auto Builders Who Took to the Air

The Swedish motor vehicle makers were left out of the list of those who had also been engaged in the aircraft field. As you may know, the acronym SAAB stood originally for Svenska Aeroplan Aktiebolaget—the Swedish Aircraft Corporation—and aviation was this company's sole occupation from its founding in 1937 until the end of World War II. Most of Sweden's military aircraft have been built by Saab, including some extremely sophisticated jets, as well as a number of propeller-driven commuter planes, many of which are in service in the U.S. right now. The original Saab car was constructed by aviation experts, led by a former wing specialist, Gunnar Ljungstrom, a fact that is readily visible in the advanced aerodynamic design of the Saab 92 (Fig. 1), as well as of later Saabs.

Volvo, too, has long been active in the aeronautical field, primarily through its subsidiary, Svenska Flygmotor (Swedish Aircraft Engine Corporation), which has been the foremost builder of the jet engines used in the Saab aircraft. Even Scania-Vabis, Sweden's veteran truck and bus builder—since 1999 merged with the Volvo truck company—at one time in its history built aircraft engines. Between 1916 and 1919 Scania-Vabis built a number of aircraft engines for use in a Swedish-built military aircraft, the Albatross.

Len Lonnegren
Connecticut, USA

The Fastest Thing On Wheels—A Packard



HURLING over the sands at Daytona Beach, Fla., at the terrific speed of 149.72 miles an hour in his airplane-motored Packard, Ralph De Palma on February 12 shattered the seemingly invincible mark of 25.40 sec. for the mile set by the late Bob Burman in a Blitzen-Benz on April 23, 1911: De Palma's time was 24.04 sec., clipping 1.36 sec. off Burman's mark.

The former record, for cars of all classes for a mile straight-away with a flying start, was at the rate of nearly 142 miles an hour, and up to today the fastest speed that anything on wheels had ever attained.

De Palma's unprecedented successes last summer with the Packard "299" aircraft motor were significant. He won successive speedway events and smashed track records with such ease that it was apparent to racing experts that De Palma could have any record he set out to capture for cars in this class. Accordingly, with a covetous eye on the formidable Burman mark he determined to equip himself with the fastest car the world ever dreamed of.

With this end in view he selected the Packard "905" aircraft motor which, while having three times the piston displacement of the "209" is still smaller than Burman's Benz by more than 400 cubic inches. The German motor measured 1,312 cubic inches, but developed even less horsepower than the Packard. The "905" by the way, holds all official speedway records from one-fourth mile up to and including ten miles.

In designing a body for this remarkable car, aviation experience was followed in that fuselage principles were adopted as closely as possible to eliminate "vacuum drag." As an example, the head-on resistance on the front axle was reduced nearly 100 pounds at top speeds by applying the streamline principle. Other parts were designed accordingly. De Palma, who is modest about his driving, gives the principal credit to the engine. *This engine, which broke the record of the German Blitzen-Benz, is almost identical, except in size with the Liberty motor which broke the heart of the German high command on the western front.*

Packard-Oklahoma Motor Co.

Phone 7900

619 South Boulder

Fig 2 - De Palma in the aero-engine Packard.

By Land, By Air, By Sea - By Packard

Seeing Ralph De Palma on the cover, I thought you might be interested in this newspaper ad which was published in February 1919, 11 days after De Palma had set a record of 24.04 seconds for the mile (Fig. 2).

Joseph W. Gaskill
Maryland, USA

Alfa Avio

Some proofreading! Macchi for Macchi and Flogore for Folgore (photo caption).

—Jan P. Norbye
France

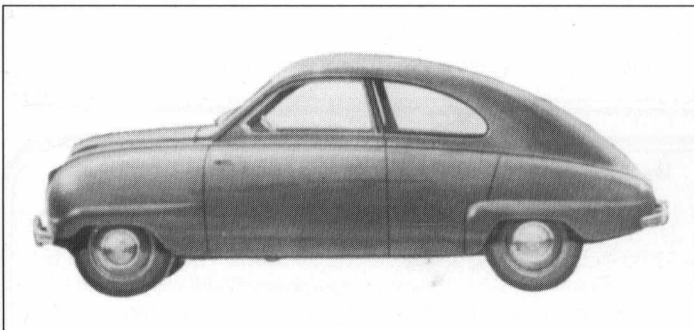


Fig 1 - The 1950 Saab 92.

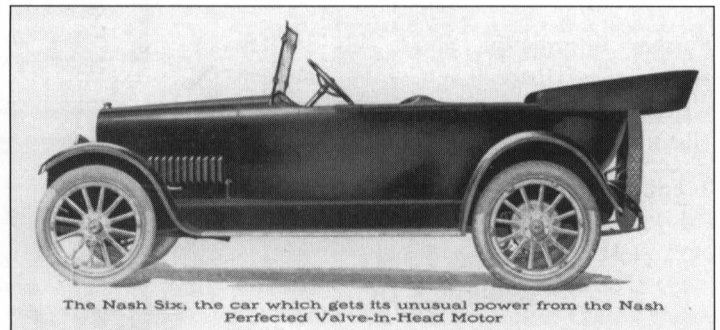


Fig 3 - The 1917 Nash Six that Mr. Lombard does not remember fondly.

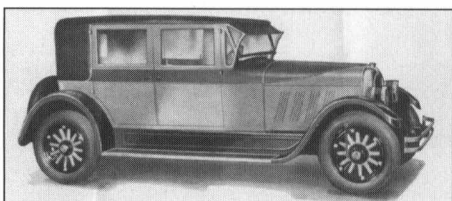


Fig 4 - The 1926 Auburn 8-88 Brougham like the Lombards owned.

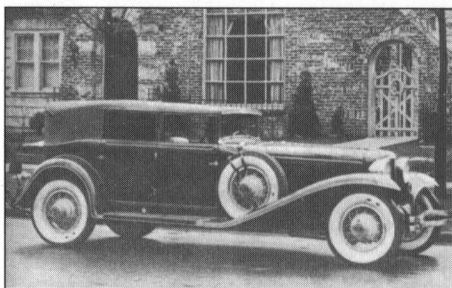


Fig 5 - The Cord L-29 phaeton like the Kellys were renting.

CRUISE IN: a guide to Indiana's automotive past and present

Your story (p. 43) touched my heart [the editor had expressed envy of those growing up in the automotive environment of Indiana in the 1930s; the writer of this edited letter was one of those who did and recalls those glory days].

My debut upon this planet occurred in 1919, in Detroit MI. By 1922, my family had moved to Auburn, IN where my father worked in one of two small-town banks.

The family transportation was a very unfashionable, early (1917-1920) Nash touring (Fig. 3). It had wood spoke wheels, rear-mounted spare, side curtains and two oval rear windows. In early 1927, the Nash was replaced by an Auburn 8-88 "Brougham." This was a definite improvement! I think the car was a re-titled 1926 (Fig. 4).

The Auburn Automobile Co. was considered somewhat of a revolving door for design and engineering personnel. At my level, this was manifested by new and different pupils at school. Some would be around for two or three years and would disappear. Cornelius van Ranst, Jr. and Sr. lived up the alley about five doors north. Sonny (Jr.) had an electric model race car that received power and was guided by contact with a two-bar infield fence. I first became conscious of "exotic" automobiles about 1928-1929 when I was nine years old and in the fifth grade.

Sonny was in the fourth grade and on the rare occasions when we were together, he would bend the conversation to "front-wheel drive," a subject I knew nothing about except what he told me, with emphasis on his father's part in the development of the new Cord. Understanding finally dawned one very cold winter day when a "different" car, a Cord phaeton, pulled up next door where Mr. & Mrs. Jack Kelly were renting (Fig. 5). Mr. Kelly was the Auburn Auto pilot. When he was safely loaded the car started to move—slowly—because of wheel-spin—front wheel spin on the icy street. This was what Sonny van Ranst was telling me about!

"Different" cars were not uncommon in Auburn. US-27 from Lansing, MI to Indianapolis ran the length of Main Street and carried the usual mix of traffic. The best I saw was a "6-fender" cocoa colored possible Kissel sedan with full-chromed sidemount covers.

For many years, my route to and from school took me through downtown. The Auburn Hotel, Main at Ninth, was the best place for observing cars. I think that the more affluent Auburn Auto people lunched at the hotel dining room. Cars seen when walking to and from lunch: The Hispano-Suiza powered Dubonnet with IFS (Fig. 6). Mr. D. was touring the mid-west, trying to sell his version of IFS. He obviously did no business with ACD. I assume Chevrolet and Pontiac made his trip worth while. Auburn and Duesenberg folded before they produced an IFS car. Cord, in 1936 and 1937 had IFS, but not the Dubonnet system. There were a few experimental Auburns with IFS around town. They resembled the Studebaker transverse leaf spring approach. Seen several times near the hotel was an Adler Trumpf (Fig. 7) probably owned by Auburn Auto. This was a front wheel drive with super-imposed transverse leaf springs. Other cars seen near the hotel were a (or perhaps

the only) Morrison with its rear-facing periscope, a Du Pont 4-passenger speedster and a Dorris touring car.

Gerald B. Lombard
California, USA

(No. 36, Summer 2000)

"You Know Me!" Barney Oldfield and the Creation of a Legend

I thought you might like to know something about the Oldfield car, which I wrote about in the *Upper Hudson Valley Automoblist* back in May 1978.

One fine day in early 1924, Berna Eli Oldfield announced to the American public that he would manufacture an automobile carrying his name. The American motoring public took little notice of that statement which seems odd because Barney Oldfield was the living legend of the American dirt track racing circuit.

Since giving up racing six years before, Oldfield had been serving as president of the Oldfield Tire Company, a Firestone subsidiary. For one reason or another, Harvey Firestone decided to head the Oldfield Company himself and Barney, high and dry, was looking around for something to do. What next? It is doubtful that he ever considered any line of work not associated with the automobile.



Fig 6 - Factory rendering of the Hispano-powered Dubonnet with independent front suspension.

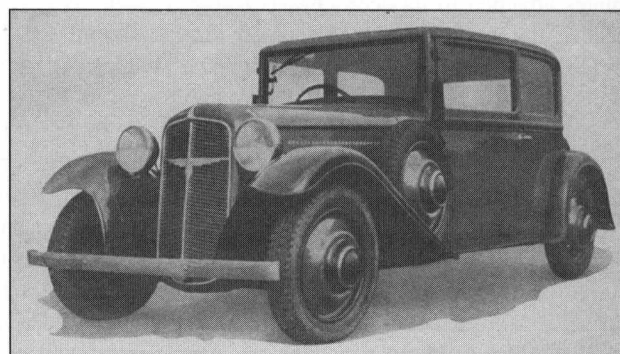


Fig 7 - An early 1930s Adler Trumpf with front-wheel drive.

Information on the origin of the Oldfield Motors Corporation is obscure as is data on the designer of the car. What is known is that the production of the pilot model took place in the Los Angeles plant of the Kimball Motor Truck Co., which under Kimball and Oldfield, would produce the Oldfield automobile, at least in the beginning. It is difficult to understand why publicity was next to non-existent. I suspect that Oldfield himself, probably operating on a shoestring, just ignored this little necessity.

The reverberations of the Oldfield announcement probably didn't move any mountains but at least it was a new make to grace the 1924 automobile rosters and that was something. For 1924 would be a year of destiny for domestic automobile builders. It would mark the beginning of the rapid thinning-out of the glut of different makes of cars which had set the pattern since the turn of the century. More than 30 makes would fall that year, including such old and highly regarded companies as Chalmers, King, Premier and Winton. Very few new makes would appear for 1924 and such as they were, only one, Chrysler, would ultimately succeed.

And other things were happening in the industry too. Four-wheel brakes were catching on. Cord tire popularity was going down the drain, rapidly giving way to the new larger and low-pressure balloons. Henry Ford would build his 10 millionth car and ethyl gasoline would be introduced to countless filling stations from one end of the country to another.

The prototype of Barney's dream took form at the Kimball works, exemplifying many things that would make it ideal. Low slung for its time, it boasted a 130-inch wheelbase, cycle-type fenders and wire wheels plus individual step plates attached to its deep chassis frame. Under the hood was a Wisconsin six-cylinder overhead-valve engine with a bore and stroke of 3-1/2 x 5-1/4 and with a 302.4 cu. in. displacement. Brake horsepower was rated at 75 @ 2500 rpm. Not a bomb, really, but a car offering a respectable performance, at least from its specifications. It was a safe car as well, with integrally-built bumpers and four-wheel hydraulic brakes.

The Oldfield was also an eye-stopper. The radiator would set the car off anywhere. It resembled the English

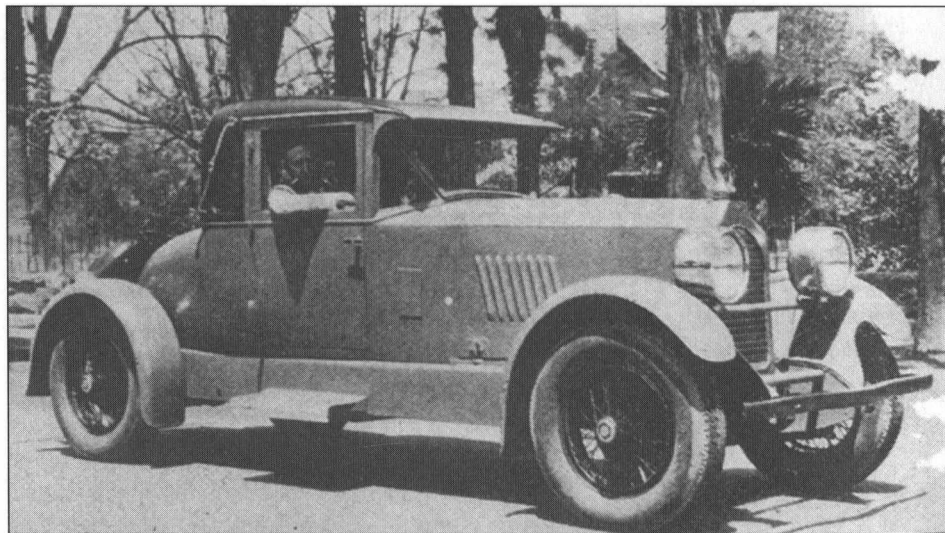


Fig 8 - The Oldfield with its cycle fenders.

Vauxhall in general outline with the shell nicely set off by the winged Oldfield emblem and horizontal louvers instead of the honeycomb core of the more prosaic contemporary cars. The price for this beauty was another matter, \$3,550, a tidy sum in those days, but must have been more than fair if we can judge from its specifications and the overall appearance of the car. (Figs. 8 and 9.)

Shortly after the initial appearance of the Oldfield, Barney announced that he would drive the new car to Indianapolis where he would attend the famous "500" on Memorial Day. There was a big splash of publicity as he departed for Hoosierland carrying a letter from the Mayor of Long Beach to his counterpart in Indianapolis. Two Long Beach papers covered the event. On June 1st, an article with illustrations of Barney's coupe appeared in *Motor West*.

But that was the end of the big publicity splash. The rest of the Oldfield story was a windout. We don't know what kind of reception the car got in Indianapolis, or whether any orders were placed for it.

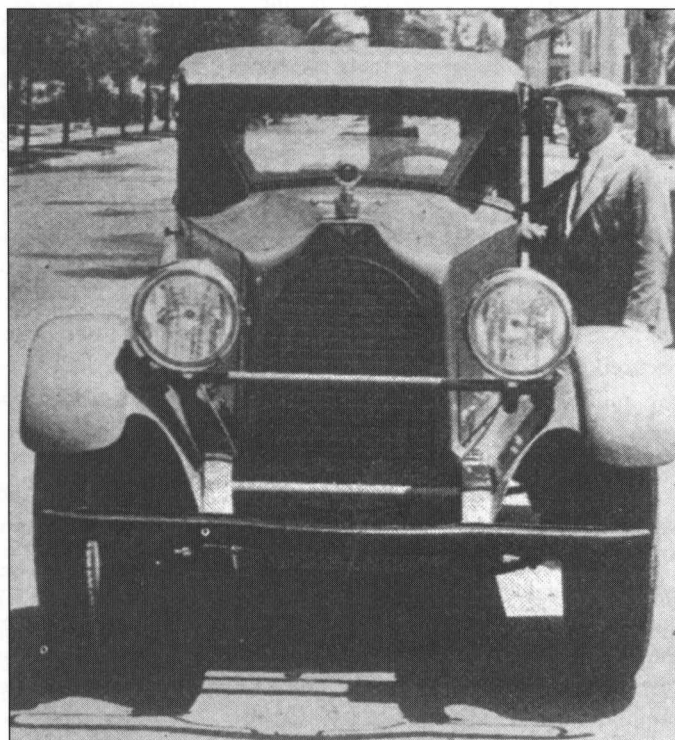


Fig 9 - The Oldfield's distinctive radiator.

In due time, Barney returned to California. A Los Angeles showroom was rented and the coupe placed on display, after the Wisconsin engine had been removed and an eight placed in its stead. Although there is no actual proof as to what this engine was, William J. Lewis of Anaheim, California, a historian of California automobiles, feels that it may well have been a Miller engine, an option which was available in the Leach car (built in California 1920-23).

Things seemed to be coming up roses for Barney: he had a job, an attractive car bearing his own name, and he was in love. So while the Oldfield coupe sat in the showroom to be admired by passers-by, Barney and his bride departed on a honeymoon to Europe. It turned out to be an extended visit. Without Barney's presence, interest flagged, Kimball bailed out, and the showroom shut down. By the time the Oldfields returned, the company had been written off and the car was an immediate "has been." The fate of the sole prototype is unknown.

So much for the Oldfield, six or eight. It was a pretty car. It was sporty. It might even have sold. Barney Oldfield died in 1946, a legend as a racer but not as a manufacturer.

Keith Marvin
Massachusetts, USA

The Birth of the American Sports Car Culture: When Motor Racing Was a Sport

This article mentioned early enthusiast George C. Rand, who called himself the "sole importer" of Bugattis in the 1930s. In 1998, the late André Rheault sent the editor an obituary of Mr. Rand that he had written for the Winter 1987 issue of *Pur Sang* (Fig. 10). Andy also wrote: "Bugatti's sales efforts here were really very modest. George Rand came as close as anyone with new car sales (from 1933 to 1939). Bunny Phillips claimed to be a rep but couldn't handle the language so dealt mostly through the London-based agent. . . . There is very good evidence of the American influence on Bugattis. Especially the notions for twin cam engines which EB derived from the two Miller cars he acquired from Leon Duray. Neither Jean nor EB ever came to North America."

Auto Racing as a Means for Fund Raising and Development

There has been an unfortunate error and omission noted in my abstract. My concern is that Buck Boudeman and Roper family members may fault my scholarship in dealing with information they gave me or led me to. I had hoped they would be given credit for their help in uncovering this seminal story of the first auto race, 30 years earlier than the Chicago event of November 1895,

sometimes said to be the first auto race in the United States.

The facts as gleaned from the various publications are these:

1. The *Grand Rapids* (Michigan) *Daily Eagle* of September 1, 1864, featured a sketch of a "Family Steam Carriage."
2. A steam wagon raced and beat a "pedestrian" and a trotting horse at Poughkeepsie, New York, in July 1865. Specifically, this was a competitive event to determine not only who could beat whom, but also how long it would take to do it. The site was the "Ball's" (Bull's) Head racecourse, which normally featured trotting horses. In this particular race, since there was only one auto available, and since the racers wanted to beat the fastest conveyance of the time (barring railroad trains and ice boats), they challenged the fastest trotting horse to a match race. And for good measure they put the same challenge to a "pedestrian." The auto won, naturally.

The racer was a nifty-looking steam buggy, believed built by Sylvester H. Roper of Roxbury, Massachusetts. It put up a time of 2:20 for the mile, over 25 miles per hour! A land-speed record for self-propelled vehicles in 1865! Mr. Roper built about ten steam-driven vehicles in all.

3. *The American Machinist* of 1881 talks of Roper and depicts his steam wagon in an engineering drawing showing a machine similar to the one in the sketch for the Grand Rapids newspaper 17 years before. The drawing is entitled "Steam Racer," and the accompanying article states that "this machine was designed to run on a race course."

Interestingly, the first issue of *The Horseless Age* (November 1895) relates that one of Roper's steam vehicles was sold to a Mr. Homes "that he might experiment in the direction of applying naphtha as a fuel in place of coal, and introduce six burners in place of four." Mr. Homes appears to have been an early hot-rodder!

4. The best information indicates that Roper was the builder of both the 1864 and 1865 machines.

Ken Berg
British Columbia, Canada

OBITUARY

GEORGE C. RAND

It is sad to report the death of George Rand. An Easterner for most of his life, in fact he had lived here in Maine for a number of years after his retirement, George had been a California resident in more recent times.

His interests ranged from boats to airplanes of all kinds and of course racing automobiles. George began tinkering with cars when still a school boy and learned to fly before entering college. A founding member of the Automobile Racing Club of America (ARCA) he later became President and was an active participant throughout that pioneer organization's history.

