The Society of Automotive Historians

AUTOMOTIVE HISTORY REVIEW

WINTER 1993-94 ISSUE NUMBER 28

A PUBLICATION OF THE SOCIETY OF AUTOMOTIVE HISTORIANS, INC.

Editorial Comment

One of our members is fond of saying that the great thing about history is that there's more of it every day. That's true, but many members have been quick to point out that there hasn't been enough of it lately, *Automotive History Review* type history, that is. The reasons for its recalcitrance are many, but most concern the fact that our editorial office is virtually a one-man band, and priority is necessarily given to the time-critical items which appear in *SAH Journal*. But here at last is *AHR* Number 28, which I believe you will find both illuminating and entertaining. We've grown a bit while you've waited, too, and we're pleased to be able to give you a few more pages in this *Review*.

We open with our second-ever color cover, a fine complement to Taylor Vinson's article on the effects of war on the US auto industry. Much has been published on the roles of automobile companies as munitions makers, but we know of no other article on the effect that the armed conflicts of the Twentieth Century have had on United States production of automobiles. It leads off this issue on page two.

Everyone's heard of Barney Oldfield, but what of his successor Sigmund Haugdahl? Sigmund *who*? British member Martyn Flower is a racing historian with a flair for the unusual, and in this issue he tells us of the Norwegian transplant who literally had greatness thrust upon him.

Our centerpiece article had its beginnings in the pages of *SAH Journal*. Curt McConnell asked about the early transcontinental attempt of one John D. Davis. It seems that several sources note the start of Davis's journey, but documentation was lacking on when it ended and where. Dave Cole ran the story to ground with a marathon reading of the archives of the nation's newspapers. Beginning on page ten we can follow the fortunes of John D. and Louise Hitchcock Davis as they pointed their precarious motorcar westward in 1899.

David Styles has written extensively on the Riley automobile, but he never tires of documenting and extolling the marque. Here he examines one of the most successful Rileys, the Nine - also called the "Wonder Car" - of 1926-38, and tells us how that model pioneered several design features still in use.

Finally, Jim Valentine is the troubador of the unusual and unknown. Here he unearths the story of a radical "modular" auto design patented by the Fageol Brothers, Frank and Bill, of Twin Coach fame. Think how the automotive landscape would have changed if this vehicle had caught on.

So there you have it, a little more history for your patience, and color, too. As one of our more sagatious members recently observed, "history improves with age."

–Kit Foster

Back Issues of Automotive History Review

Through 1992 there have been 27 issues of *Automotive History Review*. Numbers 2, 18, 19, 20, and 21 are out of print (some of these, either as originals or copies are included in sets). Single copies of other numbers $3.00 each postpaid USA. We have a very limited number of sets of 25 issues (which include two numbers as copier reproductions) for $75.00 postpaid USA.

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AUTOMOTIVE HISTORY REVIEW

ISSUE NUMBER 28
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Front Cover: *Blackout in full color: This ad for the distinctive 1942 Oldsmobile "B-44" appeared in the* Saturday Evening Post, *and is the only known full color advertisement for one of the painted-trim or "blackout" 1942 cars. Taylor Vinson Collection.*

Back Cover: *The Riley Nine Monaco prototype, announced at Shelsley Walsh in July 1926. It was an instant success. British Motor Heritage Trust.*

Further information about the Society of Automotive Historians, Inc., may be obtained by writing to the Secretary, Society of Automotive Historians, Inc., 6760 E. County Road 800 N., Brownsburg, IN 46112-9059 USA.

When War Came: How Government Regulated the Production of Civilian Passenger Cars

by Taylor Vinson

The brief Persian Gulf War of 1991 passed without any discernible effect upon the civilian component of America's motor vehicle industry, as had the protracted Vietnam War. Yet in the Twentieth Century's three earlier conflicts in which the United States was a major player, the coming of war had a profound effect upon the relationship between government and industry, and the climate in which the manufacture and sales of passenger cars had traditionally occurred.

The purpose of this article is to examine briefly the roles of the American government and motor vehicle industry as they related to the production and sale of passenger cars for the civilian population before and during World War I, World War II, and Korea. The role of industry in war production has been covered by other authors. This article is not meant to be exhaustive, but to be a topic suggestive of further development, should a reader wish to do so.

WORLD WAR I

Simply referred to at the time as "the war," and later "The Great War," World War I was the first time since the Civil War that the United States devoted a substantial portion of its industrial energies to the preparation for war and the conduct of it. Not only had a half century passed without a mobilization of resources, but the industries themselves had changed. For example, the hand-crafted horse-drawn carriage had given way to the mass-produced motor truck or passenger car.

However, the organs of government were still relatively undeveloped. In the second decade of the Twentieth Century, the economy was governed largely by market forces, and there were few administrative agencies as we know them today. Thus there was no existing bureaucratic structure under which full scale economic mobilization for national defense could be initiated and administered.

Such a structure evolved by trial and error. By the summer of 1916, the conflagration in Europe had raged for two years without direct American involvement, but German provocations made U.S. participation increasingly likely. On August 29th, as part of the Army Appropriation Act, Congress established a cabinet-level advisory committee called the Council of National Defense to recommend policies for improving the nation's preparedness in the event of war. Formally organized on October 11th with the Secretary of War as its chairman, the council consisted of seven members, each of whom was responsible for a special field which cut across industry lines. One of the seven was Hudson's co-founder and chief engineer, Howard E. Coffin, whose assigned area was manufacturing and munitions. The Council called on private industry to form cooperative committees for every line of trade, through which the government could coordinate military procurement. One of these was the Automotive Transportation Committee, established on June 4th, 1917. Each committee was to make detailed studies of its industry, and, ultimately, the committee chairman became responsible for coordinating the production and sales of his industry to the military.

Shortly after the United States declared war on Germany on April 6th, 1917, the Council, beset by internal difficulties, created a new body called the War Industries Board to reorganize committees and resolve conflicts. As the demands of war became clearer, the need grew to expand the scope and authority of the Board. On March 4th, 1918, President Wilson established the Board as a separate agency with executive power, and charged its chairman, Bernard M. Baruch, to "act as the general eye of all supply departments in the field of industry."

The "eye" was immediately turned on the passenger car industry. Up to then, eleven months into the war, output had remained unaffected. Indeed, 1917 had set a new production record of 1,740,791 units. But in so doing, the industry had consumed more than two million tons of high-grade steel and other metals, as well as enough natural rubber for tires to fit the cars. Hardly had the Board reorganized than it effected an agreement with the industry to conserve metals by reducing production to thirty per cent of planned manufacturing schedules for the period March lst to June 30th, 1918. By this time, however, the distribution of steel was subject to priorities established by the Board through its priorities commissioner. Car manufacturers having government orders got a high priority rating, but, unlike World War II, the vast majority of car manufacturers had no government contracts. Shortages of other parts were experienced as well, leaving an imbalance of inventory, and the result that, during the four-month period covered by the agreement, manufacturers were unable to turn out more than a small percentage of their usual production.

Following the reorganization of the Board, the Automotive Transportation Committee had become the Automotive Products Section, and on June 19th, 1918, its chief was appointed: Charles C. Hanch, treasurer of Nordyke & Marmon Co. Hanch came on board just as the old agreement with industry was ending. During July and August, a new agreement was reached. In lieu of the preference for manufacturers with government contracts, priority for allocation of steel would be given to any manufacturer who would "pledge" that its production in the last half of 1918 would not exceed twenty five per cent of its total 1917 production (in short, that it would operate on a fifty per cent basis).

It worked this way. The company would submit to the Automotive Products Section sworn inventory data including materials on hand and materials required to balance inventories, and the number of cars which could be built from inventory when stocks had been balanced. After review, the Section would certify to the Director of Steel Supply the amount of steel the company needed to produce the number of cars allotted under its pledge. The company would then apply for permits to purchase which, when granted, became the authority for the seller of steel to fill the manufacturer's order. The company was also obliged to provide monthly production reports to the government.