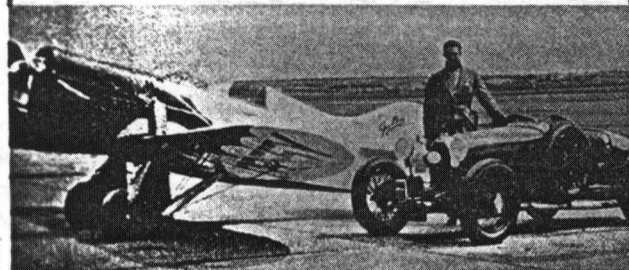
Opening an automobile dealership in Manhattan during the '30s, George specialized in the sale of exotic sports and racing cars especially Bugatti, Alfa Romeo and Maserati.

When war came, he became a Navy flier rising to the rank of Commander and afterwards kept on flying for a Florida-based airline.

George's race car career took him to most of the major Eastern events (Bridgehampton, Watkins Glen, Sebring) but he also ran at LeMans in 1951 where he drove one of his friend Briggs Cunningham's C-2s.

A kind and gentle person, George charmed all whom he met. We are grateful for the times he shared with us but will miss him all the more now that he is gone.

—AER



George with his T-37 and Gee Bee Sportster *Automobile Quarterly* Vo. 17, No 1

Fig. 10 - George Rand's obituary by André Rheault

Bunkie Knudsen's Bumpy Ride at Ford

by David L. Lewis



An uneasy Ford trio, President Semon E. "Bunkie" E. Knudsen (left), Chairman Henry Ford II (center), and Vice-Chairman Arjay Miller at the Ford Company's 1969 Annual Meeting. Knudsen, who replaced Miller as president, was fired after 18 months on the job. Miller departed for the deanship of Stanford's Business School.

"It just didn't work out," Henry Ford II informed Semon E. "Bunkie" Knudsen on September 4, 1969, and Bunkie, after 18 months as Ford's president, was out the door.

Knudsen, according to conventional wisdom, is believed to have been done in by archrival Lee A. Iacocca, who carved on the ex-General Motors executive from day one. But Bunkie had another view, and expressed it during a 1989 taping for a Ford oral history project. "You're the first person I've talked to about it," he informed me; and the following is the first published account of Bunkie's version of his abbreviated Ford career.

"I joined the Ford Motor Company in 1968," he began, "but I'd like to go back to 1962. While I was at General Motors as general manager of the Chevrolet Motor Division, I received word that Mr. Ford wanted to see me and discuss with me the possibility of coming to Ford Motor Company. At that particular time, however, I told Mr. Ford I was not interested in leaving General Motors. But in 1968, I decided that it was in my best interest to leave GM. I had been home only a few days after resigning when I received a call from Mr. Ford asking if he could see me. He drove out to my home in an Oldsmobile because he didn't want anyone to know where he was going. He thought that was a good disguise.

"There was no intermediary," Knudsen continued. "Mr. Ford called himself. I understand though that one of the doctors at the Ford Hospital, whom I knew and who also knew Mr. Ford very well, indicated to him that I might be interested in going with the Ford Motor Company. In any event, Mr. Ford and I had a lengthy discussion at my home, and I agreed to be president of the Ford Motor Company. He was elated at my decision. At the time. . . . Mr. Miller [Arjay, Ford president] was

in South America. During our discussion we discussed the necessity for him to inform Mr. Miller [that] I was coming to take his place. A public announcement was made the day I reported to Mr. Ford.

"I found working at Ford quite different from General Motors because it was a one-organization company; General Motors had five organizations [vehicle divisions]. But it had worked out well for the Ford Motor Company. I also found that it was an organization in which everybody was very much interested in what Mr. Ford thought. In many instances people were fearful of actually expressing them-

selves to him. I always felt comfortable with him and could express my viewpoints which he accepted in most cases.

"Naturally, anyone coming into an organization from the outside, particularly from GM, is always looked upon somewhat cautiously. I made up my mind not to bring people from General Motors into the Ford Motor Company as many of them thought I might do. In retrospect that may have been a bad decision. . . . I was a loner in the Ford organization.

"I got along well with the people at Ford and, to my amazement, found the middle management people outstanding. They had to be, because the company was run strictly by Mr. Ford.

"I stayed at Ford through 1968. In September of '69, as a matter of fact on Labor Day, I was at home with my family. The day before Mr. Ford had asked me about my plans for the weekend. I told him I was going to be with my family. He said, 'That's fine.' About 7 o'clock in the morning I received a phone call from Mr. Mecke. He said he wanted to see me. I thought it was a bit unusual, but I said, 'Fine.' Ted came to the house and the first thing he said was, 'I'm here as a friend.' Then he said, 'I'm afraid I have to tell you that you're no longer going to be with the Ford Motor Company.' When I asked him the reason he said he didn't know. I said, 'Is Mr. Ford going to tell me or is this it?' Ted said, 'Yes, he'll talk to you tomorrow.'

"The following day, Tuesday, Mr. Ford came to my office and told me he was sorry to tell me that I would no longer be with the Ford Motor Company. I said, 'It's your decision, but can you tell me why?' He said, 'It just didn't work out.' That's all he said. I said, 'Thank you,' and he walked out. That was the end of it until the Board meeting on Thursday, which I had been told to attend.

"At the Board meeting I was asked to leave while they discussed the situation. When I returned to the meeting they asked me if I had anything to say. . . . The only thing I said was, 'I'm sorry it didn't work out. I thought I had spent my time doing everything I possibly could to build the Ford Motor Company.'"

"Before I left," Knudsen added, "Mr. Ford told me I could have whatever I wanted—cars, etc. I said, 'Mr. Ford, I don't want anything. I don't need anything.'" So I left.

"I knew there was going to be some publicity about my leaving the company, so I took it upon myself to call a press conference of my own [in a downtown hotel] in which I announced that I had been fired from the Ford Motor Company. I felt I was better off announcing it myself than having somebody else announce it. I told the press that it didn't work out. And that was that."

After being asked to comment on why things had not worked out, Knudsen replied, "A lot of people have said that Lee Iacocca didn't like me and had me put out. I very seldom pay attention to rumors. . . . However, I will say this. . . . It was my impression after I had been with Ford a short time—now this is strictly a supposition—that what I'm going to say may have had a bearing on the situation. Mr. Ford was very close to and very friendly with Lyndon Johnson. In fact, there's a picture of Lyndon Johnson, Mr. Ford, and myself on the wall here in my office.

"Mr. Ford liked England very much, and bought his first London home on Maiden Lane. We had it fixed up for him nicely. At any rate, it's always been my thought that there would have been nothing he would have enjoyed more than being, let's say, ambassador to Great Britain. I think he had something like that in mind, figuring that Lyndon Johnson was going to be on hand for a second term. Consequently, we did a lot of things for Lyndon Johnson. For example, we purchased a Model T of the model and vintage that Lyndon Johnson learned to drive in."

"It's in the Lyndon B. Johnson Museum in Austin, Texas," I mentioned.

"Right," Knudsen said. "We had a hell of a time finding the exact model and year, but we did find one and restored it 100 percent. Mr. Ford sent it down to the LBJ Ranch and presented it to L.B.J. on his birthday or some other gala event. Somehow, I always felt that I was hired because Mr. Ford was hoping to go to Great Britain as an ambassador or something of that nature, and wanted somebody else to run the company for an interim period. "I don't think he gave a great deal of thought to what was going to happen to this individual afterwards."

"Meantime, Lyndon Johnson decided not to run. Nixon was back and Mr. Ford didn't care for him. He probably thought that there was no opportunity for such an ambassadorship with Nixon, so he decided to continue running the company himself. I still believe it was something of that nature. On the other hand, it may not have been the ambassadorship to Great Britain; it may have been some other facet that he had in mind which didn't work out. But that's the only answer I can give you as to why it didn't work out. I may be 100 percent wrong. But that's the theory I've had concerning my brief presidency at Ford. You're the first person I've talked to about it.

"I haven't written anything, especially a kiss-and-tell book. I'm not interested in doing that, either for the company

that I work for, or anything else. If you want factual information I'll give it to you. But to write a kiss-and-tell book and call everybody an SOB is a waste of time as far as I'm concerned."

Although Knudsen had said that he had not brought GM people into Ford, I mentioned that he had been joined by designer Larry Shinoda.

"The only reason I brought him," he replied, "was because Lee had discussed the possibility of building a sports car, and Larry had had a great deal of experience with sports cars. I brought Larry not because he was with General Motors, but because of his ability as a sports car designer. So when Ford decided it wanted to build a sports car, I brought Larry in and he did an excellent sports car. In the meantime, Lee had gone to Europe and had met Italian sports car designer Alejandro deTomaso. For whatever reason, he became enamored with deTomaso's cars and wanted to build a sports car in deTomaso's place in Italy.

"So the Pantera was built over there, and, as you know, a tremendous amount of money was spent straightening it out in the United States."

"Did you have misgivings about the deTomaso relationship?" I asked.

"Yes, I still have; deTomaso has gone broke. It's in the papers now. I had misgivings because of my previous experience running GM's overseas operations. At that time both GM and Ford had good cars under normal procedure and normal business conditions over there [Europe]. But in 1957 GM had produced the first Eldorado Cadillac that had a stainless steel roof. The Eldorados built in Europe were a disaster. In running GM's European operations, I learned that there are a lot of small companies like deTomaso's outfit that build only 200 cars a year. So when you give them an order for 5,000 cars, you've got a problem.

"There was Lee's problem with deTomaso, who also had a Maserati deal; and the Pantera wasn't ready on time. There's no way that these small European manufacturers can fill an order for 5,000 or 10,000 automobiles. It's all handwork, and if you're building only 200, what difference does it make as long as everything fits? But you can't build 2,000 of them and have some guy doing it with a hammer, chisel, and hacksaw. That's why I had concerns about going with deTomaso, because I had already been down that road. In fact, I have concerns today for anyone going that route. Now, if you're going to build your own car in your own plant over there like Ford's Merkur or GM's Opel, that's fine. Those vehicles are all tooled correctly for high volume and they're good automobiles."

Returning to Iacocca, Knudsen acknowledged that his ambitious subordinate did not wish him well. "He was very unhappy because he was looking forward to getting the presidency job," Bunkie remarked. "I don't know why he felt that way because I'm a lot older than he is. He had plenty of productive days ahead of him. . . . I was so busy I didn't pay enough attention to him."

"What were your impressions of Henry Ford II?" I asked.

"Henry was a very shrewd, smart individual," Knudsen replied. "He really was. Many times he'd listen to someone well-versed in the subject at hand, and if that person was a good salesman, he'd buy it. For example, he learned about air bags

from someone he had met. He became very interested in air bags and wanted to give a speech on air bags. He didn't know anything about the mechanical end of the air bag, but he did know that it would save a life.

"I said, 'Mr. Ford, have you ever seen an air bag?' He replied, 'No.' I said, 'Have you ever seen one in a car to see how it works?' 'No.' 'Well, maybe we ought to take a look at it,' I said. So I arranged to have . . . a couple of cars equipped with the air bags brought to the Glass House. Henry said, 'Let me get in and you set them off.' I said, 'I think maybe you better stand outside first and see what happens before getting in.' When those things go off, it's like a 10-gauge shotgun going off.

"Mr. Ford said, 'My God, you didn't tell me that thing goes off like that!' It blows it from the driver's side and, on the passenger side, it blows the whole instrument panel out. After the demonstration, he changed his speech a bit. But that was typical of Henry to do such things; and he hit a lot of them right. You just had to have somebody around to see that he didn't get into any trouble."

"Did you call him Mr. Ford, as opposed to Henry?" I asked.

"I never called him Henry," Knudsen replied. "I called him Mr. Ford."

Sir Herbert Austin Courts Henry Ford

by David G. Jones

In the course of research into the history of General Motors Ltd. in the United Kingdom, I unearthed an extremely important letter from Sir Herbert Austin to Henry Ford, and the reply that he received. Although the correspondence was alluded to in *American Business Abroad* (p. 97), together with the reference numbers of the letters in the archives at the Henry Ford Museum, it appeared that no one had pulled the letters.

In 1920 there was much talk in the motoring and popular press about a possible liaison between the Austin Motor Company and General Motors Corporation. The basic plan was for Austin to increase its capitalization and for GM to take a £1,000,000 stake (GM did, in fact, take an option on the shares). This stake would not have given GM a controlling interest in Austin, as the proposed recapitalization was to have been at least £5,000,000. General Motors withdrew its offer or allowed their option to lapse (date and reason unknown), which left Austin with severe problems.

Sir Herbert, now trying to stave off bankruptcy, approached the mighty Ford empire at Detroit. He wrote to Henry Ford on July 9th, 1920, asking "Would an alliance between the Ford Motor Company and our concern appeal to you?" and saying that Austin would be "more secure in an amalgamation with one of the leading American Firms rather than to be in strong competition with them" (Fig. 1). What did he mean by "amalgamation?" Merger or takeover?

The amazing thing about Sir Herbert's letter was that it was sent in total secrecy, without consultation with anyone in the UK. In fact, he asked for Henry Ford's confidentiality in the matter. This was typical of Sir Herbert's autocratic style, and of course reflected his majority shareholding in Austin.

Henry Ford, on August 16th, 1920, in his usual brusque fashion, essentially told Sir Herbert to "get lost," a characteristic but not very polite answer (Fig. 2). A personal reply, rather than a letter dictated to his secretary (who signed on Ford's behalf) might have been more appropriate. Had Ford gone ahead with the proposed amalgamation, then Longbridge,

rather than Dagenham, might have been the main Ford plant in the United Kingdom.

On April 26th, 1921 the Austin Motor Company Limited, having failed to do a deal with either GM or Ford, went into administrative receivership, and was heading rapidly toward bankruptcy. The bankruptcy did not, in fact, occur, the company being saved by Sir Herbert's baby, the Austin Seven (Fig. 3). The Seven had been designed privately by Sir Herbert for the Wolseley Sheep Shearing Company, which had ambitions of returning to motor vehicle manufacturing. Despite Sir Herbert's being a director and sometime chairman of Wolseley, the firm rejected his design. Sir Herbert then licensed Austin Motors to produce the Seven, which led ultimately to Austin becoming Ford's main rival in the UK.

Another interesting point revealed in the letters is that GM was in talks with Austin as early as November 1919, several months earlier than had previously been thought. Sir Herbert's letter also sets the time of the commencement of production of agricultural tractors at the Lioncourt factory in France as the last week of July or the first week of August 1920.



Fig. 3 — The Austin Seven

TEXT OF THE LETTERS BETWEEN SIR HERBERT AUSTIN AND HENRY FORD
from the collections of the Henry Ford Museum & Greenfield Village

(stamp: RECEIVED
Jul 21 1920
Secretary's Office)

(Austin Letterhead)

From - Sir Herbert Austin K.B.E. Longbridge Works
Telegrams: Speedily - Northfield Northfield
Telephone: 230 Kings Norton Birmingham
(private Branch Exchange)
Personal and Confidential

July 9th. 1920.

Dear Mr. Ford

Some eight months ago I was in negotiation with the General Motors Corporation of U.S.A, the object being to form an amalgamation between the General Motors Corporation and the Austin Motor Company for the purpose of eliminating some at any rate of the competition I anticipated in the future between the two Companies. An alliance with the General Motors Corporation appeared to me to be particularly suitable, as we both manufacture very similar goods, viz., Automobiles, Trucks, Agricultural Tractors and Automatic Lighting Plants.

On visiting our foreign markets after the Armistice our people found that the most suitable Agents in many of the centres were already G.M.C. Representatives, and heavily committed to them.

These negotiations were not successful, but I am still of the opinion that we, as the largest British Manufacturers of Automobiles and Agricultural Tractors, would be more secure in an amalgamation with one of the leading American Firms rather than to be in strong competition with them. The field however is very limited, and an amalgamation, unless it is to be mutually advantageous, would be worse than useless.

Would an alliance between the Ford Motor Company and our concern appeal to you: Do you, from your point of view, think the scheme could be made mutually advantageous? I hope you wont think me presumptuous in making such a suggestion, as I fully realize that you have a much larger business than ours and also that you are already very firmly established all over the world.

I suppose you are quite au fait with our manufactures and the standing of our Company, but I am taking the liberty of sending you a few photographs and particulars, which I shall be glad if you will keep in any case, and I shall be very pleased to amplify them if necessary, or I might even go over to Detroit, although it would not be very convenient at the present time.

We have to-day orders on hand for over 50,000,000 dollars, distributed in most countries, but we could multiply these many times over if we could promise delivery. Our output value at the present moment is about 600,000 dollars per week, but is increasing rapidly, our aim being to reach 1,000,000 dollars per week by the end of the year.

We have lately established a Works at Liancourt, near Paris, for the manufacture of 50 Agricultural Tractors per week and deliveries are commencing in two or three weeks time.

I hold the controlling interest in the Ordinary Shares of this Company, and am writing this letter in confidence, not having consulted anyone. If the suggestion does not meet with your favour no one need know that we have corresponded.

Awaiting your reply,
I am,
Yours sincerely,

Fig. 1 - Text of the letter from Sir Herbert Austin to Henry Ford.

(carbon copy)

Aug
16th
1920

Sir Herbert Austin
Longbridge Works
Northfield, Birmingham
England

Dear Sir Herbert Austin:

Your letter of July 9th reached Mr Ford's office during his absence from the City and the same has therefore been held until reply could be made under his direction.

I wish to inform you in response to the above that Mr Ford does not feel inclined to entertain any proposition such as your letter sets forth.

Thanking you, however, for your interest in submitting the matter for his consideration, I am

Very truly yours

E G LIEBOLD

General Secretary to HENRY FORD

(from Accession #284 Box 2)

Fig. 2 - Henry's curt reply.

Rear-Engine, Front-Drive Car Described by Ford in Patent Specification

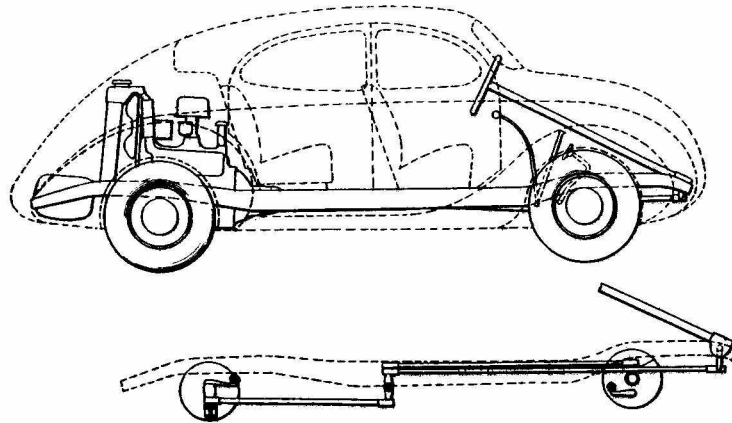
A PATENT issued to Henry Ford and assigned by him to the Ford Motor Co. (U. S. Patent No. 2,051,474, issued Aug. 18, 1936) bears the title Motor Vehicle Brake, but the

specification seems to indicate that the original application had a wider scope, for in the introduction the applicant stated: "The object of my invention is to provide a motor vehicle wherein the arrangement of chassis elements is especially adapted for use in connection with a vehicle body of streamlined shape. The body *per se* forms no part of my invention, the novel design and arrangement of the elements which make the use of such body more practical constituting my invention."

The inventor continued:

"What is believed to be a novel characteristic of my vehicle construction is that the motor is disposed directly over the rear axle, there being a drive shaft and torque tube extending therefrom forwardly to the front axle which is driven by the motor. Several advantages arise from this construction, the first being that the seating arrangement of the vehicle may be materially improved, it being possible to place the seats well forwardly of the positions occupied by the seats in the conventional car, so that the passengers are disposed substantially at a point intermediate of the front and rear axles. The vertical movement or bouncing of the passengers due to road irregularities on the wheels is materially lessened for this reason.

"Further, this construction incorporates all of the inherent advantages of vehicles having the torque tube type of drive. Still further, the applicant's con-



of course, to clear the motor when same is placed in a very low position. Consequently, with the arrangement shown a very low center of gravity is obtained together with an ideal seating arrange-

ment, car length and weight distribution.

"A further object of my invention is to provide a front wheel drive vehicle wherein both the front and rear wheels are simultaneously pivoted to steer the car. The vehicle is believed unique in that about 60 per cent of the steering is accomplished by the front wheels with only 40 per cent resulting from the rear wheels. This construction permits a short turning radius with a permissible angular movement of the front driving wheel universal joints while at the same time the rear end of the car, being moved laterally to a lesser degree than the front wheels, is prevented from swinging in toward the object away from which the front end of the car is being steered. This arrangement eliminates a major inherent defect in all other four-wheel steered vehicles of which the applicant is familiar.

"Still a further object of my invention is to provide an improved brake hook-up whereby the brakes on all four wheels are simultaneously operated."

From the foregoing introduction to the specifications it would appear that the invention covered the general chassis lay-out. The patent, however, has only a single claim and that covers "a mechanism for operating the brakes of a steerable vehicle."

It may be pointed out that the patent was issued on an application filed March 19, 1934.

The History of Steam Carriages In Germany 1803-1873

by Dean Lehrke

In the early years of the 19th century “steam fever” was sweeping across America and England. European mechanics were also catching this fever and in Germany there were many forgotten pioneers who were sometimes successful.

Early Trials in Germany

Karl Anton Henschel, a Kurhessian state councilman, who was the co-founder of the world renown firm of Henschel & Son, later Henschel A.G., prepared a sketch of a steam road carriage in 1803. In 1816 he built and demonstrated a model steam carriage for the electorate of Hesse and later obtained a patent for it. However his ideas were not pursued since the Governor of his state desired to preserve the peace and quiet of his home city rather than give assistance to risky new technical projects. So Henschel then applied his energies to building railroad locomotives. 120 years later Henschel A.G. was building steam road vehicles and was mildly successful for a while.

In 1812 George von Reichenbach of Munich was inspired to build a steam wagon. He wrote a paper on the subject for the Bavarian Academy of Science and soon was busy in preparation of a working model to demonstrate his theories. However his plan was later dropped.

In Prussia interest was developing in transporting coal from the mines using steam locomotives. In 1816 two locomotives, known as steam wagons, were built to operate in Oberschlesien and the Saar region, however, neither was ever run. One was later used in a pump system for a zinc foundry, the other was eventually sold for scrap after much unsuccessful modification and repair.

It is understandable that, after these failures, the building of steam carriages ceased for sometime. Men became content instead with following the latest developments in England. *Dingler's Polytechnical Journal* reported these developments and the remarks of the editor clearly showed what men in Germany thought of them.

In 1823 this journal described and pictured an English steam carriage and the editor wrote this heartfelt opinion of it:

“One should not concern himself so much with the elimination of horses from carriages (since even the Good Lord has more steeds at his command than men do!), but more than this, one should somehow, through a plain and simple mechanism, which the mechanics can clearly understand, better utilize

horsepower, and thus horses and men together can make the pulling of wagons much easier.”

Two years later the readers of this journal heard more about the impracticality and danger of an English steam carriage:

“... the mechanics have now made it possible to bring improvements to the operation of wheel carriages, and it thus becomes apparent that our own wheel carriages are now perhaps the crudest in the world, and man's imagination is unprepared for these improvements: Our own wheel carriage construction ‘fifth wheel’ of the wagon itself.”

Upon the appearance of the Burstall & Hill steam carriage in 1826, the editor described his observation that “. . .

the carriage runs well, after a fashion, but scarcely had it taken off that it developed a problem such that the boiler burst . . .” In 1828 no less an engineer than Ernst Albans wrote concerning Gurney's steam carriage “. . . to me the steam carriage is mere curiosity which neither now nor in the future holds any real advantage. . . .”

In the 1830s the journal made only factual and non-opinionated statements concerning steam carriage developments in England. And one

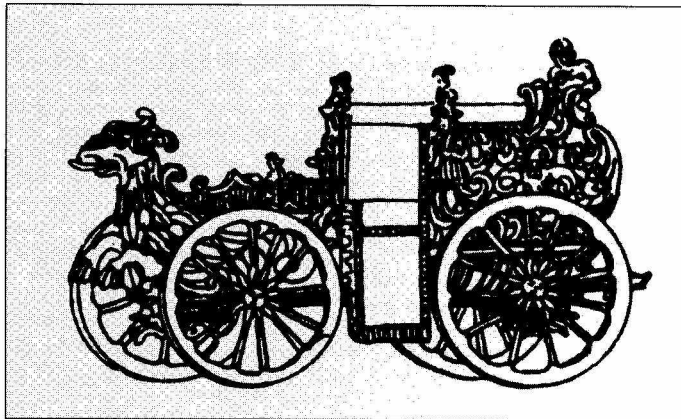
could also find some articles on these vehicles in some local newspapers as well.

German Entrepreneurs and Inventors

In 1830 Johann Hoffmann, a book and art dealer in Berlin desired to establish a steam carriage company to run between Berlin and Potsdam using Gurney's designs. In 1832 the girdlemaker Grunberg also of Berlin sought a license to build steam wagons, however, he was advised by the authorities that he should apply his skill and diligence to the preparation of more useful projects rather than building of impractical vehicles.

Likewise, the Prussian general postmaster, Herr Nagler, became interested in the London-built steam carriage of Colonel Maceroni in 1834, however, the ministry of the interior believed that a development of this undertaking would be more of an interesting fantasy rather than a real possibility.

In 1833 the mechanic Karl Dietz of Darmstadt built a steam carriage which was examined in Brussels by a commission under the direction of Count Hompesch, with



official encouragement of King Leopold. Some time later he received a favorable report from the French Academy of Science after a successful demonstration of his new improved carriage during a test drive in Paris. Nothing is known of the operation of his carriages in his native state, presumably he was forbidden to do so as were so many previous inventors.

The First Automobile Show in Europe: Vienna, September 1834

In May 1834, Walter Hancock, that prolific builder of steam carriages in England, received an order to build a small steam drag or tub for a certain Herr Voigtlander on behalf of some Viennese merchants. The drag was completed in record time, no more than six weeks and by early July it was ready for testing, which was conducted with Hancock's customary thoroughness. Herr Voigtlander drove it from Stratford through Bow and Homerton through the country back to City Road. He was delighted at driving it at speeds up to 14 miles per hour! Upon receipt of payment Hancock arranged shipment to Vienna via Rotterdam. It arrived in Vienna in early September with rapturous acclaim. It was first displayed in the Circus Gynmasticus where it could be viewed daily for a 40 Kreuzer admission fee. The appetites of the Viennese had already been whetted by occasional reports of its transport through Europe, and it proved a popular novelty. It had the stage all to itself and was feted by the press:

“This carriage, the first of its kind in Germany, has already attracted the general attention of the curiosity-seekers during its conveyance from London to Vienna, even though the crate did not permit a complete view. But now this marvel of man's ingenuity is displayed without concealment, and will certainly occasion special interest among those who love mechanics. It covers the distance between Vienna and Baden in 3/4 hour, rests upon springs, runs without noise and the propelling machinery produces no smoke. This carriage which will speed along the roads like a living creature, without the assistance of horses, combines with the ingenious mechanism, solidity and elegant simplicity of construction and gives one a clear and convincing idea of the comfort and speed of these conveyances.”

The main avenue of the Prater was cordoned off and an ornate entrance with ticket office was built. Crowds flocked to line the route. At four o'clock sharp the machine started its demonstration run to the amazement of the crowd and drove alternatively fast then slow as far as the Rondeau and back. However newspapers complained of the brevity of this demonstration:

“It would have been desirable for the steam carriage to have made more than one journey along the main avenue, for there were many people who did not see anything of the proceedings because they were a few moments late. To pay 24 Kreuzer to see a steam carriage is one thing but 24 Kreuzer to see no steam carriage is somewhat too dear!”

After further exhibitions at the Prince Esterhazy Riding School it was announced that Herr Voigtlander would inaugurate a bus service on the road to Baden as soon as arrangements could be made. Any Austrian readers of this article are encouraged to inform the editor of the final accomplishments and fate of this historical vehicle—could it still be extant—hidden away in some Austrian farmer's barn?

New Interest / New Setbacks

English steam carriage builders began to appeal directly to various other German state governments to allow the privilege of operating their carriages for a profit. The English Lieutenant Colonel Charles Dance made such a request to the governmental presidium at Koblenz. Dance had previously established a steam omnibus line in England using a Gurney carriage in 1831 but four months later a mob of rioting Luddite farmers sabotaged his progress by placing large stones in the road. Later he built his own carriage, designed especially for transport of troops, weapons, munitions and return transport of wounded, i.e., the first ambulance.

Dance then went to Koblenz to present a memorandum of his proposal: He required 500 Pounds Sterling for the license to use his carriages in Prussia, 1500 Pounds Sterling for each carriage delivered, and the Prussian government would be obligated to order 10 carriages from Dance and no one else. The ministry in Koblenz dutifully wrote to Berlin with the remarks that it would be advisable to first see the carriages Dance used on the Gloucester-Cheltenham steam bus line. In Berlin where the proceedings concerning the purchase of locomotives for the Saar region in 1816 were still remembered, there was understandably little interest in the proposal of Col. Dance and they returned with this reply:

“Compare this steam carriage invention against all others which without partiality the newspapers have thus reported: that nowhere has a very practical application been reached, and this should be common knowledge.”

In 1835 a paper was published by Joseph Ritter von Baader on “The Impracticality of Using Steam Carriages on Common Roads for General Transportation.” In 1837 at the Hannover Domestic Industrial Trade Show a small 1/6 scale model of a steam carriage was exhibited by the shipbuilding firm of Herrn Lange zu Grohn of Schonebeck. The model was built by ship craftsman Herr Rencken. And then all became suddenly quiet concerning the steam carriage. For many years nothing was heard.

Road Steam Transport / New Interest Shown

In 1858 the *Polytechnical Journal* gave another report about developments in England. C.L. Moll, the author of the article, had just returned from England after closely examining the Boydell steam traction engine, and felt that this new invention had reached a high degree of application and was well suited for the heavy duty transport of large loads. However Prof. Ruhlmann of the Hannover Institute was not quite so optimistic of the desirability of steam road engines, yet he wrote:

“Even so, the matter remains interesting and is perhaps important in this regard that it can inspire

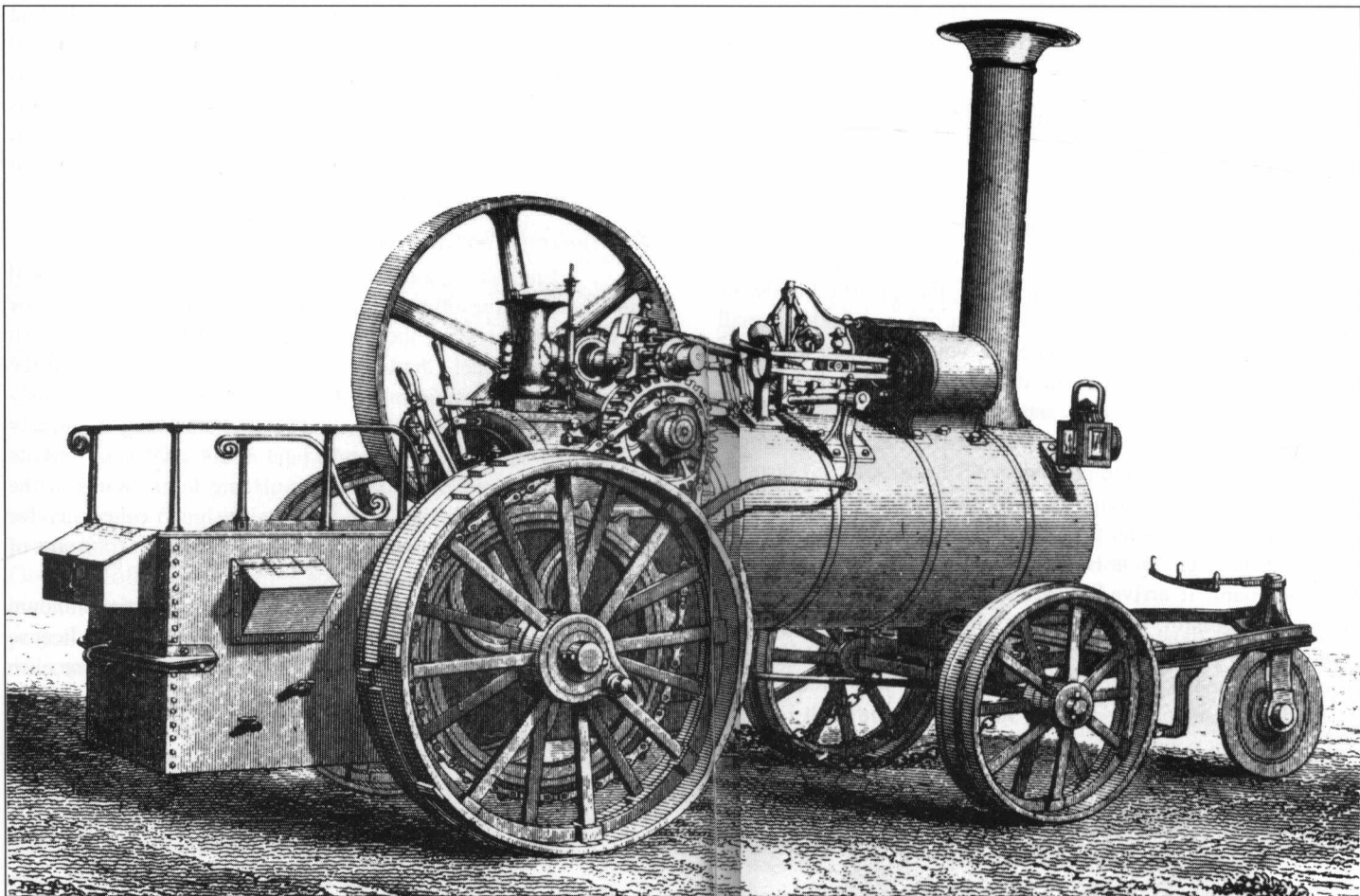


Fig. 1 — Aveling steam engine of the early 1860s.

other ideas for experts who can then provide a solution to a not so unimportant problem.”

In September 1861 an English steam engine of the system Aveling was displayed at the machine trade show in Schwerin which was designed to operate and transport a large steam threshing machine. It worked satisfactorily at all engagements and undertook a number of trips from village to village. At about the same time in Zurich a test drive was made of a steam road carriage built by the firm Escher, Wyss and Co. which carried nine persons. Werner Siemens of Erlangen was also said to have built a steam carriage about this time, and he had also built electric carriages previous to this. On the 24th of June 1862 the master mechanic Carl Hoppe of Berlin submitted a craft-plan patent to the Prussian authorities for a steam carriage described as: “. . . a coach which is propelled by a caloric engine of approx. 1915 h.p. and will attain a speed of 23 km. . . .”

Later in 1862 a System Aveling traction engine was purchased to transport brown coal between Bromberg and Krone in present day Poland (Fig. 1). In 1863 at the International Agricultural Exhibition in Hamburg there was one German built traction engine shown by the firm Schwartzkopf next to the six English-built engines. Two other German firms, including R. A. Wens of Berlin, were registered but showed nothing. About this time J.A. Maffei introduced an undermount traction engine to transport and operate a threshing machine.

The World's First Road Races: Hamburg, 1863, Cologne, 1865

At the Hamburg show, along with the English engines, Schwartzkopf exhibited its two-cylinder machine with “Kulissen” valve linkage. The wheel axles were mounted on springs (the English engines were not), and it produced 18 h.p. It weighed 110 hundredweight and on the tender was space for 12 persons. To test the durability of these engines, designed primarily for agricultural uses, a competition event was organized and on July 16, 1863, a race was held in which each machine had to haul seven loaded wagons across a tortuous course.

The machines had to travel with and without the load, over roads of various conditions, uphill and downhill around curves, the speed was precisely measured, the maneuverability of each vehicle and the question of public safety was thoroughly tested. This was probably the first timed street event in the world, (some English steam carriage builders had staged an informal race in the 1830s) and lasted five hours.

The grand prize was won by the Boydell design built by Charles Burrell. The first prize was won by the Aveling and Porter while Schwartzkopf won a small silver medal. Now quite suddenly a great interest in steam common road transport was again shown. This prompted the Royal Ministry of the Interior in Hannover to promote a thorough test to show if and under which circumstances the use of steam traction engines should be regulated on common roads from the viewpoint of

the road authorities. The commission retained an extensive panel of experts which tested the machines after the close of the Hamburg exhibition and came to the following conclusions:

1. Road engines were not yet technically perfected. Common roads were not wide enough and could become damaged by their use.
2. Financial profit was not yet feasible.
3. It is not believed that road engines will not supersede horse transportation.
4. In regard to official safety concerns, steam road transportation will cause many problems, i.e. scared horses, accidental fires from flying sparks, unsafe evening travel.
5. The national government will not officially encourage their use by state governments.
6. Some communities may allow their usage on common roads.

At the machine trade show in Stettin in 1864, John Fowler, Schwartzkopf and J. Pintus and Co. of Brandenburg were represented. Schwartzkopf now had an improved machine. It no longer had a separate tender but was part of the engine. Furthermore the steering was simpler and safer. Another was built to order. The Firm Borsig had in the meantime built a road engine whose test run was favorable. Firms of later renown began to build similar machines.

At the Cologne Trade Show in 1865 Schwartzkopf, Fowler, and a System Aveling Garrett were represented and another test competition was set for a course merely 1 Km. long. The Schwartzkopf was now the winner however the judge decided not to award the grand prize. Because of this Schwartzkopf requested another test run with an 80 to 100 hundred weight load over a course of 2 German miles, "To restore the honor of German industry against the English". Non-partied experts were retained and the capabilities of each machine were to be fully tested. However Fowler was not ready to engage in this unobjectionable test and declared that the competition had already been decided in Cologne.

Further Developments / Further Setbacks

From these exhibitions common-road locomotives became proven but in day to day practice it was unfortunately a different matter. In 1863 an English Tuxford and Son engine was operated in the Palatinate region between Pirmasens and Bergzabern. It was in operation for 77 days with interruptions for repair and was later auctioned off since it didn't handle well on muddy or frozen roads. In 1864 Herbertz of Uerdingen on the Rhein obtained a license to operate a road engine for driving a threshing machine and to haul heavy loads. It was derived from an English Garrett design. How long it was in operation is unknown.

In 1873 more proposals were undertaken in the Cologne region to receive approval to operate road "loks:" The firm Pfeiffer and Langen of Elsdorf for their sugar refinery; and Weinstock Bros. of Honnef to transport logs from Bayenthal/Rhein to their steam saw mill in Zieverich. The biggest challenges came from the mayors of the villages through which they had to pass. Sometimes police ordinances against steam road transport were exempted. In Oberempt someone piled gravel heaps on the narrow city street and the sincere engineers who desired to clear the way were rebuffed by the road police.

Schwartzkopf also had travel difficulties with his prize-winning engine. The Aplerbecker Foundry in Westfalen desired to try road engines to pull four wagons loaded with ca. 100 hundredweight between the foundry and the nearest train station. However local farmers and teamsters whose livelihoods were threatened blocked the road and impeded the trial so nothing could be done. Later while descending a hill the brakes failed and the machine landed in the ditch, where upon the test was given up and the wreckage hauled back to Berlin.

Schwartzkopf then discontinued building traction engines for some time. When he received inquiries concerning this from his agent in Russia in 1872 he answered with the following resignation:

"... we must reply to our misfortunes that after the previous experiences we will no longer build these machines, of course it would be wrong for you to recommend them for further service. . . ."

Conclusion

Steam transport on roads and fields did not end with these setbacks. It even prospered somewhat during the early 20th century and was gradually accepted by the public. Steam plowing engines were actually in use up to the early 1970s in northern Germany! Yet they could not challenge internal combustion engines for the most part. They were too heavy and difficult to control, and the roads were too narrow and in poor condition. Yet they "paved the way" for motor vehicles of later years. In this respect the words of Edison thus hold true: "So much agony, so much work, all for such a small improvement."

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America's First Automobile Show

by John A. Conde

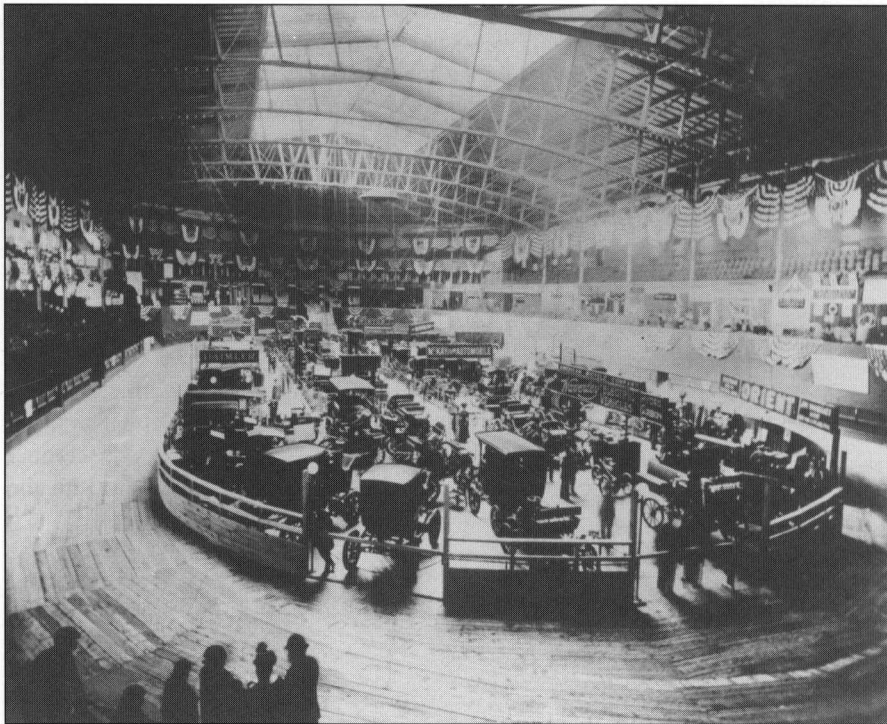


Fig. 1 – SPIDERS, RUNABOUTS, BROUGHAMS and PHAETONS. The first automobile show, held at Madison Square Garden in November, 1900, offered these and other types of automobiles to a doubting public. A wooden track encircling the show floor, pictured left, was built primarily for obstacle racing and braking contests to stress the reliability of the early steam, electric and gasoline wagons. Demonstration rides also were given on the track to any show visitor who cared to take a chance in the new “contraptions.”