Under this procedure, Hanch and his Section certified the requirements for 95 manufacturers covering the production of 295,468 cars during the last half of 1918. It

OCTOBER, 1917 The New COUNTRY LIFE 97

THRFE TIMES AS MANY PEOPLE ARE NOW BUYING FRANKLIN ENCLOSED CARS

"AMERICANS" said a foreign critic, "know the *price* of everything and the *value* of nothing." That was before we entered the War. Today it is a different story. The past few months have developed a remarkable understanding of the National duty to curb needless waste and extravagance.

A typical illustration is the change in standards of *judging* and *buying* an enclosed car. Only a short time back this type of car had to be everything *but* practical to attract the average car buyer.

He wasn't interested in *upkeep* because his eye was on ponderous mechanism. *Gasoline* and *tires* didn't worry him because he was comparing wheel-bases. And selling his old car at a fire-sale price for a new model of another make he figured was part of the game.

But to-day economy—both in gasoline and tires—is being forced daily on the attention of the motorist by rising costs, by Government officials, by newspapers and magazines. And now he is looking for a way to *cut his cost in half* and maintain his mileage.

An unfailing gauge of the worth of any fine car today is the way it is selling *today*. The *sales facts* about the Franklin are interesting.

The present and next building schedule of Franklin Cars will not catch up with orders on hand. Franklin Cars are being built at a rate of *three times as many as a year ago* and the demand continues to *exceed production*.

Franklin Enclosed Cars were bound to become more popular each year, even in normal times. The War, forcing *utility* and *economy* before everything else, quickened this movement.

To-day, as for fifteen years, the Franklin Car stands as the *most practical, efficient and economical fine car in America*.

Consider the significance of 179 Franklin Open Cars recording on July 13th, 1917 (under standard efficiency rules) the remarkable average of 40.3 miles to the single gallon of gasoline. High gasoline mileage means economy *all along the line*. Owners' tire reports, *over a five year period*, average 10,333 miles.

And the *same* economies of the Franklin Open Models apply, within a few per cent., to the Franklin Enclosed Cars.

There is something here for every car owner to think about and these are days when a car owner *has* to think if he wants to *ride*.

Sedan - -	2610 lbs.	$2950.00	Cabriolet -	2485 lbs.	$2850.00
Town Car -	2610 lbs.	3200.00	Limousine -	2620 lbs.	3200.00
Brougham -	2575 lbs.	$2800.00			

All Prices F. O. B. Syracuse

FRANKLIN AUTOMOBILE COMPANY
SYRACUSE, N. Y., U. S. A.

44 THE SATURDAY EVENING POST March 16, 1918

1918 Haynes Cars are "War-Time Models"

AVOID peace-time frills and fancies. But do not court undue privation. Choose "happy mediums." They are patriotic. Latest Haynes "Light Sixes" and "Light Twelves" coincide with this spirit. Extravagances are absent. Yet to seek greater riding comfort, or stateller beauty, is futile.

HAYNES
"America's First Car"

War-time cars in all essentials are the Haynes. Their purchase is patriotic.

Mechanics are scarce today. The Government needs them. Motorists should rely more upon themselves. With a Haynes this imposes no hardship. First, the Haynes mechanism is famously simple. A quarter-century's experience has made it so. Thus its care is easy.

Second, the Haynes mechanism is free from experiments. Each part is time-tried. For example: the Haynes "Light Six" engine is practically the same as more than 20,000 in use. 3½ years of owner-driving prove its *maturity*.

Gasoline should not be wasted. Each gallon must give its utmost.

Many miles per gallon is traditional of the Haynes. Were this not so Haynes "Light Six" engines could not have survived a *quarter billion miles* without base change in design.

A further cardinal virtue, in these economy times, is that Haynes cars are noted for being "very easy on tires." This promises large savings today.

Thus the eleven latest big, broad-hooded, straight-lined Haynes are commended as purchases in accord with war-times.

—The Haynes dealer in your locality invites you to call. A beautifully illustrated catalog mailed on request. Write

THE HAYNES AUTOMOBILE COMPANY, 40 South Main Street
Kokomo, Ind., U. S. A.

HAYNES "LIGHT SIXES"—Five-and-7-passenger Open Cars, 4-passenger "Roadster" Roadsters, Sedan, Limousine, Town Cars. (Wood wheels, fabric tires.)

HAYNES "LIGHT TWELVES"—7-passenger Open Cars, 4-passenger "Convertible" Sedanlets, Sedan, Limousine, Town Cars. (Wire wheels, cord tires.)

25th Successful Year

The 5-passenger Haynes "Light Six" Open Car, like all models, has Bendix starter drive and long, broad, low-swung, resilient springs.

Auto ads show how different manufacturers reacted to World War I. Clockwise from above left: In October 1917, Franklin attributed greater sales of closed cars to a new value consciousness caused by the war; Haynes proclaimed their cars "War-Time Models" in March 1918, and suggested it was "patriotic" to buy them; Willys-Knight touted "Tank-Power" in this April 1918 ad, though it was the Knight-engined British tank they were referring to; when war was over in December 1918 Lexington recycled an ad for the Minute Man Six which had not run because of impending restrictions on manufacture. Taylor Vinson collection.

80 THE SATURDAY EVENING POST December 7, 1918

The Advertisement We Did Not Use —and Why

For Hands That Rocked The Cradles

MOTHERS of the boys at the fighting front are giving more than their sons—they are giving *them selves*, their time, ability, and labor to the at-home-work necessary to win the war.

For their Red Cross and numerous other activities a time-saving, energy-conserving car, such as Lexington, is of invaluable value to their personal efficiency, and, in the aggregate, to their country.

Essentially a service car, it also affords maximum comfort, convenience, and refinement—it is a sound investment.

The value of its exclusive Moore Multiple Exhaust System (which increases power and makes a substantial saving in fuel) is emphasized in the present-day economy spirit.

Write us for complete information on all Lexington models.

Lexington Motor Company
Connersville, Ind., U. S. A.

AVERY natural thing happened when the public learned there was a shortage of passenger cars. Not knowing when they could again purchase a new car, thousands sought to protect themselves.

Many even, who in other times would have been content with a car of lesser quality, were eager for a car of the highest quality, one that would insure them the best of service over the longest period of time.

The logical result was a tremendously increased demand for Lexington cars that came as a climax to our sales increase of 1000% in three years.

Because of the ten large factories, specializing in automobile parts that are affiliated with and that contribute to Lexington, we were hoping to accommodate a limited number of the overwhelming requests without interfering with our Government work.

With this in view, we had prepared the above advertisement to direct the sale of Lexington cars into channels where *most needed by war-winning citizens*.

Then Washington asked us to get upon a 100% war basis. In cheerfully complying with this request, we are *working for you*.

But our after-the-war plans are already well under way and when victory is assured we will be in an even *better position* to serve Lexington owners and Lexington dealers.

Frank B. Wisted
President, Lexington Motor Company, Connersville, Ind.

Also on a War-Basis, Industries Associated with Lexington

Indiana Lamp Company
Hoosier Gasoline Company
Central Manufacturing Company
Victor Hartley Motor Corporation
Rex Manufacturing Company
United Engineering Company
Mead Axle Parts Company
Wainwright Engineering Company
Connersville Blower Company
Standard Parts Company Lasted Plant

82 THE SATURDAY EVENING POST April 20, 1918

Tank-Power *Under Hood of* Willys-Knight

WHY did the British select the Knight sleeve-valve motor for this tremendously difficult and desperately important task?