In 1895, four automobiles were registered in the United States. In 1896, there were 16. By 1899, the total had skyrocketed to 2,300. The next year, sales continued to rise dramatically. With nearly 8,000 cars registered as the year 1900 drew to a close, the Automobile Club of America decided it was time to hold the nation's first auto show.

Thus, the first big exhibition was scheduled for the week of November 3 at Madison Square Garden. Fortunately for posterity, it was adequately covered by the newspapers and the magazines (Fig. 1).

The products themselves offered every possible kind of comparison. Many appealed to the nation's 10,000,000 owners of bicycles, powered bicycles, tricycles and quadricycles were much in evidence at the show. The majority of the 159 vehicles displayed were powered by steam or electricity. The public, and even some inventors, were skeptical of gasoline or “hydro-carbon” carriages because of the “dangerous fumes” of the exhaust.

34 Companies Represented

Thirty-four companies exhibited more than 40 makes of vehicles in the Garden. None are being manufactured today. More than half the remaining names are lost in a century of oblivion. Others went on to become popular household words—but only for a decade or two. They included Peerless, Locomobile, Winton, Duryea, Buffalo Electric, Knox, Haynes-Apperson, Orient, Autocar, and the St. Louis, whose slogan was “Rigs That Run.”

In addition to the 34 motor vehicle exhibitors, 21 manufacturers of parts, accessories, and tires had displays at the show, including Diamond Rubber, Goodyear, B.F. Goodrich, and Hartford Rubber.

The Show Opens

Opening night of the Auto Show took about fourth place in New York newspapers—behind the impending election which pitted William Jennings Bryan against William McKinley, the much-discussed theory of a Dr. Walter Reed that

AMUSEMENTS.

**MADISON SQUARE GARDEN
OPENS TO-NIGHT AT 8 P. M.
FIRST ANNUAL
AUTOMOBILE SHOW**

**UNDER THE AUSPICES OF THE
Automobile Club of America.**

ADMISSION.....50 CENTS

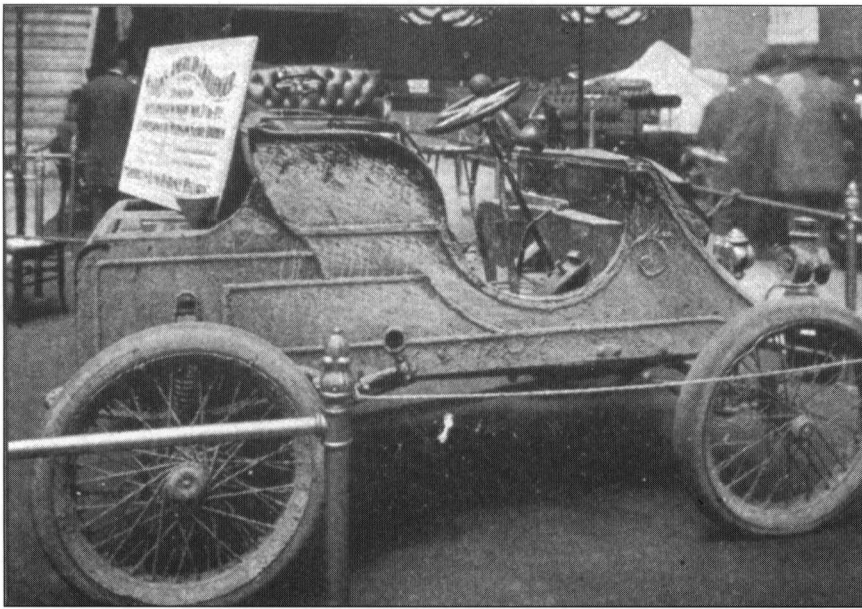


Fig. 2 – To get publicity and prove the worth of the automobile, Winton drove the car shown above from Cleveland to the show in Madison Square Garden and placed it in his exhibit with the mud still on it, just as it came off the road. The picture was taken by Nathan Lazarnick, who had been taking automotive pictures for over a quarter century and whose studio in New York produced most of the illustrations used in MoToR.

mosquitoes carried the malaria germ, and talk of building another subway.

The reporters were rapturous. *The New York Times* of November 4 said “with the glitter of polished nickel and the sheen of many-colored enamels, the first show of the Automobile Club of America, an exhibition dubbed by facetious onlookers as ‘the horseless Horse Show’ was opened last night in Madison Square Garden.”

The New York Herald reported opening night with this headline: “AUTOMOBILE SHOW IS REVELATION.” The article occupied about five inches of space on page 10. The same issue devoted a full column to a discussion of the shortage in New York of dry horses.

The New York World, then the largest paper in the United States, emphasized the “society” angle: “society, auto-crazed, will throng big show.” The sub-head read: “Mrs. Astor, Mrs. Fish, Mrs. Vanderbilt and All the Chauffeurs and Chauffeuses of the Fashionable Set Will Be Present.”

In the same issue, *The World* announced that Alexander Winton had driven a car he built from Cleveland to New York, setting a record of 38 hours and 30 minutes (Fig. 2).

A first-night crowd variously estimated at 7,000 to 10,000 surged through the “maze of narrow aisles between exhibits and dribbled up through the galleries and boxes.”

The Times commented that a number of spectators were experts who could “tell at a glance a gasoline vehicle from one propelled by steam or electricity.” *The Sun* quoted a woman reporter: “Well, I understand about the carburetor and the explosions, but I don’t know yet what makes it go.”

Society people and other “fashionables” from the start made the show a hit. After the second day, *The Times* reported that “white shirt fronts and tuxedo coats were more in evidence,

and it was apparent that society was adopting its tactics, usually apparent at the Horse Show, or waiting a day or two before affixing a forceful stamp of approval.”

Among the notables were John Jacob Astor, Mr. & Mrs. William K. Vanderbilt, William Rockefeller and E.D. Morgan.

Excitement ran through the big building on that second night as word was received that J.D.F. Lanier had driven a Rambler from Staatsburg-on-the-Hudson to the Garden in six hours.

Election Day

The third day of the Show was national election day. *The Sun* commented that the fashionable element was entirely lacking but not because of the election. The Meadow Brook steeplechases and the many golfing and other sporting events had apparently drawn out of town nearly all who were conspicuous on the earlier days of the exhibition.

But the show management had anticipated interest in the election outcome. Many crowded into the cafe to hear election bulletins read. As for the show itself, chauffeurs drove empty vehicles around the ring most of the time, and one car, “a handsome electric victoria with chauffeur and groom attired in a pearl-covered livery which exactly matched the lining and cushions of the carriage,” offered spectators free rides.

On November 7, the fourth day, society again “smiled upon the show.” There was excitement in the afternoon as a steam-driven military motorcycle carrying four National Guardsmen with rifles and equipment, including 1,000 pounds of ammunition apiece, tents, blankets, cooking kits and entrenching tools, arrived after a run from Tarrytown, 31 miles in 65 minutes.

The Tribune happily reported: “A fact which the show has demonstrated is that the American automobile is not a ‘dirty, filthy thing,’ as some have asserted. There is an occasional spot of oil and grease, but the track is not befouled as many persons expected to see it.”

“Best Night of Show”

The newspapers called the fifth day the “best of the show.” More than 6,000 attended, and the atmosphere, “while somewhat charged with gasoline,” had a decided snap to it.

One contributor to the night’s success was Fred Burns, the announcer, “whose clarion voice enabled the crowd to know what was going on and who won the contests.” A race of steam tricycles furnished a major part of the fun and excitement, “giving them something to laugh at, yell at and cheer at.” The press’ description of this event and other lucid comments on events demonstrated that to nearly everyone there, including even some of the exhibitors, the automobile was primarily a plaything. Here is *The Times’* report of the tricycle race:

He started at the crack of a pistol, standing about 40 feet behind his tricycle. He then made a running

mount and at the 45-yard line brought his buzzing little tricycle, with its ponderous rear machinery, to a quick stop, jumped off, peeled off his coat in a jiffy, and hung it carefully on an improvised tree rack on one side of the track. This done, the rider leaped upon the saddle, pulled upon the valve to get all the power possible and flew like a deer around the track. On arriving at the starting point, another stop was made, and this time the racer divested himself of his waistcoat.

The New York Tribune editorialized: "As the Automobile Show at Madison Square Garden nears its close, talk is heard of shows to follow." *The World* was more effusive: "It is the beginning of a revolution in traction."

Banquet Night

November 10 was the highlight for exhibitors and their friends, for a huge banquet was held. The spectators, however, were more interested in an obstacle contest for electric delivery vehicles. A reporter commented that "the suddenness of the stop when going at a lively pace was a distinct revelation to a large proportion of the spectators."

Very little mention by the newspapers was made of the cars themselves. But one \$2,500 model which had been sold "half a dozen times over" was described as follows:

An open phaeton model, with a rumble, and attached to this little rear seat is a golf bag filled with a

generous supply of clubs. The cushions are of pigskin, and the vehicle is gorgeously furbished in white enamel with the faintest of red stripes.

Largest Crowd on Last Night

More than 12,000 persons, largest crowd of the Show, turned out for the final night. A reporter commented that

The handsome gowns of the women, the multitude of snowy masculine shirt fronts, and the closest interest in the ring—or, more properly speaking, the track—reminded one of the Horse Show at its best. It is the Horse Show, indeed, to which perhaps, 9 out of every 10 visitors at the Garden during the past week have more or less unconsciously compared the array of motor vehicles and their performances. The sleek, graceful machines with their suggestion in repose of energy and speed have aroused interest akin to that felt in the living machines of speed and power that hold the center of the stage during the Horse Show.

Of course, attitudes and opinions have changed since that momentous first show. As the years passed, auto shows have been held in scores of other American cities, and millions have thronged to see the automobiles on display, not only for amusement and curiosity, but also because they wanted to see the latest models and because they wanted to buy.



Not a roller coaster, but the Mobile Steamer showing off its brakes on the roof of Madison Square Garden.

CARS EXHIBITED AT THE 1900 AUTO SHOW

Companies which exhibited motor vehicles at the 1900 Automobile Show, and a brief description of these vehicles, follows. I have also provided photographs of some of the vehicles that were displayed.



Fig. 3—1900 Waverley electric.



Fig. 4—1900 Autocar Type V—doctor's phaeton.

American Bicycle Co., New York. 10 vehicles—products of four companies owned by ABC, two gasoline-powered Ramblers, five Waverley electrics (Fig. 3), the Lawson three-wheeled “gyrascope,” a Billings steam runabout and a Cleveland French-type tricycle.

Autocar Co., Ardmore, Pa. Nine vehicles each with a two-cylinder gasoline engine (Fig 4).

Automobile Company of North America, New York. Six vehicles called “gasmobiles” were entered by this company which had a factory in Marion, N.J. (Fig. 5)

Baker Motor Vehicle Co., Cleveland, Ohio. Two vehicles, both steam runabouts.

Bowman Cycle Co., New York. One vehicle, an electric Kensington stanhope.

Buffalo Electric Carriage Co., Buffalo, N.Y. Three vehicles, all electric stanhopes.

Canda Mfg. Co., New York. Five vehicles, two runabouts, a quadricycle, a tricycle and a carrier cycle.

Cunningham Engineering Co., Boston, Mass. Three vehicles, all steam-driven delivery wagons.

Daimler Mfg. Co., Long Island City, N.Y. Two vehicles, both gasoline motor trucks capable of carrying 4,000 pound loads.

De Dion-Bouton Motorette Co., Puteaux, France. Four vehicles, all gasoline-powered “Motor-ettes,” including a tricycle.

GASMOBILE.

THE FINEST ROAD CARRIAGE BUILT IN AMERICA.

• • • • •



First Prize Winner of All Contests for Gasoline Vehicles at the Automobile Club's Show, Madison Square Garden, November, 1900.

Winners First Prizes and Silver Cup at the Philadelphia Club Show, February, 1901.

Winner of First and Second Prizes to American made Gasoline Machines at Guttenberg, N. J., September 18, 1900.

Pronounced by Newport the handsomest Carriage of the season.

• • • • •

AUTOMOBILE COMPANY OF AMERICA. **FACTORY:** Marion, JERSEY CITY, N. J.

NEW YORK OFFICE: HUDSON BUILDING.

Fig. 5—Gasmobile of type displayed at Show.

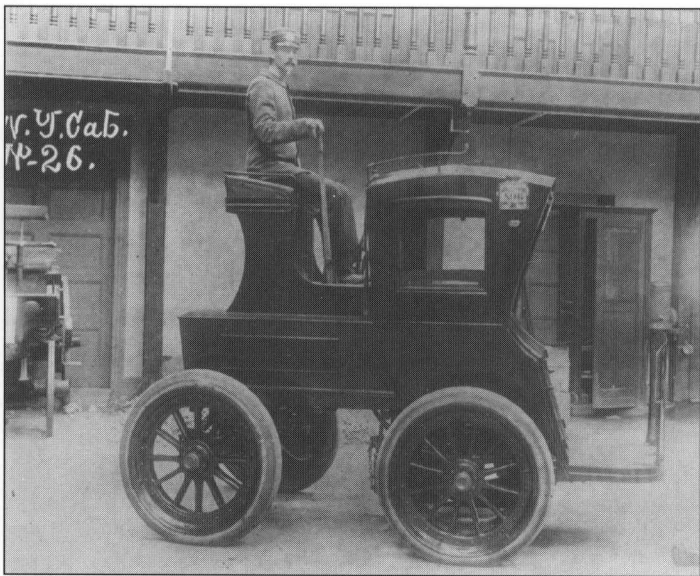


Fig. 6 – 1900 Columbia electric “cab.”



Fig. 7 – 1900 Haynes-Apperson

Duryea Power Co., Reading, Pa. One vehicle, gasoline-powered, which could be converted from a three- to a four-wheeler at a moment's notice.

Electric Vehicle Co., New York. 18 Columbia vehicles. Two were known as “Mark VII” tricycles, one was a gasoline runabout, another an 8-passenger electric wagonette. Others: an 11-passenger wagonette, an 8-passenger omnibus, a surrey and a “cabriolet.” (Fig. 6). This firm by showtime had sold 200 cars, 60 of them in Paris.

Foster Automobile Co., Rochester, N.Y. Four steam vehicles: stanhope, surrey, delivery, and brake. This company's Eastern Representative was John Wanamaker.

Haynes-Apperson Co., Kokomo, Ind. Three vehicles, all gasoline-powered, a 4-passenger carriage and two single-seaters. (Fig. 7).

Holyoke Automobile Co., Holyoke, Mass. One vehicle, a gasoline-powered “cross country touring surrey.”

International Motor Carriage Co., Stamford, Conn. One vehicle, a gasoline-powered Stanhope.

Knox Automobile Co., Springfield, Mass. Three vehicles, all gasoline-powered.

Locomobile Company of America, New York. 10 vehicles, described in the November 1900 issue of *The Automobile* magazine, as a “complete exhibit of various styles of carriages, including a ‘Locoracer,’ a ‘Locosurrey,’ and a ‘Locodelivery’” (Fig. 8).

Mobile Company of America, Irvington-on-Hudson, New York. 28 vehicles, all gasoline-powered cars.

National Automobile & Electric Co., Indianapolis, Ind. Eight electric vehicles: a runabout, two road wagons two dos-a-dos park traps, one 4-passenger brake, one combination delivery and pleasure vehicle, and one stanhope.

New York Motor Vehicle Co., New York. One vehicle—an omnibus driven by a 25 h.p. steam engine.

Ohio Automobile Co., Warren, Ohio. Two vehicles, both Packard gasoline-powered carriages.

Overman Automobile Co., Chicopee Falls, Mass. Two steam-driven Victor carriages.

Peerless Mfg. Co., Cleveland, Ohio. One vehicle, a motorette with aluminum body, powered by a French-built de Dion-Bouton engine.

Riker Motor Vehicle Co., Elizabeth, N. J. 10 vehicles: runabout, piano-box runabout, phaeton, square-front brougham, station cab, demi-coach, theater coach, hotel and station bus, 3-ton emergency wagon and 4-ton truck (Fig. 9).

John T. Robinson & Co., Hyde Park, Mass. One vehicle, a gasoline-powered “spider” runabout.

St. Louis Motor Carriage Co., St. Louis, Mo. Two vehicles, a 1-cylinder runabout and a 2-cylinder trap.



Fig. 8 – 1899 Locomobile steam roadster.

Stanley Mfg. Co., Lawrence, Mass. Five steam vehicles, three of them road wagons.

Steam Vehicle Co. of America, New York. Three vehicles, all steam: a stanhope, a runabout and a light delivery wagon.

Strong & Rogers, Cleveland, Ohio. One electric vehicle, a "spider" stanhope driven by Willard batteries.

Trinity Cycle Mfg. Co., Keene, N.H. One vehicle, the Keene Steamobile.

Waltham Manufacturing Co., Waltham, Mass. Seven vehicles, an Orient motor bicycle, two "victoriette" tricycles, two Autogo quadricycles, a double motor tricycle, and an Orient gasoline runabout (Fig. 10).

Winton Motor Carriage Co., Cleveland, Ohio. Four vehicles: a single-seater carriage, a double-seated carriage, a delivery wagon, and Mr. Winton's famous special racer which made the trip from Cleveland to New York for the show (810 miles at an average speed of 21 miles per hour!).

Woods Motor Vehicle Co., Chicago, Ill. Five electric carriages, including brougham, victoria, hansom, and runabouts.

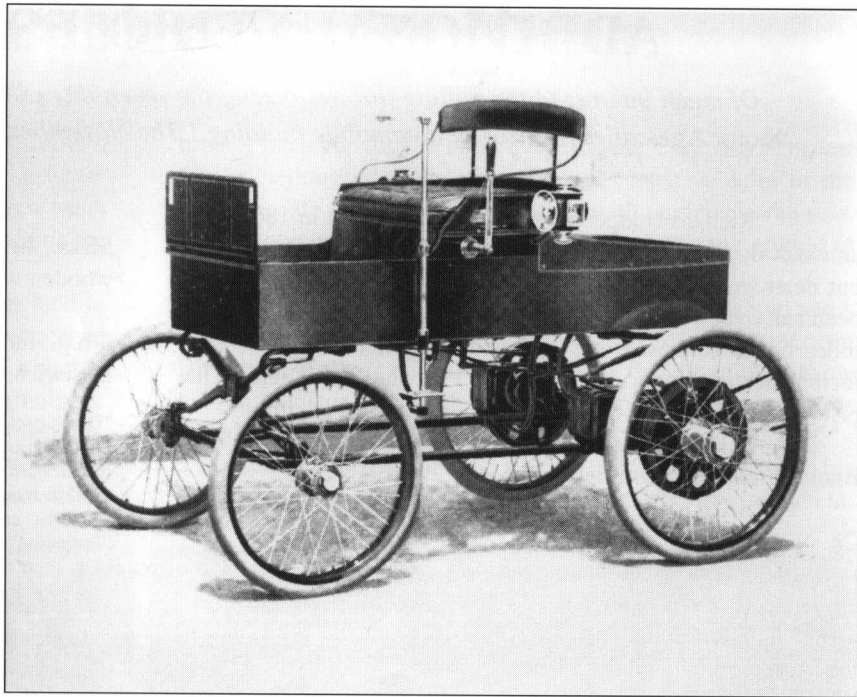


Fig. 9 – 1900 Riker.

There may be other self-propelled vehicles which meet your demand for an ideal automobile, but we would like the privilege of writing you how and why this particular one gives all pleasure and no annoyance—before you make a purchase.

Orient Victoriette

MAY WE?

PRICES
With top, \$1000
Without, 925

Waltham Mfg. Co.
Waltham, Mass.

Bicycles,
Motor Bicycles,
Autogos, Automobiles.

An illustration of a woman sitting in a Victoriette, a three-wheeled motor vehicle. The woman is wearing a long, patterned dress and a hat. The vehicle has a large, tufted seat and a steering wheel. The background is a stylized, cloud-like shape.

Fig. 10 – 1900 Orient advertisement, *The Automobile*, Nov. 1900.

ADDITIONAL VEHICLES ON DISPLAY

Of much interest to the milling throngs during the seven-day exhibition was a special collection of what Motor Age called "curios in automobile building." The November 8, 1900, issue described them as follows:

"Richard Dudgeon's steam carriage, built in 1860, and an exact duplicate of Dudgeon's original vehicle built in 1855 but destroyed in the Crystal Palace Fire. It is said that it had been run over 10,000 miles and to have attained a speed of 35 miles on short runs. It has a horizontal boiler with side seats facing inward. Under each seat is a long flat, water tank. The piston drives direct to the rear axles.

"Riker electric racing carriage, which won the Blanchet cup in a 55-mile road race in 2:03:30.

"S.T. Davis' steam racing car, built by the Locomobile Co. of America.