BECAUSE the sleeve-valve Knight motor is supremely quiet, vibrationless and absolutely dependable—

BECAUSE the sleeve-valve motor holds every world's record for length of run, power produced, absence of wear and lack of carbon deposit.

NEVER was more conclusive proof of a motor's supreme superiority. The success of the "Knight" in the Tanks is unqualified.

PROFIT by this proof in the selection of your car.

AGAINST all the arguments for all other types of motors is this out-weighing advantage of the Willys-Knight—the Knight is the *only* type of motor that improves with use!

ADDITIONAL reasons for preferring the Willys-Knight are its noiseless body construction and its moderate cost.

OUR volume enables us to market this more efficient and self-preserving motor at a remarkably moderate cost.

Willys-Overland Inc., Toledo, Ohio
Willys-Knight and Overland Motor Cars and Light Commercial Cars
Canadian Factory, Walkerville, Ontario, Canada

this period under the agreement.

On Armistice Day, November 11th, most of the restrictions were lifted, and, needed no more, the Board was dissolved on November 30th. However, had the war continued, the Board was prepared to eliminate the manufacture of passenger automobiles as of January 1st, 1919. But this most drastic of regulatory steps did not occur until another twenty three years had passed and a new war came.

The reader is invited to pursue further the topic of the effect of the 1918 restrictions on marginal manufacturers. Metz, for example, produced no 1918 models, but whether this was due to financial problems or the restrictions, or both, is unknown to the author.

WORLD WAR II

In the spring of 1940, Europe was once more at war, and the involvement of the United States again appeared increasingly unavoidable. After the invasion of the Low Countries in May, President Roosevelt called for a large military preparedness program, and summoned the president of General Motors, William E. Knudsen, to help him as chairman of the National Defense Commission. Knudsen chose as his aide another experienced automobile man, Harold S. Vance, the chairman of the board of Studebaker, and assigned him the task of keeping bottlenecks out of machine tool output. Later, Knudsen became director of the Office of Production Management (later known as the War Production Board), and was given the rank of Lieutenant General.

Twenty- two years had passed between 1918 and 1940. Senior executives in the automobile industry are bound to have recalled the earlier days of their careers, and the interruption of orderly production by the exigencies of a war effort. This time, however, there would not be Baruch's 95 manufacturers clamoring for resources, but only the Big Three and the Little Six. A year before war came to America, and in advance of government intervention, they began the search for substitutes for zinc, nickel, chrome, and other metals likely to be in short supply, to be engineered into the 1942 models, then a year away.

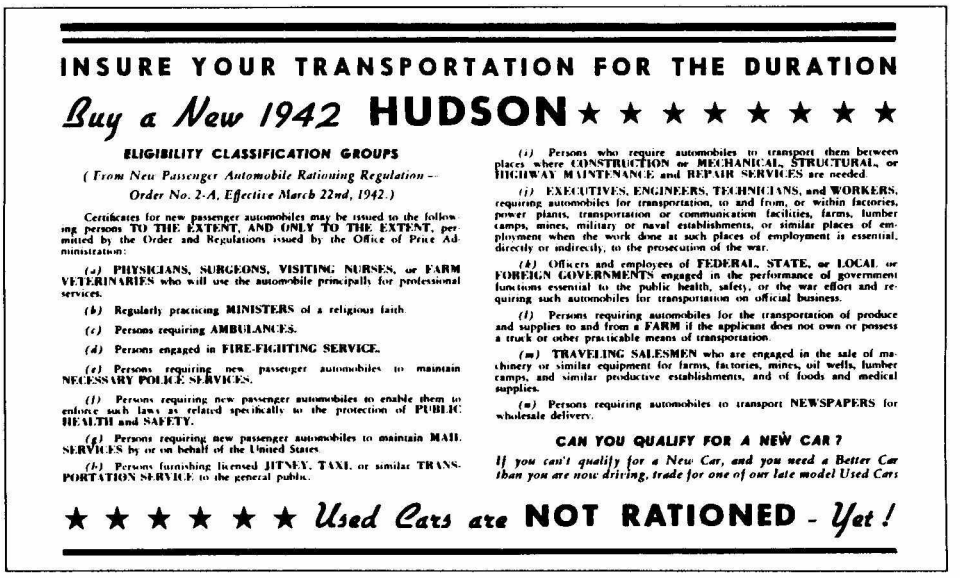
On May 27th, 1941, President Roosevelt declared a state of national emergency. Shortly thereafter, Knudsen secured an agreement between the nine auto producers to reduce their production of 1942 models by twenty per cent. To help the Little Six maintain their economic vitality, the Big Three later agreed to a cut of 21.5 per cent, which resulted in a volume sufficient that the independent makers had only to reduce their production by fifteen per cent. Thus, when the 1941 model year ended in July of that year with sales swollen in anticipation of war, it was determined that the 1942 model run would not exceed 4,224,152 units. It was surmised that there might not be a 1943 model year; in fact, GM had already announced that it would continue its forthcoming models indefinitely without any change.

As war grew increasingly likely, agreement was reached to reduce production of 1942 models by fifty per cent. Charged with maintaining price fairness and stability, the Office of Price Administration and Civilian Supply (OPA) divined that some manufacturers might not be above allotting their fifty per cent to their highest priced, best equipped lines. To forestall this, the agency offered the companies a choice: produce in exact proportion to their 1941 models, or to the average of the last three model years. However, OPA made only half-hearted efforts to control prices for the forthcoming model year. In most instances, the changeover to new materials exacted a cost that was passed on to the consumer, resulting in a substantial increase in list prices of ten per cent or more.

Later, OPA made a request which was unprecedented: not later than November 1st, 1941, manufacturers were to eliminate the use of superlatives in the names of their model lines. No longer could the by-now traditional nomenclature of "deluxe" and "super" be used. The rationale for this bizarre order was that, at some future time, the government might order industry to simplify or eliminate lines by discontinuing divisions and/or by producing cars in only two or three price classes. Whether this order had any effect is conjectural. The sales catalogues were already in print, and Ford and Plymouth, for example, continued merrily along with both "Deluxe" and "Super Deluxe" models for 1942.

The annual unveiling of new models began in August, led by Willys, whose big change was the substitution of molybdenum-iron alloy pistons for aluminum ones. As the parade continued, the extent of substitutions and curtailment became clear. Gone, too, were Chrysler Corporation's vaunted aluminum pistons, to be replaced by cast iron. Cadillac's pushbutton antenna had vanished. Steel stampings rather than die-cast zinc were used in Chevy horns, giving them a more strident tone. White sidewall tires were only a memory; not only did they require more rubber than blackwalls, but zinc oxide was also used in their manufacture. Ford even devoted a full page ad in *Ford News* to cataloguing its substitutions and reductions, among which were plastics for metal-plated interior trim such as door handles and dashboards, and a 98.7 per cent reduction in magnesium. When all the cars were out, Fortune calculated that the new materials had resulted in a reduction per car of 23 pounds of zinc, five pounds of copper, two pounds of chromium, and over three pounds of nickel. Given the fact that the number of cars was to be reduced by fifty per cent, these savings were not insubstantial.

Except for a slight change in the brightness of trim due to the reduction of nickel, the substitutions had not affected the appearance of cars. But these substitutions had been voluntary, and hardly had the last new car made its debut than the government issued the order which gave the '42s the distinctive look that set them apart from any cars made before or since. During the summer, rumors abounded that



INSURE YOUR TRANSPORTATION FOR THE DURATION

Buy a New 1942 **HUDSON** ★ ★ ★ ★ ★ ★ ★ ★

ELIGIBILITY CLASSIFICATION GROUPS

(From New Passenger Automobile Rationing Regulation — Order No. 2-A, Effective March 22nd, 1942.)

Certificates for new passenger automobiles may be issued to the following persons TO THE EXTENT, AND ONLY TO THE EXTENT, permitted by the Order and Regulations issued by the Office of Price Administration:

(a) PHYSICIANS, SURGEONS, VISITING NURSES, or FARM VETERINARIES who will use the automobile principally for professional services.

(b) Regularly practicing MINISTERS of a religious faith.

(c) Persons requiring AMBULANCES.

(d) Persons engaged in FIRE-FIGHTING SERVICE.

(e) Persons requiring new passenger automobiles to maintain NECESSARY POLICE SERVICES.

(f) Persons requiring new passenger automobiles to enable them to enforce such laws as related specifically to the protection of PUBLIC HEALTH and SAFETY.

(g) Persons requiring new passenger automobiles to maintain MAIL SERVICES by or on behalf of the United States.

(h) Persons furnishing licensed JITNEY, TAXI, or similar TRANSPORTATION SERVICE to the general public.

(i) Persons who require automobiles to transport them between places where CONSTRUCTION or MECHANICAL, STRUCTURAL, or HIGHWAY MAINTENANCE and REPAIR SERVICES are needed.

(j) EXECUTIVES, ENGINEERS, TECHNICIANS, and WORKERS, requiring automobiles for transportation, to and from, or within factories, power plants, transportation or communication facilities, farms, lumber camps, mines, military or naval establishments, or similar places of employment when the work done at such places of employment is essential, directly or indirectly, to the prosecution of the war.

(k) Officers and employees of FEDERAL, STATE, or LOCAL or FOREIGN GOVERNMENTS engaged in the performance of government functions essential to the public health, safety, or the war effort and requiring such automobiles for transportation on official business.

(l) Persons requiring automobiles for the transportation of produce and supplies to and from a FARM if the applicant does not own or possess a truck or other practicable means of transportation.

(m) TRAVELING SALESMEN who are engaged in the sale of machinery or similar equipment for farms, factories, mines, oil wells, lumber camps, and similar productive establishments, and of foods and medical supplies.

(n) Persons requiring automobiles to transport NEWSPAPERS for wholesale delivery.

CAN YOU QUALIFY FOR A NEW CAR?

If you can't qualify for a New Car, and you need a Better Car than you are now driving, trade for one of our late model Used Cars

★ ★ ★ ★ ★ ★ *Used Cars are* **NOT RATIONED** - *Yet!*

Hudson mailer from 1942 targeted those, from doctor to newspaper carrier, who would be eligible to buy new cars. Others were encouraged to shop for a used car, preferably a Hudson, of course. Courtesy of Stephen Hayes.

brightwork would be banned after January 1st, 1942. On October 24th, the War Production Board issued Passenger Car Limitation Order L-2b, making rumor fact: effective December 16th, brightwork could be used only in bumpers and bumper guards. Just before the deadline the order was amended to permit the use of brightwork (presumably at the behest of industry in order to exhaust stocks) if treated so that it didn't look like brightwork. The public called it "blackout trim." But the war had already begun by December 16th, and the edict affected only the last six weeks of 1942 model production, probably around 225,000 cars.

Throughout the autumn, adherence to the fifty per cent requirement had been effected by the issuance of orders establishing monthly production quotas. With the declaration of war, it became imperative for the industry to devote its total production to the needs of the military, and the production of civilian passenger cars was an early casualty. Order L-2-g revoked the quotas that had been set for February 1942, but allowed until February 11th for the completion of January quotas. Most makes shut down as of the 31st, and the final cars came from Ford and Pontiac on February 10th. The 1942 model year had seen less than two million passenger cars come off the line. But the national interest also entailed assuring sufficient transportation for civilians in critical occupations and professions, and once again the government had stepped in. On December 11th, Order L-2-f was issued, freezing the sale of new cars in stock on January 1st, 1942, pending the development of an allocation system. Rationing Order 2A establishing the system appeared in mid-February, geared to the sale of approximately 520,793 undelivered 1942 model cars to qualified civilian buyers over an eighteen-month period. Under the eligibility system, doctors were at the top of the list, and those engaged in transporting newspapers at the bottom.

Thus, the advent of total war meant total abandonment of civilian passenger car production to military needs. This established a quantum of government control over the passenger car industry, and that industry's committment to defense, not seen since.

KOREA

Still filling the demand for passenger cars caused by the three-and-a-half-year hiatus in production in 1942-45, the motor vehicle industry had experienced all time record sales in 1949, and was headed for another when President Truman committed the United States to action on the Korean peninsula in mid-1950.

If World War II represents the total mobilization of society in time of war, the nation's involvement in Korea is a study of partial mobilization. Unlike its two predecessor wars, the involvement of United States forces in Korea was not foreseen in advance. The times were confused. Less than a year before, the Soviets had exploded their first atomic bomb, and in February Klaus Fuchs had been arrested on charges of providing hydrogen bomb secrets to the Russians. No one knew to what extent the Chinese or Russians would intervene, or whether the conflict would be short or protracted. If the Cold War turned truly hot, encompassing Europe as well, full mobilization would be required.

Congress reacted in September 1950 with the Defense Production Act, under which the National Production Authority (NPA) was established, but there appeared to be no immediate need for controls. General MacArthur had landed at Inchon and was advancing into North Korea. A short war appeared in prospect. But in November the Chinese entered the war, and the outlook changed. A longer war was the probability, and both government and industry prepared to meet it. This time around, no leading member of the Detroit community came to Washington to provide insight into the regulation of his industry in time of war, though K.T. Keller left Chrysler to run the national missile program. The familiar competition for scarce resources between government and industry began to reassert itself as defense needs increased. Industry cast wary glances at its sources of aluminum, copper, nickel, zinc, cobalt, cadmium, and other nonferrous materials, all of which had returned to passenger car production after World War II. In fact, the typical 1950-51 car contained seven pounds of aluminum, 29 pounds of copper, and 23 pounds of copper based alloys.

Unlike the fall and winter of 1941-42, the government never established monthly production quotas for automobiles during the war in Korea. Instead, production was indirectly regulated by the NPA through the Controlled Materials Plan which came on stream in January 1951. Under the plan, manufacturers were allotted scarce materials according to a formula using the years 1947-49 as the base period. In short, the government did not tell a manufacturer how many cars it could build, but simply how much of a given commodity it could buy to produce them. If a manufacturer were unable to procure its share of the commodity permitted, then its production fell even more. Steel was the primary commodity affected. Late in 1950, defense needs were estimated to require five to twenty five per cent of steel which would have been otherwise available for cars, and manufacturers scaled back production plans for the first quarter of 1951 by thirty per cent. In the spring of 1951, there was a 65 per cent cut in steel available for car production. As a result, production fell sharply in each of the two critical years of the Korean engagement, from 8,002,433 motor vehicles in 1950 to 6,746,976 in 1951 to 5,560,840 in 1952.

Manufacturers, of course, substituted materials where they could. Stainless steel emerged as the brightwork of choice, and was in general use after April 1st, 1951, for grilles, bumpers, hub caps, wheel rims, dash panels, and lamp housings. Noting that the elimination of white sidewall tires would save two thousand tons of rubber a month, NPA ordered a cut of seventeen per cent in new rubber, both natural and synthetic. White sidewalls were out after the first of 1951, and by late spring spare tires had gone to fight the war. Illustrative of the restrictions of the day are the advertisements for Cadillac. At the beginning of the model year, the cars were resplendent in white sidewalls, with liberal use of brightwork, including the slightly hooded headlamp trim rings and parking lamp housings. By April the white sidewalls were gone, and the trim rings (now visorless) and parking lamp housings were painted. By summer, bright trim rings had returned but without the eyebrows. Not until the 1952 model year did the bright parking lamp housings return, while white sidewalls did not reappear until May.