"Walking automaton pushing wheel chair. Driven by electricity. Built by George R. Moore of Wetford, Mass., in 1891.

"Voiturette owned by Albert R. Shattuck, president of the Automobile Club of America. Aster motor with Prunel French running gear and a handsome body supplied by a New York carriage builder.

"A.C. Bostwick's Clement French voiturette.

"Roper's steam bicycle, built in 1896 at Roxbury, Mass. Weight 150 pounds; highest speed attained, one-third mile in 31 seconds.

De Dion racing tricycle which won last Paris-Toulouse road race, covering the 831 miles at a speed of 27 miles per hour. Highest speed attained, 49 miles per hour.

"Grant Lyman's 6-h.p. Panhard-Levassor gasoline car.

"Steam bicycle built by W.W. Austin at Winthrop, Mass., in 1868. Said to have been run 2,000 miles. An old wooden wheel bicycle of the front wheel velocipede pattern."

"The immense Panhard-Levassor racing car whose 6-h.p. motors (sic) have carried the enthusiastic Albert C. Bostwick to several notable victories."

¹This bicycle was almost certainly designed and built by Sylvester Roper, the Massachusetts steam vehicle pioneer mentioned in Ken Berg's letter on page 7. Roper built about ten vehicles, of various designs. Several of these were exhibited and demonstrated at fairs and carnivals by Austin, often presented as his own creations. Austin was sometimes given the promotional title "Professor," and appears in some literature as "Austen."

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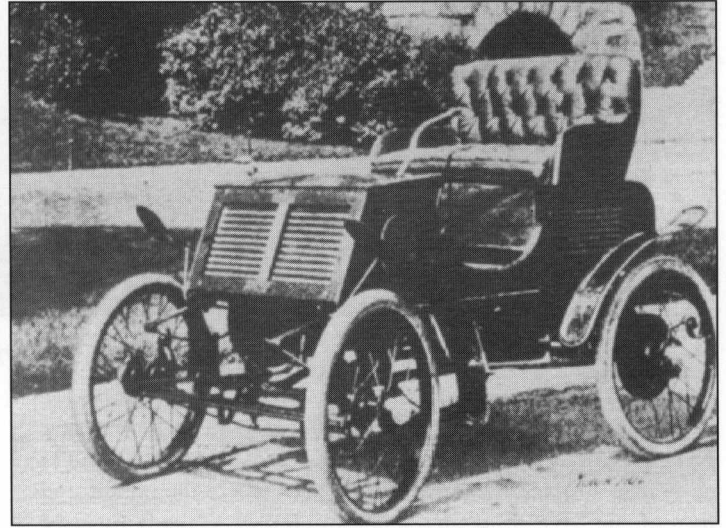
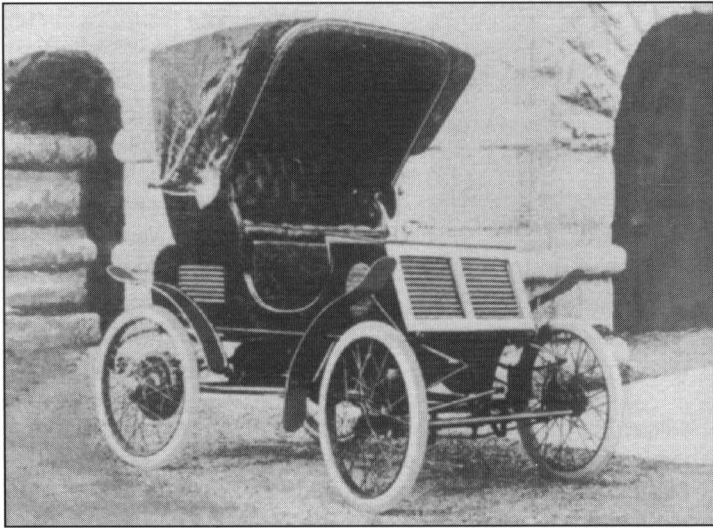
*All dressed up and nowhere to go!
This family group poses on the 1900 show's board
track in the stanhope exhibited by the
International Motor Carriage Co. of Stamford,
Connecticut. Called "National" in some sources,
the car was built to Duryea designs by a
company headed by Percy Klock, and may be
found under that heading in the Standard Catalog
of American Cars 1805-1942.*

How the Rambler Got its Name

by John A. Conde

In 1879, an English-born inventor, Thomas B. Jeffery, began manufacturing bicycles in Chicago. He called his new vehicle the "American." It was an instant success. In a few years he added a new line of "Ideal" machines and swiftly became the country's second largest bicycle producer.

By 1892, when the Columbian Exposition was held in Chicago, he had a partner, R. Philip Gormully, and was engaged in the manufacture, not only of bicycles, but also of clincher bicycle tires, which Jeffery invented. The firm of Gormully & Jeffery boasted one of the largest exhibits at the exposition. They chose this occasion to change the name of their top-selling bicycle model to "Rambler." Business continued to flourish.



Experimental 1900 Rambler stanhope and runabout displayed at the show, the first Ramblers shown to the public.

Three years later, in 1895, the *Chicago Times-Herald* sponsored the nation's first competitive automobile race. A number of machines imported from Europe participated. Thomas B. Jeffery and his son, Charles T., watched an American car built by the Duryea brothers of Massachusetts win the Thanksgiving Day event.

The noisy, spewing, slow horseless carriages enthralled father and son. Both decided to build cars of their own. In his Chicago bicycle factory Thomas created a two-seater in 1897. Little is known of this pioneer vehicle, except that it was powered by a one-cylinder gasoline engine. History records that on August 11, 1899, he filed a patent for a new, simplified carburetor. Many of its features are found on today's modern carburetors.

Charles was tinkering with a model of his own. His father's partner died in 1899, and Thomas B. Jeffery decided to quit the bicycle business, selling out to the American Bicycle Company. With the capital, he began searching for a plant in which to build automobiles. What kind of car it was to be was still undecided. As the century drew to a close, he bought the Sterling Bicycle Company factory in Kenosha, Wisconsin.

Meanwhile, Charles had built a 2-cylinder, 5-horsepower car in Chicago—while he was working as a

branch manager for the American Bicycle Company. The car was something of a sensation. Whereas most vehicles of the time were driven from the right side, with engines in the rear, his prototype has the tiller located on the left, with engine in front.

Charles built two models of this car—a runabout and a stanhope—which were exhibited as part of the American Bicycle Company's display at the nation's first automobile show held in Madison Square Garden in November, 1900. Both were called "Rambler."

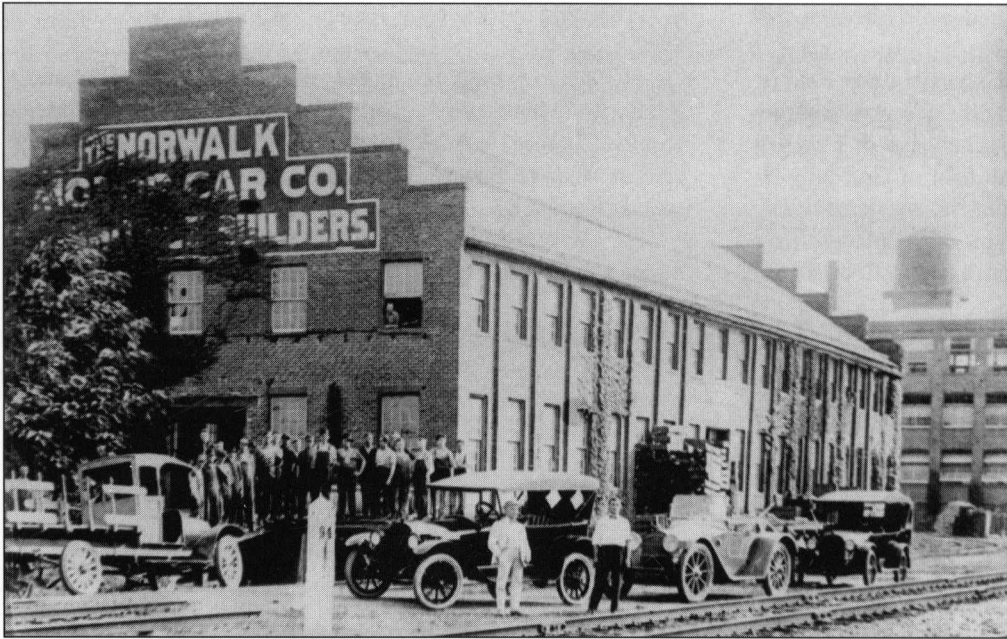
Within three months, Charles took his cars home to his father's new factory in Kenosha for further development.

Realizing that a number of firms had failed to meet public acceptance in those infant years of the industry because of radical design and high prices, Thomas Jeffery persuaded his son to follow "convention" in the redesign of the Rambler car. As a result, two experimental models were turned out in Kenosha. One featured a right-hand tiller and one-cylinder engine in rear. It was this car that finally was put into production in 1901. The first car was offered for public sale on March 1, 1902—its price: \$750. Rambler cars continued to be built in Kenosha until 1914, when the heirs of the company's founder elected to honor him by changing the name to Jeffery. In 1916, the company was sold to Charles W. Nash (after he had resigned the presidency of General Motors) and the car became known as the Nash.

The nostalgic name was reborn in 1950, when the Nash Division of Nash-Kelvinator chose to call its new line of compact cars "Rambler." Following the merger of Nash-Kelvinator and Hudson in 1954, Rambler cars were sold by both Nash and Hudson dealers. And in 1957, for the first time since 1913, the American Motors Rambler would be marketed as a separate make . . . bidding for popularity on its own once again.

Those Elusive Vehicles Chapter V: Plants and their Vehicles

by Grace R. Brigham



Norwalk Motor Car Co., Martinsburg, West Virginia.

It should be easy to locate the sites of manufacturing plants. Except for the workshops of early inventors, they would be sizable structures. However, in places where the bombs and fires of war have obliterated numerous buildings there might be left only pits and scattered rubble with the exact location to be guessed at when roads have lost all signs and landmarks have disappeared. In countries spared such devastation, repair costs and taxes, fires and storms, changing ownership or lessening demand for a company's products can be followed by bulldozers and wrecking balls doing a job similar to a war's obliteration.

After any type of landscape-changing force has hit a community, few of the replacing structures will copy their predecessors. Of necessity the new would be modernized and supplied with equipment for a changing world. The exception would be in places with authentic restorations, such as Greenfield Village, Dearborn, Michigan. Reconstructed villages may be able to transplant originals like Henry Ford's red brick shed where the first Ford was made and even build a replica of the medium-sized Mack Avenue plant where the 1903-1906 Fords were manufactured, but the enormous factories which resulted from those beginnings are not the movable type.

Historical markers.

In what ways have the memories of the inventors, the original plants and their products been preserved? There are markers. If they are placed along a highway, drivers in present-day traffic would not dare slow down for a reading. Historical markers must join other neglected signs like the much-quoted

Burma-Shave ones and require relocation to a park or a building.

A number of the early vehicles and plants are memorialized by a marker only. Considering the thousands of different makes which have appeared on the scene, some might consider it lucky to be remembered even in this manner.

That outstanding innovator, Oliver Evans, deserves more than a marker. The fact is he does have at least two. *Automobile Quarterly's The American Car Since 1775* mentions a marble tablet in Woodland Cemetery in Philadelphia. The second, obviously a metal marker, was pictured in *SAH Newsletter* No. 26 (1972). His birth and death dates (1755-1819) were given, and the information that he "invented automatic machinery for flour mills; first high-pressure steam engine

adapted to commercial use in America and first American land vehicle to move under steam power." Marshall Naul reported that this marker was put up by the State of Delaware, Evans' birthplace.

Another memorial to Evans' work is shown in John Peckham's article, "Oliver Evans—The Magnificent 'Mud Machine,'" in *Automotive History Review* No. 6 (Spring 1977). It shows a photo of the Dogue Creek Mill, with the comment that "The original was fully equipped with Evans-designed apparatus."

Naul's report on a few historical markers was a follow-up of David Lewis' "America's Forgotten Industry" (the automotive) in *SAH Newsletter* No. 25 (April 1972). "Not all states are as negligent as Michigan in recognizing sites of important auto plants." Besides the Evans marker in Delaware, he mentions Mercer's in Trenton, New Jersey, and Waltham's in Massachusetts.

In Lewis' eight-page account he tells of the neglect of the automobile industry by the United States Department of the Interior. Since 1966, he stated, there was only one site connected with the automotive industry—Henry Ford's home—which was registered as a historic landmark. "In contrast. . . . Three landmarks alone are identified with whaling, which never had a tenth as much influence on the nation's economy and life style as the auto industry." Acknowledging that the Park Service does not as a rule recognize the historical significance of structures, sites and objects less than 50 years old, Lewis mentioned that some Michigan plants are older than that, i.e., built before 1922.

In a decade or less a few sites that Lewis mentioned in 1972 will be reaching the century mark: the Packard factory on Grand Boulevard, Detroit; the Burt Brothers' structure in Kalamazoo where the Cannon car was made; and the Collins Wagon Works where the Jackson was built from 1903-1923 in Jackson, Michigan. Dating farther back are several homes of automotive pioneers.

Lewis' account illustrates different methods that historians have for preserving the memory of this "Forgotten Industry." Pictures of the buildings should be taken while there still may be a wall of the original standing. Records and diagrams should be preserved in a safe place such as a library instead of being sent off to the dump. Awards and artifacts should be saved when possible and, perhaps, displayed in a museum. Books and articles should report on the many aspects of the industry, including the all-too-often neglected plants with their varying and constantly improving methods of manufacturing their vehicles. Then, in order to ensure that the importance of certain sites is acknowledged, the proper authorities should be given information about these landmarks. This is something that each SAH member can do in his or her own community.

Lewis advised that letters concerning places in the United States should be sent to either the Chief Historian at the Office of Archeology and Historic Preservation or to the Chief at the Branch of Historical Surveys, National Park Service, Department of the Interior, 1800 C St. NW, Washington, D.C. 20240.

Similar officers in charge of this type of recording would be found in any other country which contains important industrial sites of historical interest.

SAH writers and photographers.

The Society of Automotive Historians has been fortunate over the years to have received numerous pictures of early plants along with articles about them. Various members when researching their regions have located and been able to identify some buildings from the past in spite of their modern disguises.

In *Newsletter* No. 3 (Nov. 1969), Richard Brigham had a picture of an Atlanta, Georgia, plant. He stated, "The name PRIMO MOTOR COMPANY is barely discernable on this old building in Atlanta. Over the years, other signs were painted over it, but time and the weather are slowly making the PRIMO name visible once more." Perhaps the paints, like some of the sturdy, solid metal cars, were much tougher in those days, 1910, when that company started.

Donald Summar located many of the early plants in Pennsylvania and often sent photos of his finds. In *Newsletter* No. 27 (Nov. 1972), there were three pictures of some of the survivors: the Chalfant plant in Lenover where about fifty automobiles were built; the one in Coatesville where the Brinton trucks were made; and the Rowe

truck factory in Lancaster. Summar wrote of the latter, "The building is now very much changed and only the roof and part of one wall of the original building can be seen in the picture." And he added, "I am in full agreement with Mr. Naul that such sites should be recorded photographically before they are destroyed."

Just as Donald Summar made his finds in the State of Pennsylvania, J. H. Valentine located and photographed numerous plants connected with automotive history in California. Two issues of the *Review*, Nos. 6 (Spring 1977) and 8 (Winter 1977-78), contained pictures he had sent with the suggestion "... that perhaps they could be added to the pile of as-they-are-now, before-they-are-gone group." The 15 views of former factory buildings with their signs (Warehouse Sale, Electric Company, Cleaners & Laundry, Sewing Machines) give no indication that these structures were part of the state's emerging car and truck industry. Although they date back as far as the Tourist started in 1902, to the Moreland Truck of 1912, the Beardsley and the Mission, both 1914, the Crescent and the Electra of 1915, the buildings survived long enough to have their pictures taken.

The many pictures of surviving plants furnished over the years to SAH by members would not have been easily obtained. Because of heavy traffic there are only limited times, such as during holidays or on Sunday mornings, when the best photographs of buildings can be taken. With some places, permission may need to be obtained in order to get close enough for good shots from numerous angles.

In fact, permission and inquiries about a building may help photographers to get especially interesting pictures. It helps to have a membership card from The Society of Automotive Historians when trying to find out about the history of some structure.

Richard Brigham was fortunate to obtain the co-operation of some people at the DeLorean plant when he was in Columbus, Ohio, one week. The building they had taken over in the early 1980s had been part of the Columbus Buggy Company.



Fig. 1 – Former Cole factory, Indianapolis, Indiana; photo R.B. Brigham, 1970s.

As the name indicates, this firm started out making horse-drawn vehicles and for years was a leading producer of them. Even when it entered the automotive field with an electric in 1903 and a gasoline car in 1907 the company name remained the same as before.

After Brigham had taken some pictures of the front of a large brick building, one which now was sporting the DeLorean name, he was invited inside to see, as well as to photograph, some of their display pictures of the experimental gull-winged sports cars which had been built in Belfast, Northern Ireland. Then he was shown one of the prized reminders of their more successful predecessor. Encased in the wall was a big Diebold safe with the name "Columbus Buggy Co." embossed on the upper part of its door.

Preserving Cole.

For some of the material received by the Society, a number of historians may have contributed to the project. An example is a five-page story on the Cole Company which appeared in *Review* No. 3. Dr. Robert F. Croll sent in a brief history of the early days when Joseph Cole started the company; some of the additional information came from a report published originally in "The Road to Yesterday" and supplied by Richard Brigham, who also had two photos of the plant he shot in 1975 (Fig. 1); then, pictures of the building being demolished were from a newspaper story (*Indianapolis Star*) which Alexander Telatco had saved; pictures of the cars were provided by Stanley K. Yost; and the production figures from 1908-1924 were sent by Marshall Naul who said they came from an article by Howard DeLancy.

Dr. Croll told of the reason for some changes by the makers of transportation equipment. In 1904 Joseph Cole bought the Gates-Osborne Carriage Company and his Cole Company continued to produce horse-drawn vehicles. Then, as Dr. Croll wrote: "Business was good for the first three quarters of 1907 before the economy suffered the famous slump of that year. . . . This recession was responsible for many carriage companies taking a close look at the automobile industry." The Cole Company was one of those and in 1908 had started to produce some high-wheelers.

Libraries and museums.

Although taking one's own pictures of historical buildings and vehicles can be interesting and challenging, the effort, nevertheless, is usually time-consuming and researchers would like to find other sources for them. SAH Editor Kit Foster answered a question from SAH Member Walter E. Wray concerning the addresses of suppliers of illustrations which have appeared in encyclopedias and books. Foster wrote: "Many of the photos published come from institutional archives, whose addresses . . . are not always publicized. Examples are the National Automotive History Collection (Detroit Public Library) . . . Detroit, MI 48202, and Britain's National Motor Museum (Beaulieu, Hampshire SO4 7ZN England). Other photos come from private collections, or archives, and addresses for these are harder to come by. . . . You will have noticed, however, that many of the photos widely published are credited to SAH members."

A number of libraries can supply copies of the pictures in their files and will have standard fees for such work. Concerning items of local interest, such as their famous native sons and daughters, their noted architectural structures, and some of their regional transportation highlights, this can be a specially good source of illustrations. Not meriting the same depth of interest, though, factory buildings will be in short supply.

Museums with a transportation theme will have plenty of pictures. They may be on postcards; they may be in booklets available for purchase. As a rule, these feature historical vehicles, the ones they have on their floors.

Also on display, but locked in cabinets behind glass doors, are likely to be some rare publications, even factory manuals. (This is a reminder of the signs, ever-present, at old car meets, "Look, but do not touch."). Here again, though, an SAH membership card might entitle the bearer to have a closer look and, rarely, a copy.

Larger museums, like the Smithsonian Institution in Washington, will have a good supply of publications featuring their vehicles on exhibit as well as some covering the field of transportation. Seldom, however, will there be anything of note on the factories. Some exceptions are those with collections based on a single marque or on local products. For example, several Indiana museums, the Auburn-Cord-Duesenberg in Auburn, the Haynes in Kokomo and the Studebaker in South Bend, have fine pictures of the early plants in their regions.

When a local newspaper includes a photograph of a factory building in a story, so often that means "Disaster!" Fire has ruined it, an explosion ended its days, or an implosion has sunk it to the ground amid a cloud of dust.

One expensive fire in 1919 burned the Milburn Wagon Company and destroyed a number of completed electric cars, as well as parts and bodies. This was another of those companies which dated back to the horse and buggy days, as the name indicates. The Toledo, Ohio, newspapers showed what little was left of the old factory, mainly a tall smokestack towering above the ruins. The story goes that thousands of the bricks from it were recycled some years later by Toledo's Zoological Park. There they were turned into new/old buildings by the Depression years employees of the WPA (Works Progress Administration). The animals and the reptiles were beneficiaries of the fire, as were some of those workers who became unemployed when people stopped buying cars in the 1930s and local automobile plants either shut down or scaled back production. The Milburn Company had tried to make a comeback after its disaster, but by then there was lessened demand for electrics. In 1924 it was purchased by General Motors.

Another angle of automotive history, however, has been quite important to the tourist trade, the antique auto museums. In their dealings with the public, postcards are being used by them, not so much for correspondence, rather as an effective advertising medium. It is a colorful way to spread the word about their collections.

Henry Austin Clark, Jr., gave a special reason for having them made of the cars and trucks, the fire engines and his favorite racer which were displayed at the Long Island



Fig. 2 – Columbus Buggy Co. letterhead, 1907 letter, picture of factory.

Automotive Museum. With a few coins for the postcards, he told an SAH gathering at Hershey one time, a kid could get an easy start in the hobby.

Advertising materials.

Some of the best sources of pictures of manufacturing plants will be found in ads appearing in old magazines and on some surviving letterheads. Though the latter are rarely available, they are worth the hunt as they demonstrate the pride a company felt in its structures and in its surroundings.

In fact, occasionally a company may have let that pride go too far when it had the artist embellish a picture. The Columbus Buggy Company on its stationery (in a letter of 1907) showed two streets. Both the one in front of the building and that to the side were lined with identically-sized trees, all with perfect conical shapes, as if made up for a toy train set. At the rear of the engraving was depicted one of the most important adjuncts of any factory of the time—the railroad with its tracks running alongside the building. Factories had smokestacks. The trains brought in coal, and the sign of a busy plant was the smoke belching forth from those stacks (Fig. 2).

Trains were indispensable to the manufacturers. Besides fuel supplies, they brought in materials to be made into cars, then hauled the vehicles out of the factories and carried them to their destinations.

There were changes coming, though, as reflected in magazine advertisements year by year. Changes could be seen in the traffic patterns. That traffic might date a picture (drawn sometime earlier) better than the publication year of a magazine. A mixture of horse-drawn vehicles, high-wheelers and, perhaps, an electric reflected the pre-1910s, open touring cars and more trucks than horsedrawn wagons appeared on the streets during the next ten years, then the mixture would be altered in the 1920s as more closed than open cars showed up along with a greater variety of commercial vehicles near the factories. By then the horse was out of the picture—literally.

But not the trains. There would be tracks, usually double ones, often on more than one side of a plant. Meanwhile, at entrances to the buildings, their competitors were heading inside. Trucks had increased in size enough to be able to haul away some of the newly-made cars.

Many of the drawings were quite detailed—a help to historians decades later who try to identify structures. Even after towers are knocked down, windows bricked over and coats of paint have been slapped on just about every solid surface, the building will be more recognizable if compared to a detailed drawing than to some of the blurred photographs which so often appeared in magazines during the early years of motor manufacturing.

In *SAH Journal* No. 79 (Jul.-Aug. 1982), Marshall Naul authored an account of the Moyer automobile built from 1911 through 1915 in Syracuse, New York. Among the pictures included was a reproduction of a drawing of the factory. It had been made for a postcard (a popular promotional item of the time—1912) (Fig. 3). Obviously, the buildings had survived the years quite well as there were some up-to-date pictures with the

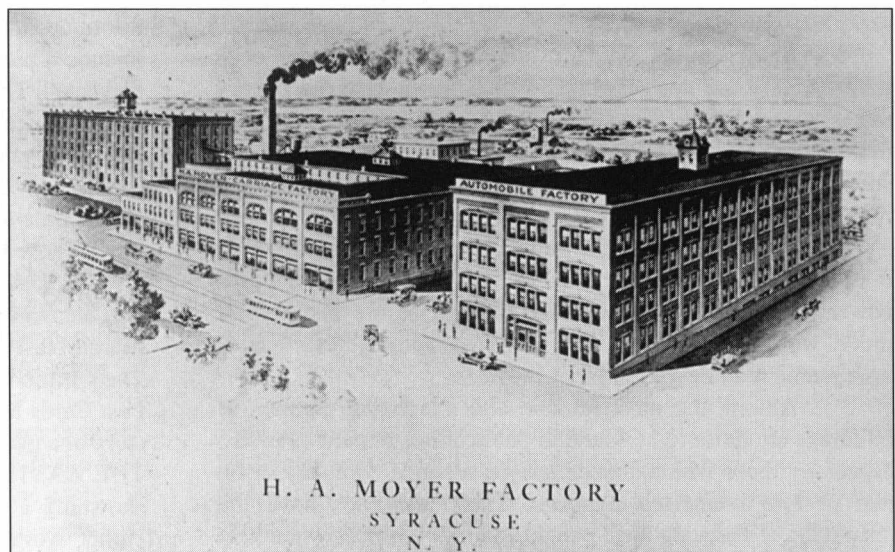


Fig. 3 – H.A. Moyer Factory, Syracuse, New York, postcard, 1911-1915; provided by Marshall Naul.



Fig. 4 – Apperson Assembly Line, Kokomo, Indiana, c. 1923;
W.S. Huffman card, Pioneer Automobile Club.

The Pioneer Automobile Club of Kokomo, Indiana, held a “Reunion Program of Former Employees of the Haynes Automobile Company and Apperson Bros. Automobile Company” in 1970.

In its program folder there were exterior pictures of four plants, as well as four interior shots with cars of different years (Fig. 4). Though none were dated, one which showed a few highwheelers being worked on had this notation in script, “The First Factory” Portraits of the founders, Elwood Haynes, Elmer Apperson and his brother Edgar Apperson, were also included.

For his pictures and information on Kokomo’s part in the development of early self-propelled vehicles

Wallace S. Huffman had help from other historians, their societies, museums and libraries, the local newspapers, as well as some surviving companies. Then this noted Indiana historian shared generously with many other publications with like interests. The Society of Automotive Historians was a beneficiary of contributions from Huffman’s extensive library.

A later Haynes-Apperson Festival booklet came out in 1978. It contained additional pictures of Kokomo factories. Besides Haynes and Apperson, many others were mentioned. A glass company dates back to the 1890s; other early ones made carburetors or tires, some supplied steel for Kokomo’s fast-growing industries.

Similarly, in numerous automotive ads, a supplier to the trade though not a manufacturer of cars or trucks would include a picture of its plant, especially if it had recently been expanded. The structure would demonstrate that now they were large enough to take care of all orders. American Bronze of Berwyn, Pennsylvania, stated under an ad picture in *Cycle and Automobile Trade Journal* of December 1, 1911, “Our plant means little to you, until you realize what it enables us to do for you.” These lines were printed in red for emphasis.

Usually ads were printed only in black and white. Rare was one with a full range of color. An exception was found in a March 10, 1910, issue of *Cycle and Automobile Trade Journal*. The Chiltin Company of Philadelphia advertised “Commercial Post Cards Made by the Chiltin Daylight Color Process tell the story at a glance . . . save half the postage and NEVER REACH THE WASTE BASKET.” There was a color picture of a factory showing a name, Birdsell Farm Wagon, Clover and Alfalfa Huller Works, South Bend, Indiana, printed on the top of the card. In spite of the fact the company was advertising in a directory aimed at the automotive trade, there is no trace of a car

article. They had been taken in 1982 by Leonard Aquilino, Jr., at the request of the editor. Few changes seem to have been made to the exterior of the buildings. The square smokestack towers over the factories, even though no black plumes are visible; the lines of the windows are recognizable; and Aquilino was able to get a picture of the metal (?) “Moyer 1904” above one window. That marker would have dated back to the time when Harvey A. Moyer was building carriages and wagons at his place in Syracuse.

In the earlier automotive magazines, a news item might include a picture of a small factory or shop with some of the workers standing in front or else posing in a car they had recently completed. Also, the place might rate more than text if it could present vehicles ready for an endurance run or if its racer had just won at a local track.

Many of the outdoor pictures showing early cars, unfortunately, are not very clear. Much better were the factory releases, even when they might be doctored to give the best impression. These were used in articles on new vehicles. Car show issues of magazines were noted for their well-detailed illustrations.

Official photographs might do as well by the factory if it were included when the head of the company introduced a new automobile. It was not long, though, before that newest model would preferably be shot in front of some glamor spot or on a scenic road devoid of other traffic.

Among the most reliable and interesting pictures of buildings are those to be found in publications put out by clubs, especially those which concentrate on a single company or on one or two connected marques. Their historians have the advantage of knowing local people and news sources when help is needed in locating buildings and surviving vehicles in which they are interested.

in the picture, nor a truck, just horses and wagons and the usual trains. Neither is there any record that Birdsell was one of the numerous firms which abandoned its wagon works for a venture with motorcars.

To further confuse matters for historians, was this company really Chiltin or Chilton, or was this a typographical error? The first name was not seen in later ads, but the Chilton Company of Philadelphia was advertising its own brand of color postcards for several years, a sideline to its famous and useful directories.

Those letterheads and postcards with the name and address of factories were most important to the buying public. A great deal of correspondence was carried on between manufacturers and customers. Practically all ads for vehicles and for some accessories suggested, "Send for catalog" and reported "Free Catalog."

In 1910 the Regal Company addressed prospective buyers, "Do you want the greatest automobile value in America? Then write us immediately." Thomas B. Jeffery Company asked, "May we send you a copy of the *Rambler Magazine*?" General Motors advertised its trucks in a 1912 Chilton's and stated, "Correspondence from prospective purchasers and dealers is invited."

With certain buyers there had to be direct correspondence. They were the ones who decided to go to the factory and pick out a special car, claiming they wanted to watch theirs come off the assembly line. Choices might be made in motors, paint colors, upholstery and body styles. From their beginnings most companies produced at least two different models, commonly tourings and roadsters. The two-seaters were called runabouts before 1910. In that year, though, Kissel was giving the buyer a larger choice. It offered 18 models ranging from 30 to 60 horsepower, from Baby Tonneaus to Seven-passenger Limousines.

During the following years it was mostly dealers who were requested to write. They would be provided with information on franchises and territories available. However, just about every producer of vehicles (even some non-producers creating nothing more than money-making schemes) put out descriptive sales catalogs that were advertised as being available to those who wrote for them.

And the address given was almost always that of the factory. Since the majority provided street numbers either with the ad or in their listings, it should be easy to locate the remains of an old plant or its replacement. Historians who try to use those records along with an up-to-date map may find that interstates have cut through original streets or a name might have been changed to honor some modern celebrity. A newer company could have renovated the old structure so much that nothing would be recognizable, or a new one may have expanded from the former limited space into acres of buildings.

Clues to those locations where vehicles were rumored to have been made can be found on early maps, and the best supply would be in a local library with its publications about the history of the region. General guide books, though, do not have the details needed, as their compilers would not have considered factory districts as prime tourist destinations.

Besides cards, magazines and other publications there was a variety of printed matter providing information about the industry's products. Printers early on began making cuts for the trade, switching from horses and carriages to the increasingly popular motorcars. Usually these were standardized designs. Some of those block figures were so well done and interesting that they continue to survive in advertising which features old-style products or activities.

When the customer wanted his own picture with vehicles or factory or scenery, artwork would be provided for an extra fee. To demonstrate to the trade the great variety of designs and cuts available for borders, lettering and figures, printing catalogs might advertise some fictitious companies, another confusing item for the historian to check.

In those days of pen and ink, blotters, which were a popular giveaway, were also being used to advertise the motorcars. Most likely they would be ordered by dealers who could have pictures made of the cars being sold.

Books of all kinds were coming out. In the numerous publications devoted to the fascinating story of the automobile, the plant itself is rarely the hero. Without it, though, there would be no vehicles, a point understood well by those authors who have recorded tales of the inside activities of the plants.

Manufacturing.

On rare occasions they have been able to locate pictures of some of the earliest machinery used in the manufacture of vehicles. They have also found a number of drawings and a few photos which illustrated the developing methods of production.

Hand assembling was the accepted method used in most early shops, certainly in the smaller ones. Along the walls, sometimes down the aisles, there would be workbenches supplied with all the equipment and items needed to put together whatever vehicle was being worked on that day. The mark of a craftsman was his own set of tools for the job, just as important as the cabinet maker's wooden chest and the doctor's traditional black bag.

A couple of the most detailed pictures of the inside of a small plant were included in an article by Michael Worthington-Williams in *Review*, No. 2 (Summer 1974), "Veteran Two-Stroke, an Exercise in Comparison" (Fig. 5). The Shoreham Works of Sussex, England, had been developing a two-stroke engine, and the 1909 views of the workshop each show about half a dozen partially assembled cars on the floor. They were not all Dolphins, according to the author. An early motorcycle was sitting on the floor, and laid out on a bench was a single cylinder Dolphin engine. However, others may have developed into the eight or 12 motorcars with the Dolphin emblem which were reported to have been completed that year. One was exhibited at the Olympia show. Then production ceased.

Although the company was for sale in November of 1909, listings for the car continued into 1911. As Worthington-Williams wrote in "Dolphin Motors of Shoreham" *Sussex Industrial History*, (Summer 1971), "It is not uncommon to find defunct motor manufacturers living on in the pages of contemporary buyer's guides; this can make difficult the historian's task of ascertaining production years."

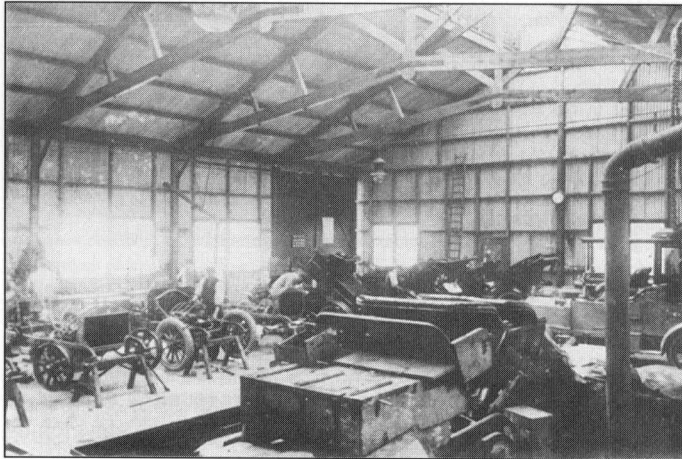
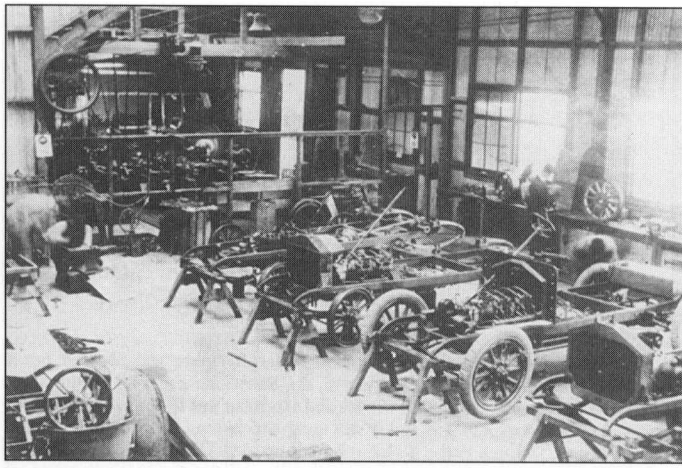


Fig. 5 – Shoreham Works, Dolphins; c. 1909.

Various organizations like the Sussex Industrial Archeology Study Group have started up in different countries, but there has been a consistent shortage of publicity about their findings concerning structures built within the last century. The Sussex magazine did mention, though, that industrial archeology was featured regularly on the weekly B.B.C. Radio Brighton program at that time.

Rare in most places, however, is a broadcast of news featuring any of the buildings where cars or trucks were made. This is similar to what David Lewis pointed out in his article on Michigan's auto makers. He mentioned that seldom did the United States Department of the Interior include the motor industry when honoring historic sites.

But perhaps no time could be spared to consider the past when each year the newest had to be unveiled. At the car and truck shows thousands were displayed, demonstrated and advertised. How many survived? As competition became fiercer, more companies were dropping out. The thousands of all sizes of firms were reduced to the hundreds which could roll off millions of standardized vehicles on their long assembly lines.

War and after.

The war years caused great changes in the automotive field everywhere. Even in the shorter World War I period of 1917-18, Studebaker was producing gun carriages, artillery

wheels, tank wagons, ambulances and the like rather than passenger vehicles. Then, during World War II, the switch was made to aircraft engines, military trucks and amphibious cargo carriers.

At least Studebaker managed to resume production after both wars, but many another company was not so fortunate. At the Bantam plant in Butler, Pennsylvania, the tools and dies had been scrapped when the firm switched to making cargo trailers for the armed forces during World War II. Those trailers were such a successful product for the company that it continued with them after war's end, as told by John W. Underwood in his book, published in 1965, Whatever Became of the Baby Austin?.

They never resumed manufacturing of cars, though, not even of their innovative general purpose vehicle, the "Jeep." Although Roy Evans and his small crew had designed, developed, built and tested it in 1940, none were to be produced in Butler after 1941. Larger, better-financed competitors took over. Underwood wrote that in October that year, "... the 2,675th Bantam JEEP was driven off the assembly line. It was to be the last automobile the American Bantam Car Company would ever build."

Those vanished motor vehicles and their producers: shouldn't their stories be investigated, as was that of the American Bantam? Some of the people who did start to delve into these mysteries of the 1940s later became members of The Society of Automotive Historians. A few were founders of the organization.

One of them, Richard Brigham, wrote to the American Steam Automobile Company of West Newton, Massachusetts. His letter requested information about the American Steam Car which had been made by them from 1926 through 1942. In a reply dated March 19, 1947, Brigham was told by a Mr. G. Stevenson that the company had not built complete cars since the war but was now filling orders for steam generating units.

A number of other survivors, however, were not abandoning the automotive field. All over the world manufacturing had been starting up in repaired or in rebuilt factories. The 1945 and 1946 vehicles which rolled out contained only slight changes from their predecessors, but the public, deprived all those years of dependable rolling stock, was eager to buy most anything which could run and carry its loads. Rare were any except warmed-over designs displayed at those first postwar shows. In fact, only one new make was introduced for the 1945 United States market, according to an article, with charts, by Marshall Naul in *Review* No. 7 (Fall 1977), "The Post-War Automobiles and the Future—A Quantitative Look." The next year there were 12.

Until 1947 even most competitive events had to be held with rescued or rehabilitated racers. A few of the companies, in spite of the scrutiny of suspicious occupiers during the war, had been able to hide their specially prized vehicles in cellars, caves, (even haystacks, it was told). Some were sneaked out to neutral countries, like Switzerland. In a comparatively short time after war's end, enough of them had been rounded up to participate in a race held by the French in Paris. On the 9th of September, 1945, at the "Coupe des Prisonniers" Jean-Pierre Wimille won in a Bugatti. Despite that victory, Bugatti was one of those companies which tried, albeit

unsuccessfully, to restart passenger car production, and then in just a few years disappeared. Some were taken over by another manufacturer; others continued with military, then commercial, vehicles, like Berliet and Hispano-Suiza; and various ones, like American Bantam, switched to the output of utility machines, or to parts for the trade.

Concentrating on working vehicles, preferably the heavy-duty type, were the limited number of European firms which had managed to erect makeshift factory buildings out of the rubble covering their original sites. To provide the cheapest transportation in the quickest time for their workers, as well as the public, a few started making motorcycles instead of cars. Plans for luxury, sports and race cars was pushed aside; though not forgotten. Some designers had been secretly working on them during wartime.

The Great Oldsmobile Plant Fire of 1901

articles provided by Ralph Dunwoodie

Olds Motor Works' Fire

DETROIT, Mich., Mar. 11.—Special Correspondence.—Saturday at 1:35 p.m. fire broke out in the plant of Olds Motor Works, 1308-1318 Jefferson avenue, and within an hour the entire structure was practically destroyed.

Fire department history recalls few such rapid fires in Detroit in a factory of the kind. The structure was in two sections and of brick. One had a frontage towards Jefferson avenue of 100 feet and this section extends back about 70 feet. The rear section was 50 feet wide and about 230 feet in depth, a court 50 feet wide being between the narrow section and the plant of the Detroit Stove Works. The front section was three stories high, while the remaining portion of the building was two stories.

The Olds Motor Works employs in the neighborhood of 300 men, but, fortunately, from a standpoint of life and death, not more than two dozen persons were in the building at the time, owing to the fact that the shop closes down at noon on Saturdays.

The Olds Motor Company manufactures patent gas and gasoline engines, motor trucks, gasoline launches and motor vehicles. The company's damage is estimated at \$65,000, which includes the damage on stock, very costly machinery and the building. Aside from the actual loss occasioned by the fire the business of the company will be in such shape that the loss cannot be figured in dollars and cents. However, the Lansing branch will assist the local plant in meeting urgent orders.

"We shall take immediate steps to open up again, and in two or three weeks time we shall be running as though nothing had happened," said Ransom E. Olds, president and general manager of the company. He had just returned from a five weeks' trip in California, and almost the first words he said when informed of the fire was that the business must not be delayed.

"While the material loss is great," said Mr. Olds, "we do not care half so much about that as we do for the set-back it has given our business. We had contracted orders to keep us working full time for over a year, and a more inopportune time for such a calamity could not be. The motor vehicle season is just opening up, and we expected to put machines on the market in a few days. However, we shall immediately look for a building, where we shall resume work temporarily, and as soon as possible we shall rebuild in the old location. In the course of two or three weeks we shall be running as usual in temporary quarters. As near as I can state offhand we carried about \$45,000 worth of insurance."