The press speculated that the national crisis would postpone changes the industry had planned for 1952. The truth is difficult to judge, given the secrecy of the day. What unquestionably was delayed was the advent of those models. In each of the postwar years until then, the leader of the parade had been unveiled during the winter or spring: 1946 Ford (June 1945), 1947 Studebaker (May 1946), 1948 Packard (March 1947), 1949 Lincoln and Mercury (April 1948), 1950 Packard (May 1949), 1951 Kaiser-Frazer (February 1950). But not until November 1951 did the first of the '52s come on stream, led by Dodge. True it was that the Chrysler products were virtually identical to their 1951 counterparts, but then the unchanged 1947 and 1948 models afforded that company a precedent not based on war. The other changes in industry (including the all-new Nash and Ford Motor Company products) were about what one expected in an ordinary model year. Apparently to free tool and die shops for defense, in the fall of 1951 the NPA banned extensive new model retooling after February 1st, 1952. Whether it actually went into effect, or was enforced is unknown, but, judging by the 1953 models which were new and renewed in usual fashion, the ban had little effect.

The last direct restriction attributable to Korea appears to have been imposed by

the NPA, effective October 1st, 1951, which limited the number of cars which could be sold with automatic transmissions. But it was lifted by May 1952, when the war was winding down. Gone, too, by then were government restrictions on the use of natural rubber and the importation of copper. NPA had also killed a plan to curb the output of batteries.

On December 1st, 1950, the Office of Price Stabilization (OPS), also established under the Defense Production Act, froze new car prices. Until March 1953, price increases were established and compliance enforced by OPS. Under a memorable order, industry was required to lower the retail price by the cost of the spare tire when that item was temporarily banned. The remaining production allocation controls on materials also expired in March 1953. Thereafter, the industry appears to have proceeded unencumbered by regulations or shortages, and 1953's production was only slightly less than that of 1949.

An armistice was signed in July, and thus concluded the third and final time that the automobile industry has been affected by the coming of war.

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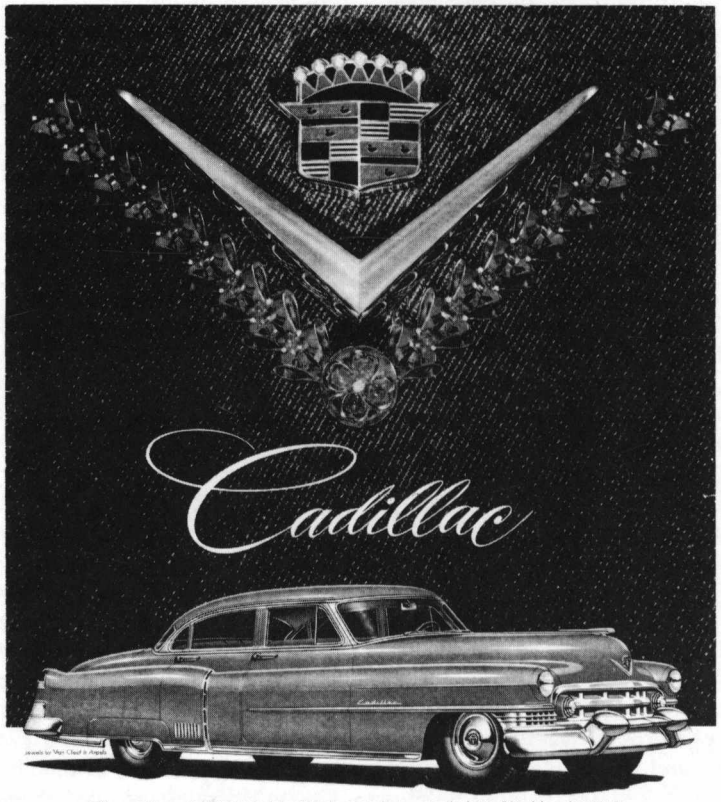


In March of 1951, Cadillac was shown in all its chrome (or stainless) splendor (top). By the following month (bottom), headlight and parking light trim was painted and whitewalls were history, though the jewels seem to have become even glitzier. Taylor Vinson collection.

Sigmund Haugdahl: Swift Norwegian

by Martyn Flower

Some drivers are born great; others have greatness thrust upon them. The latter definitely applied to Sigmund Haugdahl, allegedly the first man through the 180 mph barrier.

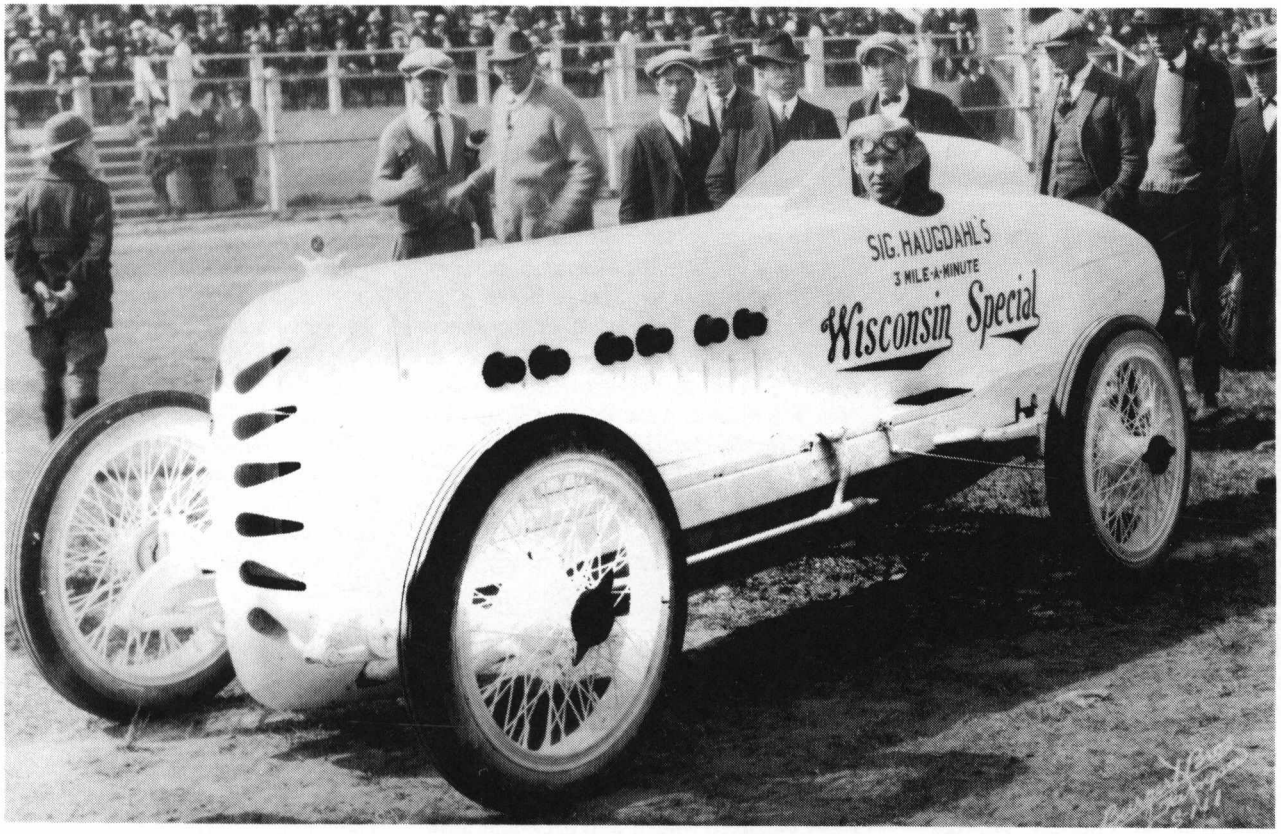
Born in Tronjham, Norway, in 1891, Sig Haugdahl was an impressionable teenager when his family emigrated to the New World before World War I, settling in St. Paul, Minnesota. He found work in a machine shop, where, despite a lack of formal engineering training, he soon showed signs of inborn mechanical genius.

Beginning with motorcycles, Sig quickly made a name for himself on the tough and still largely unrecorded midwestern state fairgrounds dirt track circuit. Enter J. Alex Sloan, a tough, publicity-grabbing former Ohio University football star, sports reporter, and race promoter.

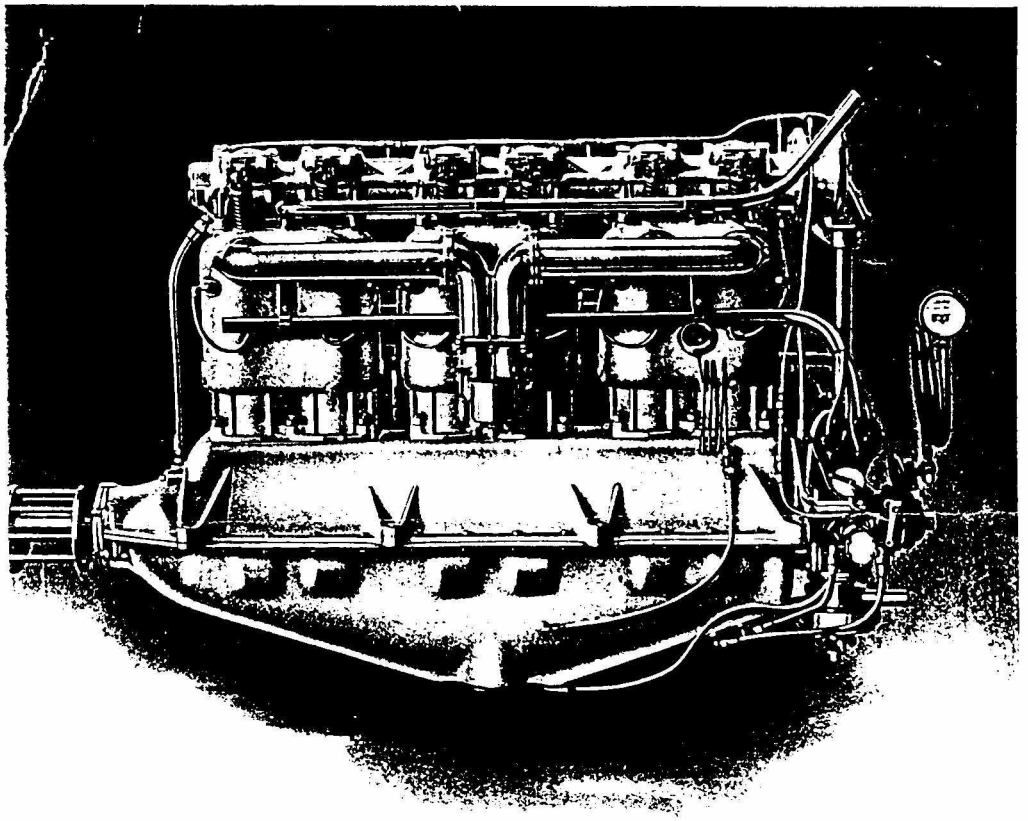
When racing managers of the American Association of Fairs made it clear to Sloan that they felt the American Automobile Association was being uncooperative by refusing to sanction many of their events (in favor of the fast but deadly California board tracks), he persuaded them all to meet in Chicago, where, on Sunday, March 14th, 1915, the International Motor Contest Association was formed. Ironically, on that very day Haugdahl's barnstorming partner, aerial stuntman Lincoln Beachey, was killed, when his monoplane's wings folded over San Francisco Bay.

This outlaw body (at least in the eyes of the AAA) specialized in rigged races featuring Sloan's circus, and his now-fading star, the irascible, cigar-chewing, Ohio-born showman Barney Oldfield. When Barney's love of alcohol and fisticuffs began to spoil his crowd appeal, Sloan quickly replaced him with Haugdahl. The IMCA publicity machine went into action, and Sig duly "won" all the events he entered, in front of a gullible public. IMCA, based in Des Moines, Iowa, was a small-time sprint sanctioning body which had an uneasy relationship with the AAA. Sloan wanted a bigger slice of the action, which would be guaranteed if his star driver could become the fastest man on earth.

When Sloan and Haugdahl began building their Wisconsin Special, in the latter's St. Paul shop, I believe the intention was to use it purely as an advertising gimmick for IMCA. Into a boxed and stiffened stock touring car chassis of indeterminate parentage (wheelbase 100 inches, track 54 inches), Haugdahl fitted an ex-government six-cylinder hydroplane engine, designed by A. F. Milbraith. Milbraith was chief engineer and secretary of the Milwaukee-based Wisconsin Motor Manufacturing Company. The engine was a special version of their Model V-6 single overhead cam all-aluminum 12.5 liter unit. Modifications made by Haugdahl included a camshaft of his own design and magnesium alloy pistons to bring the weight down to 600 pounds and produce 250 bhp - at 2,500 rpm. The Wisconsin company kept an eye on the project, overhauling the engine on several occasions.



Sig Haugdahl in the Wisconsin Special at Tampa, Florida in 1924. Courtesy of Charles Betts.



INTAKE VIEW V-6

AVIATION MOTORS

Type V-6

6 Cylinder—4 Cycle

5 Inch Bore—6½ Inch Stroke

Type V-12

12 Cylinder--4 Cycle

5 Inch Bore—6½ Inch Stroke

Much was made of the "White Streak's" aerodynamics. It apparently had less than one third the wind resistance of Tommy Milton's 1920 land speed record "Double Duesey." Aerofoil sections were fitted between the chassis side members and the streamlined single-seater body, which measured twenty inches at its widest point. It carried a bullet-head fairing and lemon-squeezer radiator cowl, as fitted to the contemporary Frontenac Indy cars. Balsa wood streamlining strips over the front of the chassis completed the job.

Wire wheels, featuring double disc covers, inner and outer, were shod with Vogue tires. There was no clutch or gearbox, so a push start was always needed.

First tests, for planned attempts of one-half to twenty miles, were carried out in February 1922 on the Pablo-Atlantic beach at Jacksonville, Florida. There had been beach races at Jacksonville in 1906 and 1911, but the arrival of the "Wonder Car" was a whole new ball game for the city's Motor Racing Association. After poor weather and beach conditions had delayed him, Haugdahl went for the mile on Saturday, February 18th, clocking a speed of 159.292 mph and a time of 22.6 seconds. If genuine, this was three miles per hour faster than Milton had managed nearly two years earlier at Daytona (156.047 mph, 23.07 seconds), but, with Alex Sloan in charge of the timekeepers, Haugdahl's mark is open to conjecture. Manning the watches at each quarter mile mark were Sam Ellis, sports editor of the *Metropolis* newspaper, Chris Booth of the Scripps Booth company in Detroit, A.S. Andrews, vice president of the Jacksonville Motor Racing Association, Harry Cully, sports editor of Jacksonville's *Times-Union*, and, of course, Alex Sloan. After the "record," the car was displayed in the north show window of the Scripps Booth Company at Main and Orange Streets.

Out again at Jacksonville in March, Haugdahl covered distances from one-half to ten miles, improving his speed for the mile to 160.714 mph.

Cocoa Beach, south of Daytona, was the next venue, in April. Haugdahl's entourage arrived at the already famous Ormond-Daytona beach, where a five mile course was marked out. Haugdahl had apparently found a serious vibration at 150 mph from the unevenly balanced wheels and tires, and took six weeks of careful experimentation to get

On April seventh, beginning at 9:00 AM, the car made three trial runs before covering the mile, sans rear wheel discs and radiator cowl, in 19.97 seconds at 180.270 mph. These runs were "accurately recorded" using a combination of the City of Daytona Beach's electric equipment and six hand timers, and "officially witnessed" by Mayor Guy Bailey and a US Senator. The course was surveyed and timed by IMCA.