Mr. Olds stated later in the evening that he had been informed by his head draughtsman that all the drawings and plans had been found in the vault, and there would be no loss from that source.

Frederick L. Smith, secretary and treasurer of the Olds Motor Works, arrived on the scene shortly after the alarm had been given. He stated that he thought \$60,000 was an approximate figure for the loss.

About 5 o'clock the firemen succeeded in prying open the vault, and the books and accounts of the company were removed to a safe place. Some valuable drawings and tracings were found unharmed, but whether any were destroyed by the flames is not known.

— THE MOTOR VEHICLE REVIEW
MARCH 11, 1901

Olds Motor Works Recovers

From President Ransom E. Olds, of the Olds Motor Works, Detroit, Mich., we received the following communication just too late for insertion in our issue of last week:

"While less than a week ago news of the burning of the Detroit plant of the Olds Motor Works was being hurled over the country, we are pleased to announce that we will start up in our new temporary quarters on the 20th inst. All new machinery has been set and is belted ready for business. All of our automobile patterns and drawings were saved, as well as large quantities of material in our warehouses, (not burned). This is intact for the manufacture of Oldsmobiles, so that it will only delay our automobile orders about 30 days. We are more determined than ever to make 1,000 of the Oldsmobile gasoline runabouts before the snow flies again. By the last of April we will reach a capacity of 10 completed machines per day.

"Our Lansing plant, by running day and night, will take care of our gasoline engine business, that all orders will be filled with the usual promptness. We noticed some of the papers stated that the fire was caused by gasoline; this is not true, as there was no gasoline stored in the building. The explosions heard during the fire were carbonic acid gas tanks used for inflating tires. The fire was caused by leakage of natural gas, which opened a 3-inch gas main into the center of the buildings, this being the cause of the rapid burning.

"At this writing we have, on our books, orders for 334 Oldsmobile gasoline engine runabouts. These will be taken care of within the next two months, so that we are now prepared to take orders for May delivery.

THE MOTOR VEHICLE REVIEW
MARCH 28, 1901

As shown in the company's 1901 sales catalogue.

OLDS MOTOR WORKS RAPIDLY GETTING INTO SHAPE

With characteristic enterprise, the Olds Motor Works, Detroit, is rapidly overcoming the difficulties attendant upon its recent fire, and within a few days will be delivering Oldsmobiles as though nothing had happened. A representative of the MOTOR VEHICLE REVIEW visited the Olds plant last week and was taken through the structure now in use by Secretary Morley. In the rear of the plant that was burned is a building about 180 x 80 that was used as a casting shop. Since the fire it has been fitted up for work on Oldsmobiles, and at the present time about 80 workmen are there engaged in putting the vehicles together. Within a week 40 more men will be engaged.

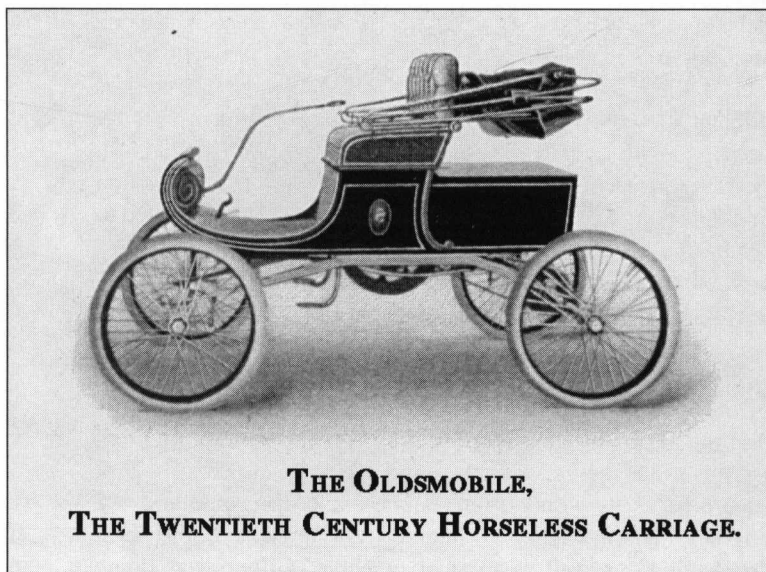
Fortunately for the Olds company, many large shipments of parts were received just after the fire, and, in consequence, all of these are now being used. Had the shipments come in before the fire, the company's embarrassment would have been immense.

Contract has already been let for a new building to be erected on the site of the one destroyed by fire, and work thereon will be begun shortly.

The Olds Motor Works has sold its marine department to the Michigan Yacht & Power Company, thus enabling the makers of Oldsmobiles to devote still greater attention to the manufacture of their vehicles than would have been possible otherwise.

THE MOTOR VEHICLE REVIEW

APRIL 11, 1901



THE OLDSMOBILE,
THE TWENTIETH CENTURY HORSELESS CARRIAGE.

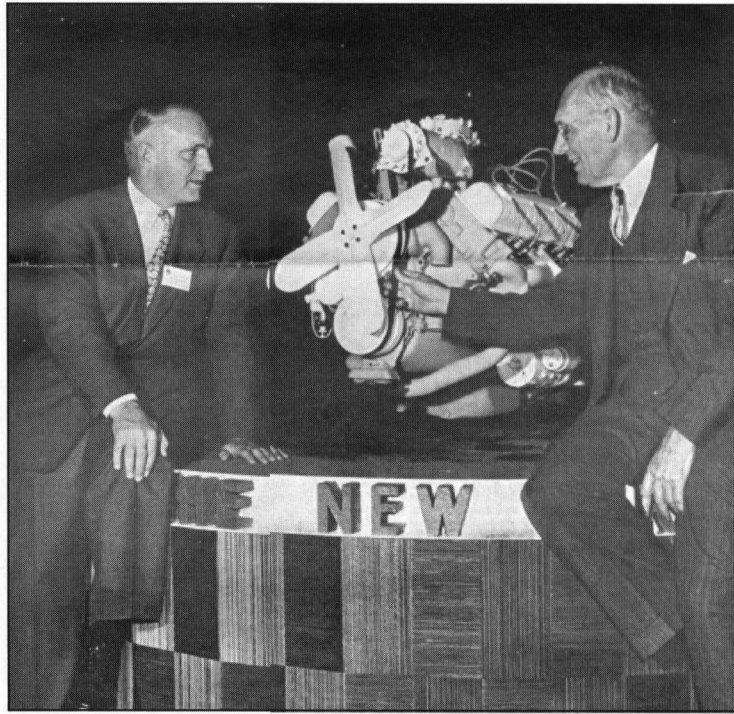
The Rocket Engine Story by One Who Was There

by F. Gibson Butler

R. V. Hutchinson, who was an Oldsmobile engineer prior to transferring to Product Studies #5 when C. L. McCuen was appointed the 1st Vice President in charge of engineering, designed and built a heavy in-line 6-cylinder (850 lbs.) spark ignition engine for high-compression studies. C. F. Kettering had requested this design and build for G.M. Research Fuels & Lubricants department high performance number fuel/high compression ratio engine studies. The overhead valve engine was designed to operate at compression ratios up to 12.5:1.

The high-compression ratio engine studies resulted from the availability of triptane gasoline, a high performance number reference. T.A. Boyd, head of Organic Chemistry (later called Fuels & Lubricants) was instrumental in developing the isomerization of normal heptane to create triptane. This took place in 1941-42 as part of the War effort. In fact, G.M. Research built a small refinery in Redford Township to make triptane. Tank cars (one at a time) would be furnished to the Army/Navy at a very nominal cost for their aircraft engine research and development. The G.M. Research high compression engine studies received considerable publicity from the news media.

In the immediate post war period, Oldsmobile worked diligently to return to automobile production with the in-line "L" head 6- and 8-cylinder engines as power plants. The 1945-46 strike by the U.A.W. against G.M. delayed new car introduction and future engine designs. In January 1946, we were permitted to return to work in the engineering building (a number of us had worked at the Proving Ground with temporary design facilities during the strike). Upon returning to our Engineering Department, Gilbert Burrell, Chief Draftsman of the Motor Group, began to make a number of 3/8 scale layouts of various engine/driveline/vehicle concepts. Gilbert always retained a drafting board in addition to a desk for his own use. Gilbert Burrell's conceptual layouts considered swept-back bodies, square backs, two-doors, four-doors, etc. with in-line and V-8 engines. Always the 90-degree V-8 provided the best "packaging" as well as product potential. Gilbert was doing



At the press preview announcement of Oldsmobile's new engine: Olds general manager S.E. Skinner and Charles F. Kettering, noted GM Research engineer.

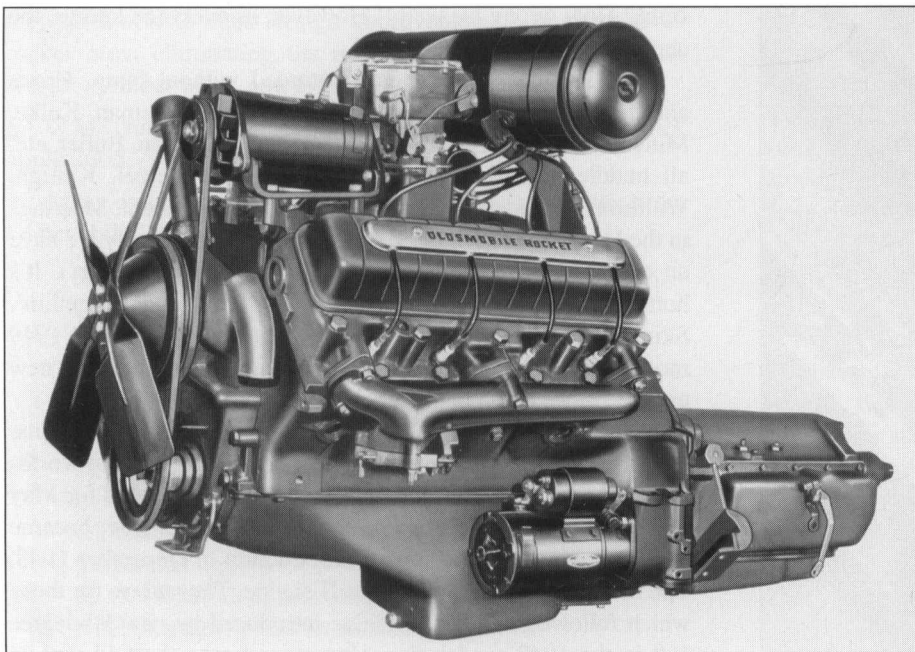
these layouts as a matter of personal interest rather than as an assignment, his studies occurring while continuing to direct the efforts of the engine design men.

Burrell had been at his "private noodling" effort for five or six weeks without any interference when J. F. Wolfram, Oldsmobile Chief Engineer, stopped by to converse with him. Noting the drawings, Wolfram asked Burrell what he was doing. Together they went through the "stack." Impressed by the work, Wolfram invited Sherrod E. Skinner, Oldsmobile General Manager, to review the effort. Within the next day or two, Skinner, Wolfram, and Burrell thoroughly went over the various conceptual designs and layouts. As a result, an

advanced design group was set up with Burrell in charge. O.L. Anderson, George Jones, George Johnson, and Art Olmsted were among those assigned to this group. Their assignment was to design a new 90-degree V-8 spark ignition engine, a new chassis, and vehicle concepts.

Anatole "Tony" Wouters, Carburetor Engineer, and I were requested to learn as much as possible about the G.M. Research (Kettering) high-compression engine studies. We held conversations with Daryl Caris and T.A. Boyd of G. M. Research, and R.V. Hutchinson and John Dolza of Product Studies #5 and #4 respectively. One additional conversation was arranged with C. L. McCuen, Vice President in charge of Engineering. Burrell also attended this meeting. McCuen was Motor Engineer at Oldsmobile during the development of the in-line 6, 8, and Viking V-8 engines. In fact, he and Gordon Bygraves of Lansing Pattern "worked out" the first integrally-cast V-8 engine cylinder block; all previous V-type engines had been two-piece block castings bolted together.

Under Gilbert's leadership, design was initiated of a new 90-degree V-8 engine of 288 cu. in. displacement. This engine was called the SV-49. Immediately, Gilbert had John Coleman, Pete Mitchell, Marvin Katke, Frank Nethoway, and others of Production Engineering in consultation for the best possible product potential development.



The 135 h.p. Oldsmobile "Rocket" engine.

In July 1946, Harold White, Motor Engineer, accepted a position with the Ford Motor Co. engineering department. Gilbert Burrell was immediately appointed Motor Engineer. The Advance Design group was disbanded with the various men going back to their original groups.

SV-49 engine design and development accelerated and it appeared that the first experimental engine would be ready to run in the fall of 1946. I spent three weeks at Product Studies #4 in late September and early October attempting to absorb as much engine knowledge as possible from men who had worked at Allison, Buick, Cadillac, and Chevrolet. The only major information I returned to Oldsmobile with was that Tony Wouters was leaving us on October 17 to go to Ford. The search was on for a replacement. A young man of about 30 years of age who had done some excellent work on the two-cycle diesel at G.M. Research was recommended by Daryl Caris, Engine Research Head. He was interviewed and hired. His name—Elliott M. "Pete" Estes. Beginning his association with Oldsmobile Engineering in the latter part of November 1946, Pete immediately had an impact on our Motor Group.

Just about the time of Pete's arrival, the Motor Group gang gathered around the test stand in Elgin Neff's engineering assembly department. The first SV-49 was on the stand—coolant hoses were connected, battery cables connected, exhaust pipe connected—anticipation! Gilbert Burrell turned the ignition switch, the engine cranked over, it started. "The damn thing runs!" What an elated, noisy bunch, a grand event in our lives, the birth had been successful. Four SV-49

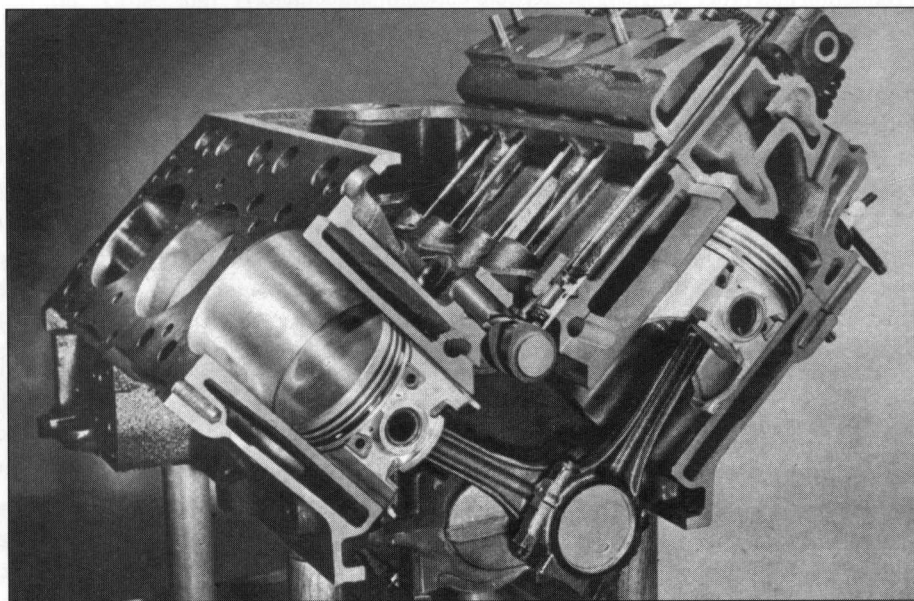
engines were built for laboratory studies and vehicle installation. It appeared we were on our way to entering a new dynamic era in Oldsmobile's automotive leadership.

Skinner and Wolfram requested approval and an appropriation from General Motors to produce our new baby. Disaster! Disappointment! Oldsmobile's request was rejected! Cadillac, builder of a 90-degree V-8 "L" head engine and beginning design of an overhead-valve V-8, objected to any other division of GM building a 90-degree V-8. The objection stuck, at least temporarily.

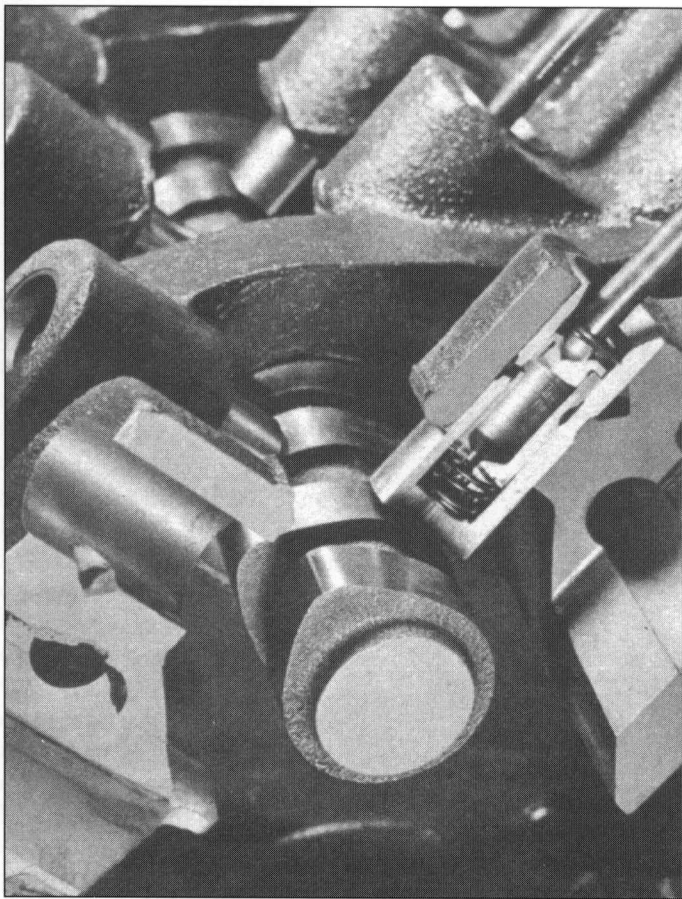
Interest in our SV-49 cooled. However, we would not be defeated. Pete Estes and I began to look at the dynamics of other V-8 configurations. We studied an 8-cylinder 70-degree bank angle and one of a 60-degree even-firing engine. Concentrating on the 60-degree bank angle with even firing, we determined that the primary rocking couple could only be partially balanced with crankshaft counterweights and that a contra-rotating shaft with a counterweight at each end and rotating at crankshaft speed would also be required.

Together, Pete and I prepared a graph to show the imbalance and the counteracting requirements. Together we presented this to Wolfram who reacted emphatically against the need for an extra shaft with the counterweights absorbing power and delivering no useful work of engine output.

Armed with this information, the next day, Skinner and Wolfram made another trip to GM Central Office, this time to President C. E. Wilson. About midday, Burrell received a phone call from Wolfram, still in Wilson's office. Stop everything we were doing and begin working on a 90-degree V-8 engine



Cutaway view of the Rocket engine showing the over square design: bore of 3-3/4 in. and stroke of 3-7/16 in.



Hydraulic valve lift cutaway at right.

immediately! The objections had been overcome. This was now March 1947.

Using our SV-49 experience, we immediately began the design of a 288 cu. in. 90-degree V-8 spark ignition engine which was designated the 8-90 for engineering purposes. Production and processing engineers were called in immediately because machinery also had to be designed and built, plant layouts made to determine location and space requirements, suppliers were contacted—a hell of a lot to be accomplished in order to introduce the new “Kettering” engine in the 1949 model. But wait—“Who said you could name the engine Kettering? Don’t you guys at Oldsmobile know that General Motors has a rule prohibiting the naming of any product after a living person?” Kettering was still active at this time. But we could name the plant the Kettering engine plant.

About this time, thermodynamic analysis and our SV-49 studies indicated that the engine should be somewhat larger. The displacement was increased from 288 cu. in. to 303 cu. in.

In the post World War II period, there was tremendous interest in rockets. Werner von Braun, the brilliant scientist/engineer, was brought to America with many of his associates. They had successfully developed the German V-2, used against the British Isles during the waning months of the war in Europe. This interest coupled with Oldsmobile’s success in weaponry and shell manufacture inspired Skinner to name our new power plant the Rocket engine. We, in Engineering, thought the name

stunk! How wrong we were!! However, as everyone knows, the choice of name was excellent.

Engine development continued without letup. Hours and days became an amalgam without name. Coleman, Kolke, Mitchell, Estes, Burrell, Holmes, Lunday, Anderson, Butler, etc. all huddled continuously, or so it seemed. Metzger, Kintigh, Wolfram all pressuring the experimental development. Meetings in the Dynamometer Lab office every morning. Finally we have an engine in a 78 model (the 88 designation came later). It’s hotter ’n hell. Everyone is elated. We really got somethin’. Skinner was really happy! We will introduce it in the 1949 model. Skinner “leaked” the information about the hot new engine “those damn engineers have developed.”

Machinery was being received, the Kettering engine plant (the most automated modern engine facility in the world) was being readied. Pilot line production was scheduled for May 1948. We made it. The engine, no, the Rocket engine, became available with the 1949 model introduction in December 1948. The first all-new post World War II engine. The pattern for those which followed. Oh yes, Cadillac introduced its new 90-degree V-8 in the 1949 model also. However, it was the Oldsmobile Rocket that had captured the motoring public’s imagination. Mr. Skinner, J.F. Wolfram, H. N. Metzger, L. A. Kintigh, Gilbert Burrell, Dave Ralston and others had outmaneuvered our sister division to the southeast. The American people were receptive, our Kettering engine plant was the talk of the industry, a new era had dawned that would enhance Oldsmobile’s image for many years to follow.

NOTES

The Rocket Engine Story Appended

1. The Rocket engine introduced many new features, some of which were: a V-8 configuration with overhead valves, hydraulic valve lifters, a crankshaft with six counterweights (previous V-8s had eight counterweights, increasing inertia and decreasing performance), an “over square” design (bore diameter greater than stroke, providing rigidity and durability), and a full-flow oil filter.
2. The Rocket engine, reduced to 288 cu. in. displacement, was equipped with 8:1, 10:1, and 12:1 compression ratio cylinder heads by G.M. Research and sold to petroleum companies for fuel studies.
3. The Rocket engine was used extensively as an irrigation pump engine. Conversion to LPG was made by jobbers or equipment suppliers.
4. Dr. Fleming of G.M. Research developed a toroidal combustion chamber diesel engine in 1953 using the Oldsmobile Rocket engine. This was the first successful “over square” diesel (over square: bore diameter greater than stroke).
5. The Oldsmobile Rocket engine was used as a design standard by Chevrolet, Pontiac, and Buick engineers as well as by other American automotive manufacturers.

Before the design of the Chevrolet, Pontiac, and Buick 90-degree V-8 engines, many conferences were held with Burrell and his staff. As a result of Oldsmobile’s experience,

they were able to make design improvements, i.e., sheet metal rocker arms eliminating the need for a rocker shaft, lighter weight cylinder block and cylinder head castings.

6. G.M. Truck used the Rocket engine for a medium duty truck application.

7. Many contributed to the success of the Rocket engine: From Oldsmobile Division, the major contributors were:

Sherrod E. Skinner, General Manager
Tom Downey, Manufacturing Manager
Earl Schuon, Comptroller
Dave Ralston, Sales Manager
Ed Warner, Public Relations
J. F. Wolfram, Chief Engineer
H. N. Metzler, Assistant Chief Engineer
L. A. Kintigh, Experimental Engineer
Gilbert Burrell, Motor Engineer and chief architect of the Rocket engine.
E. M. "Pete" Estes, Assistant Motor Engineer
H. H. Holmes, Chief Draftsman, Engines
John Coleman, Master Mechanic

and O. L. Anderson, F. G. Butler (the author), J. H. Lundy, T. R. Tompkins, L. T. Gill, George Miske, Henning Rundquist, Carl Beck, William Holt, Elgin Neff, C. F. Hagen, Larry Becker, "Pete" Mitchell, Frank Nethaway, and Marvin Katke (first Kettering engine plant superintendent). Also Emil Zern and Joe Schneider of the Forge Plant, and Otto Henning of Carter Carburetor.

From G.M. Research: Art Underwood, Joe Bidwell, Tom Vandegrift, Egon Benesi, Charlie Gadd, Daryl Caris, Lloyd Withrow.

From G.M.'s Diesel Equipment Division, Bill Puchis and his staff, who developed the hydraulic lifter.

Gordon Bygraves and the pattern makers of Lansing Pattern; the staff of Central Foundries; both supplier companies and GM Accessory Divisions were major contributors. Others whom I've forgotten or have not named. To those unnamed, I apologize.

Let's go Rocketing—Oldsmobile Rocketing that is!

F. Gibson Butler
November 15, 1977

EDITOR'S NOTES—*continued*

might have been" from the 1920s, as well as a revelation of Henry's management style. Our Ford clutch (of articles) ends with one from *Automotive Industries* on a patent issued Henry I in 1936 on a rear-engine front-wheel drive car. As the cartoon character might have said, "Fords is the cwasiest people!"

One of the manuscripts I inherited from my predecessor, Kit Foster, in 1995, was Dean Lehrke's "The History of Steam Carriages in Germany 1803-1973." This SAH member moved to Germany soon afterwards, and we hope that there was the opportunity for further pursuit of his favorite subject.

One of the first manuscripts sent to this editor was John Conde's "America's First Automobile Show (1900)," written for American Motors Corporation around 1956, which included a list of the vehicles displayed. When he sent it to me in late 1995, I thought surely it would be published long before the centennial of the event. But here it is, a bit beyond the date, still timely I think. John is well known to members as a former president of the Society, a Friend of Automotive History, and the former head of public relations for AMC. For more information on this Show, see Gregg D. Merksamer's [A History of the New York International Auto Show 1900-2000](#). John has also contributed "How the Rambler Got Its Name."

SAH's Founding Spouse, if we had such a title, Grace Brigham, returns with Chapter V of her book in progress, *Those Elusive Vehicles*. "Plants and Their Vehicles" is in essence a recounting of old factories and how they worked. Previous chapters appeared in Issues Nos. 29, 31 and 33. You'll note that Grace cites SAH publications frequently, reminding us that they are relevant long beyond the cover date. The SAH Board in its spring meetings has glimpsed many of these edifices over the years, most memorably Marmon, Cole, and H.C.S. in Indianapolis, Studebaker in South Bend, and Dorris in St. Louis. Grace has left her long-time home in Marietta, Ga. to move closer to her children in Ohio.

Bridging Grace's articles on plants and the following one on Oldsmobile is a page of press accounts of the day on the great Oldsmobile fire of March 1901. We're indebted to Ralph Dunwoodie for providing pages from *The Motor Vehicle Review* for us to note the centennial of this significant event in Olds' history. It took more than a fire and a century to kill the car.

"My father's Oldsmobile" was a '47 '98," so lumbering that the stop light jockeys dismissed it as "The Tub." What it needed, of course, was, the Rocket engine. The forthcoming demise of Oldsmobile makes this an appropriate time to publish "The Rocket Engine Story, by One Who

Was There," by F. Gibson Butler. Mr. Butler wrote his story in 1977 after retiring from Oldsmobile where he was a member of the postwar engine design group. Many regard the motor as the engineering masterpiece of what we now know was just about the midpoint of Oldsmobile's 100+ year-life. The manuscript was made available to us by Eugene G. Wanger who thought it might interest our readers. Indeed! As with Knudsen's account of his firing, Butler's manuscript is automotive history from a primary source and very valuable to all of us.

Finally, thanks to our Canadian member, James C. Mays, we conclude with "Found! Nash-Healey X-7 Prototype," with some unusual photos, one of which is on the rear cover.

Many think that the Nash-Healeys were the highpoint of Nash's 40-year existence. The X-7 is a reminder of the sporting days of the early '50s.

I'd like to note with appreciation that *Old Cars Weekly* presented the *Review* with a Golden Quill Award last summer. My thanks once more to Pat Chappell and Kit Foster for ensuring that this issue is as free of typographical and grammatical errors as we can make it. After all, a primary purpose of the Society is to correct errors in the writing of others, not to create them in our own.

—Taylor Vinson

Found! Nash-Healey X-7

by James C. Mays

George Mason of Nash-Kelvinator was a brilliant automobile man. A chance meeting with British racing personality Donald Healey during a 1949 Atlantic crossing on the Queen Elizabeth caused Mason to offer Healey sturdy Nash power plants for his racing cars. Mason saw exactly how a low-volume high-profile sports car with the Nash name on it would give pizzazz to the carmaker's image. Such a product would draw potential customers into Nash showrooms where, if the hefty price tag didn't appeal, they could drive home less exotic, less expensive Ambassadors and Statesman cars with the same modern overhead-valve, six-cylinder engine and drive train.

Healey quickly signed a deal with Mason after he failed to interest General Motors in selling him Cadillac's new high-compression engines. The first 25 Nash engines, transmissions, and drive-line components, were shipped out from Kenosha on credit of 50,000 Pounds Sterling, Mason generously saying that Healey could repay it in cars.

By the summer of 1950, Healey flew to the United States with the first completed prototype, a smart maroon, slab-sided convertible with a 102-inch wheelbase. Car and driver were met by Mason who, as soon as the vehicle was uncrated, instructed Healey to drive directly to the Nash proving grounds in Burlington, Wisconsin. Quietly nervous as the car had never been test driven, Healey was even more unsettled when he discovered that Mason had organized a surprise press conference with more than 50 journalists and photographers on hand to make news of the historic occasion.

As the prototype was put through its paces, the spring-loaded vent windows popped out of the doors. No one present, not even the sharp-eyed president of Nash-Kelvinator noticed, and after the performance, Healey quietly retrieved them from the track and set them back into place. In later years, Healey found the retelling of this incident most amusing.

Mason, already pleased with Healey's impressive wins, the car's excellent performance, and the good publicity, authorized production. The prototype's grille was changed to the 1951 production Nash grille at Mason's insistence. Healey referred to it derisively as the "Joe E. Brown grille," referring to the contemporary movie actor whose trademark was his big mouth. This first X car's whereabouts are unknown today, nor has its serial number survived. Based on this prototype, manufacturing was commenced and the sharp limited edition, image-building roadsters began arriving at excited Nash dealers throughout the U.S. in February of 1951.

Mason then said to Healey, that all things being equal, he'd rather have another body style. What Mason meant—but didn't make quite clear—was that he preferred steel to aluminum. Upon hearing Mason's musings about the body, Healey feared cancellation of the project. He immediately had six consecutively-numbered chassis diverted from Panelcraft in Birmingham, who reportedly supplied bodies at US \$10 each.

The X-7 was one of those six prototypes. Created at Tickford Coach Works (now Aston Martin Lagonda), it was an

aluminum-bodied envelope with a rakish dip in the door. This roadster was distinguished by full rear fender skirts, Roger Menadoue's trademark. Menadoue personally made all of Healey's British-built prototypes. He recalls long daily train rides through the Coventry countryside from Healey's business in Warwickshire to the Tickford Coach Works, where he assisted Roger Lawson in hand-building Nash-Healeys. The X-7 has no twin—most unusual as Healey always built pairs. Healey himself first laid eyes on the completed prototype in the 1980s. He did not recall it at all until he remembered that immediately upon completion it was shipped to the U.S. sight unseen. Healey was that eager to get the X-7 to Mason and determined to secure contracts for British factories.

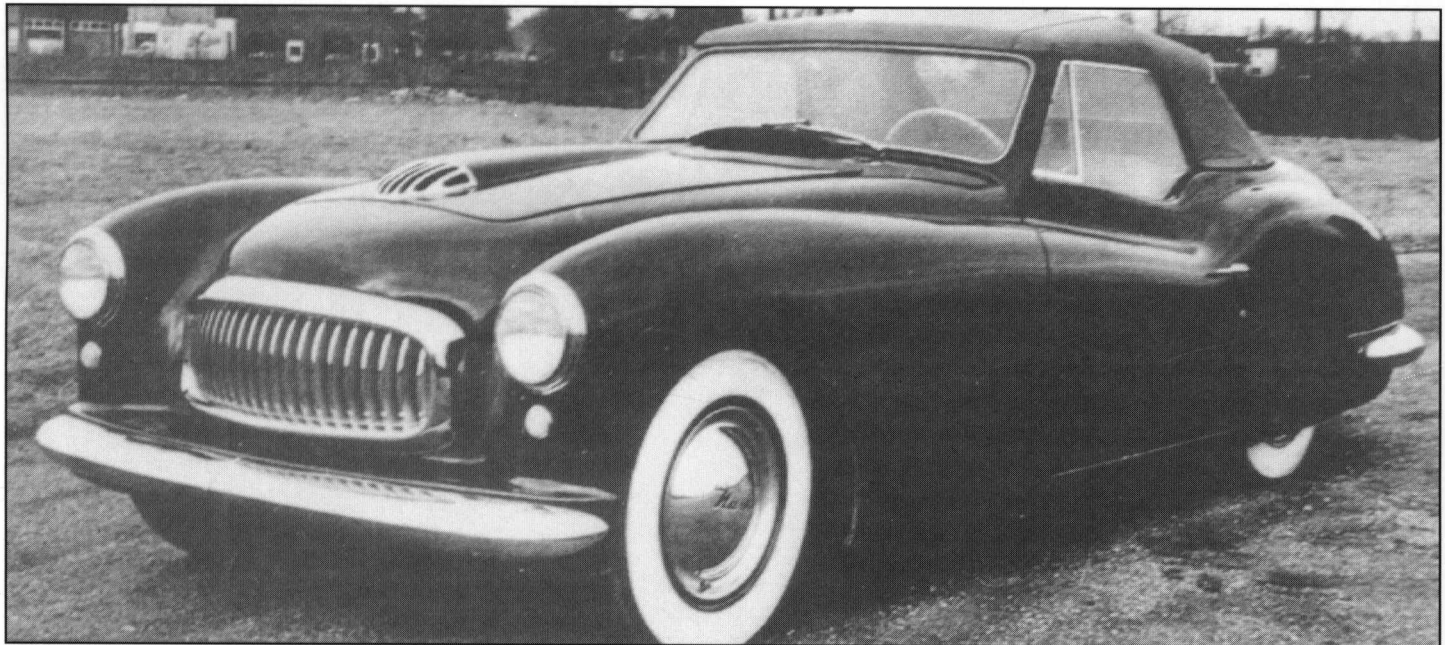
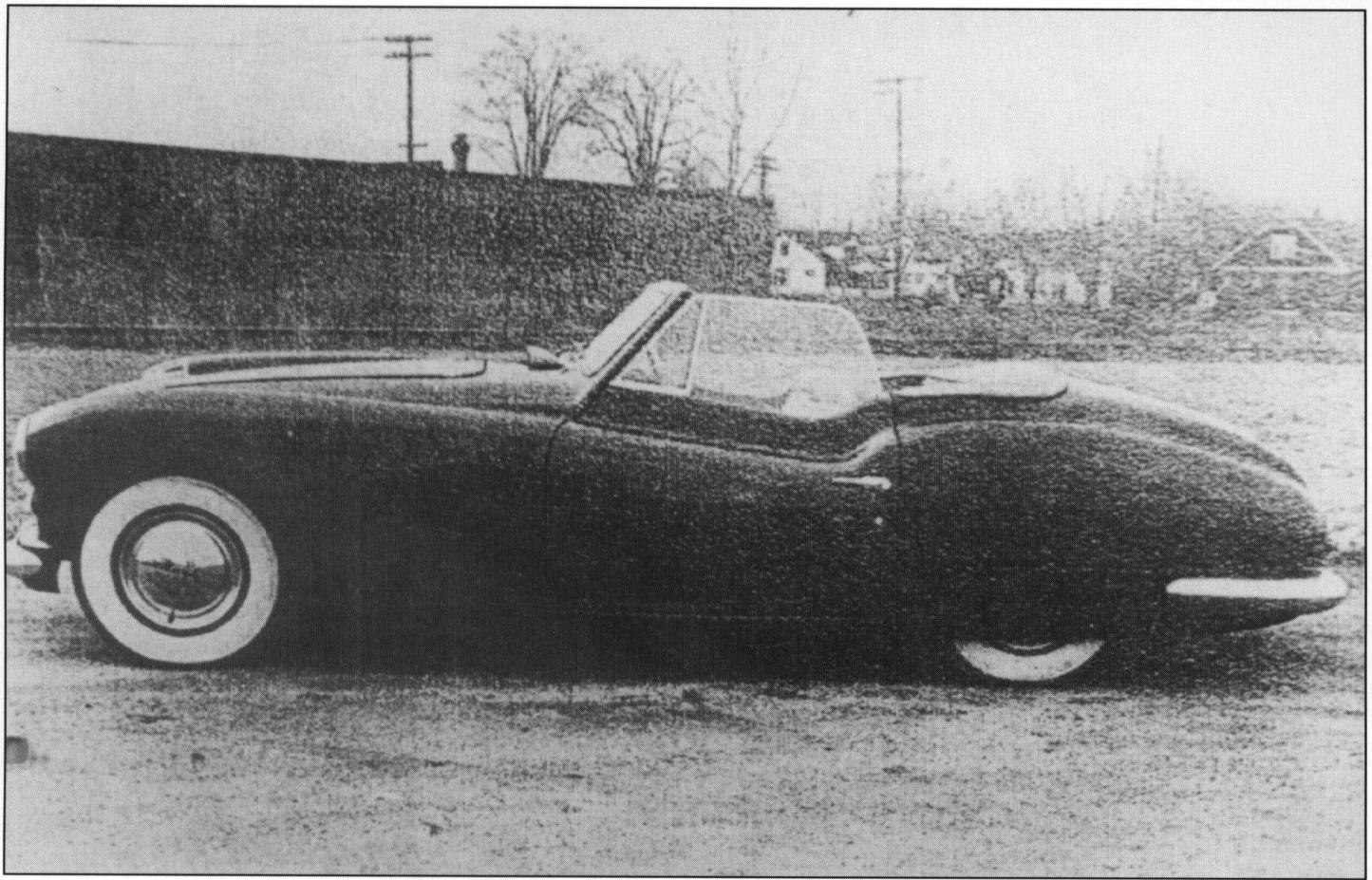
The maroon soft top sported tan leather upholstery, a special two-speed Hydra-Matic (its tag says the unit was built to



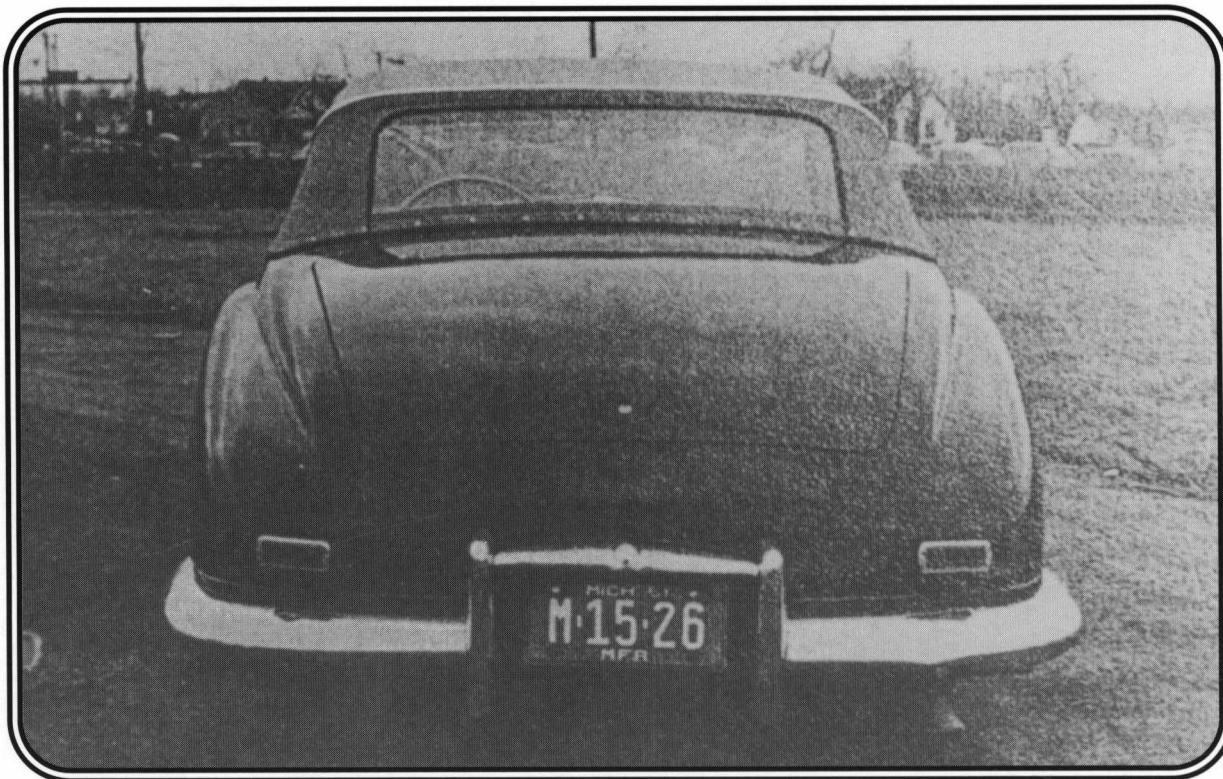
Nash specifications). It also incorporated roll-up windows and a power top—the first Tickford ever built. The options made the car appear to have been designed to cater to women drivers. The X-7 was given a cool reception in Kenosha and the aluminum waif languished in storage until it was sold to a private individual.

A note on engines: After creating the Le Mans (dual carburetor) option for the high-torque Ambassador six, Healey simply took the engines from their shipping crates, dropped them in the cars and raced them. Despite the hoopla about further customizing engines for Nash, none ever materialized from Healey after the initial press release.

Today, the X-7 is in the hands of Leonard Nelson McGrady, to whom I am indebted for his invaluable help in researching this story. The X-5, which became the X-6, is in Massachusetts. The original pre-production prototype and the missing Farina prototype coupe are still waiting quietly to be discovered.



There's more than a hint of the Jaguar XK120 in the Nash-Healey X-7.



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