If Haugdahl thought he was the first to exceed 180 mph on land, no one else did. The press credited him with speeds from 162 to 170.7 mph; the AAA ignored him. In any case, international record rules now required the average of a two-way run, and all Haugdahl's had been one-way only. The whole effort was shrouded in mystery and uncertainty.

The Wisconsin Special became the star attraction of the Sloan circus, its demonstration laps always the opening feature of an IMCA event. But its only other "record" was set on November 12th, 1922, on the St. Louis dirt track, one mile in 40.09 seconds, 90 mph. *The Autocar* announced that Haugdahl would bring his car to Brooklands early in 1923, but it stayed in America, a

regular at Legion Ascot in southern California. There it was a stablemate to a Frontenac and a twelve-liter Fiat, possibly the ex-Lewis Strang SB4-190, sister to Nazzaro's 1909 Brooklands car.

In 1926, Mlle. Joan La Costa, an obscure French female driver, used the big white car for an attempt on the women's land speed record at Daytona, driving into the surf at 130 mph when a fuel line broke.

The IMCA had announced a national dirt track championship in 1926, and Haugdahl held it from 1928 until 1932, by which time he was "aging, chunky, cigar-smoking" and running a garage in Daytona Beach. Sloan pensioned him off, replacing him with ex-ice hockey star Emery Collins and AAA renegade Gus Schrader.

Haugdahl had shown his engineering genius by devising oil coolers for Henry Segrave's record boat Miss England in 1929, acting as mechanic during tests on Daytona's Halifax River. He probably won his last race at New York's tenth-mile indoor Bronx Coliseum dirt oval on January 6th, 1935.

Asked by the Daytona city fathers to organize a 250-mile beach race in 1936, to attract tourists, Haugdahl and lawyer Millard Conklin devised a 3.2-mile course featuring the beach as one straight, and the narrow A1A asphalt road as the other. The two were connected by corners cut through the dunes. Twenty seven stock cars were flagged away on March 8th, the handicap event won by Milt Marion in a Permatex-sponsored Ford V8 after a choked north turn stopped the race early. Despite a crowd of twenty to thirty thousand and gate receipts of over $6,000, the city apparently lost $22,000 and withdrew support for 1937. So Haugdahl then persuaded the local Elks Club to back a Labor Day fifty-miler, won by Smokey Purser's Ford. By 1938 Haugdahl had given up, and NASCAR legend Bill France had taken over.

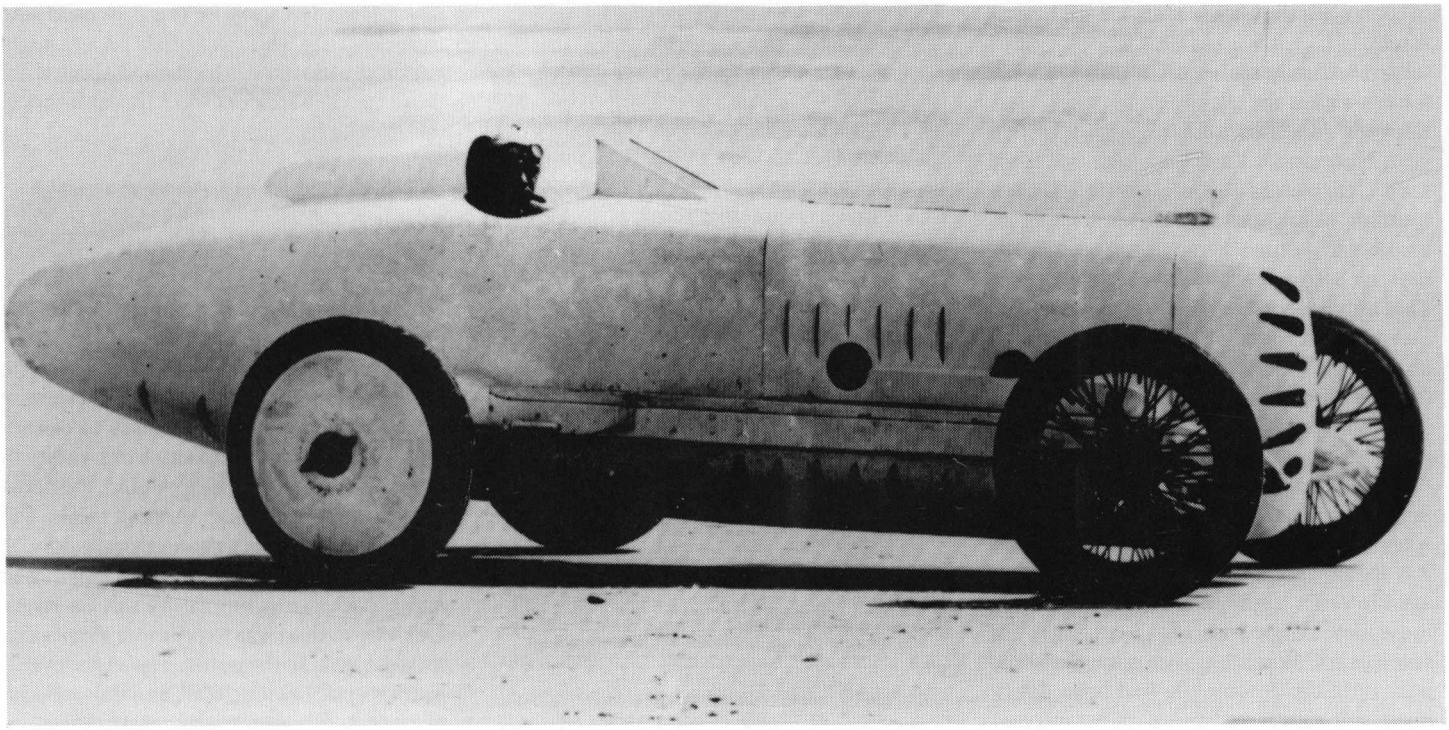
The Wisconsin Special had passed to Alex Sloan in 1930, staying in his garage in Joliet, Illinois, until purchased by Albert B. Garganigo for his Museum of Antique Autos in Princeton, Massachusetts. The Garganigo collection was sold to Gene Zimmerman's Automobilorama Museum in Harrisburg, Pennsylvania, in 1965, and later joined Dave Uihlein's Indy car collection in Milwaukee.

A contemporary described Haugdahl as "always a queer duck, very shy and a poor personality." As Sloan's protege, he was guaranteed success, never having to prove himself. The records, or lack of them, show that he was not a great driver, but simply one who served a useful purpose. Whatever, Sigmund Haugdahl passed away, largely forgotten, on February 4th, 1970.

The Wisconsin Special's Beach Runs

February 18th, 1922 - Pablo-Atlantic Beach, Jacksonville, Fla.		
One mile	22.6 sec.	159.292 mph
March 1922 - Pablo-Atlantic Beach		
Half mile	10.01 sec.	179.820 mph
One mile	22.4 sec.	160.714 mph
Five miles	1 min. 56.02 sec.	152.542 mph
Ten miles	3 min. 56 sec.	152.542 mph
April 7th, 1922 - Ormond-Daytona Beach, Fla.		
One mile	19.97 sec.	180.270 mph
(trial runs)	19.95 sec.	180.451 mph
	20.50 sec.	175.182 mph
One mile	19.97 sec.	180.270 mph

Below, Haugdahl with cigar in the Wisconsin Special at Dayton Beach, April 7th, 1922. National Motor Museum. Opposite, Wisconsin's Type V-6 overhead cam engine was intended for aviation applications. Courtesy Teledyne Wisconsin Motors.



John D. Davis and the Transcontinental Auto Trip of 1899

by David L. Cole

As an automotive historian, you know that the first automobile trips across the United States were made in 1903. In fact, if pressed for details, you can recite how Dr. H. Nelson Jackson and his mechanic left San Francisco in May of that year bound for New York in a twenty horsepower Winton, followed about a month later by Tom Fetch and Marcus Krarup in a twelve-horsepower Packard, who likewise headed for New York, and how both of them were trailed by L.L. Whitman and E.I. Hammond on a four-and-a-half horsepower Oldsmobile a couple of weeks later. And of course you remember that all three trips were successful, despite innumerable difficulties and hardships, the Winton arriving in 64 days, the Packard in 61, and the little Olds in 73. Automobiles had at last proven sturdy enough to span the continent, although it would be another ten or twelve years before such trips became commonplace.

But does it not seem strange that you never hear of any previous attempts to cross the country by automobile? The US auto industry counts 1896 as its beginning, and there was plenty of interest in setting transcontinental records at that time - on bicycles, of course, for the bicycle craze was then at its zenith. In fact, it was in 1896 that two fellows set a transcontinental record that would stand for years after the cycling craze had passed. Between June first and July eighth of that year, Norman DeVaux and John LaFrance rode clear across the country in 37 days, fourteen hours, and fifteen minutes; an incredibly fast time when contrasted with the first such trip made twelve years earlier. That initial record was made by one Thomas Stevens, who rode - or trundled, or carried - his fifty-inch Columbia high-wheel bicycle from San Francisco to Boston, 3,700 miles, between April 22nd and August 4th, 1884, a matter of some 105 days. Ever since then, there had been growing interest in spanning the country, coast to coast, with whatever wheeled vehicle was newest and best, so how was it that the earliest automobilists managed to resist trying to cross the country in those new-fangled horseless carriages for seven years? Were they wise enough to hold back until the automobile had been developed sufficiently to insure their success? Could men really be so prudent as that?

THE EARLIEST LONG-DISTANCE RUNS

Of course not! No one went far in those earliest horseless carriages because they were notoriously unreliable; a fellow was lucky to get across town without a breakdown of some sort, let alone across the country. But in 1897, Alexander Winton, of Cleveland, Ohio, set out for New York in a machine of his own manufacture, and, wonder of wonders, he made it! It took him ten days, - July 28th to August 7th - to go about seven hundred miles, but he showed the possibilities of long-distance travel in an automobile.

It seems that no one tried to better Winton's record very soon, though. Perhaps there were too many other things going on. Cycling was still the fad in 1897, and when gold was discovered in the Klondike the resultant rush to Alaska and the Yukon claimed a lot of men who otherwise might have been fooling with automobiles, and distracted many others who only dreamed of going. The following year was even worse for distractions - the Spanish-American War erupted in 1898, and automobiling fairly well took a back seat.

But when the touring season of 1899 came around, the war was over and so was the gold fever; the popularity of cycling was on the wane, and the automobile was better than ever (or so they said!). The time was ripe for some long-distance motoring, and the American public did not have long to wait. In May, Alexander Winton tried the Cleveland-to-New York run again, this time with some publicity. He took along Charles Shanks, a reporter for the *Cleveland Plain Dealer*, who sent his stories to the newspaper every day as the trip progressed, thereby generating reams of publicity. By the time they arrived in New York, Winton was famous, and the automobile no longer seemed like just an expensive plaything. They had travelled 707.4 miles in 47 hours, 34 minutes of running time, thus averaging about fifteen miles an hour, certainly better than any horse-drawn rig could do. Shanks later said the "direct result was the first great impetus this country ever had in horseless carriage interest." The whole country was swept up in the possibilities of automobiling that summer of 1899, and editorials predicted the end of horse-drawn traffic in just a short time, as the clean, safe, economical automobile would fill all transportation needs. Now the stage was set for an attempt at crossing the continent by automobile, and it was not long in coming. Late in June it was announced that Mr. and Mrs. John D. Davis of New York were going to drive an automobile to San Francisco, beginning on July first. Readers of the *New York Herald* or the *San Francisco Call* got the full story on this proposed auto trip, but those who read other papers might have had little or no information about it, for those two newspapers were the sponsors of the effort.

The 1899 Winton Motor Carriage advertised in the same issue of Scientific American. *It appears more roadworthy than Davis's National touring cart.*

NEWSPAPER SPONSORSHIP

The period covering the late Nineteenth and early Twentieth Centuries marked the heyday of American newspapers. The invention of the linotype and power-operated presses made them cheap and easy to produce, and a highly-developed system of railroads made newspapers easy to distribute. With no competition from radio or television, both yet to be invented, the newspapers were supreme in both news and advertising, and they proliferated wildly. A major city might have half a dozen dailies or more, each struggling to outsell its rivals. One way to do it was to promote events that would appeal to the public, report the events in great and glowing detail, and thus sell a lot of papers. Rival newspapers might report such events, too, without mentioning who

Scientific American *ran this picture of Mr. and Mrs. John D. Davis in the National continental touring cart captioned "The start for the 3,700 mile trip across the continent" in the July 29, 1899 issue. The unlucky horseshoes on the center headlamp and the brake blocks ahead of the rear wheels are clearly visible here, but the belt box enclosing the mechanism on the rear axle appears not to be in place. Courtesy David Cole.*

sponsor was, but seldom in much detail, or they might choose to ignore the promotion altogether.

The *Chicago Times-Herald* scored mightily in this regard when it sponsored the first US auto race on Thanksgiving Day 1895, and newspapers promoted automobile events thereafter for many years. Thus, the *New York Herald* and the *San Francisco Call* figured they would prosper in sponsoring the Davis auto trip, to begin at the *Herald* building and end some forty-five days later at the offices of the *Call*, as a fascinated public would flock to buy the papers which printed the daily dispatches from John D. Davis on the progress of the transcontinental auto trip. It would be *the* media event of Summer 1899.

Portraits of John D. Davis and his wife Louise appeared in the San Francisco Call *of July 6, 1899.*

JOHN D. DAVIS

For automotive historians, a few questions immediately arise. Who was this John D. Davis, and what sort of automobile did he intend to drive? What qualifications and experience did Davis have that would fit him for such an enterprise? Unfortunately, such questions are much easier to ask than to answer. The newspapers had virtually nothing of a biographical nature to say about Davis, other than that he was from Buffalo, New York, lived with his wife on Madison Avenue in New York City, and had spent some time in the western states, so that he had some idea of the terrain he would have to cross to reach California. Mrs. Davis was not identified by her own name in the *Call* or the *Herald*, but the rival *New York Times*, in one of its few terse reports on the trip, called her Louise Hitchcock Davis. She was from New Haven, Connecticut, young, eager, and excited at the prospect of being the first woman to cross the continent by automobile, but, never having been "out west" before, she had only the haziest notions of what she was likely to find. Still, she was game for whatever it was, and so she comported herself as long as the trip lasted.

Aside from such basic information, the papers had little to say. Perhaps it is significant to note that Davis seems not to have figured in any other automotive venture before or after this one. When the Automobile Club of America was established in New York later in 1899, his name was not among the founders, nor does it appear even as a footnote in automobile histories. Further research may turn up more evidence to connect Davis with early automobiling, but as of this writing we must conclude that his only claim to automotive fame lies in his attempt to cross the country by auto in 1899.

THE CONTINENTAL TOURING CART

The automobile which figured in this venture is almost as obscure as the man who drove it. The papers allude to it as a *continental* (or *transcontinental*) *touring car* or *cart*, made by the National Motor Company, situated in Stamford, Connecticut. This is not the National which built the speedy cars which held so many records some ten years later, or which produced the winner of the 1912 Indianapolis 500 race. This National does not figure much in automotive history at all, except in this one instance, nor does it appear in the *Standard Catalog of American Cars 1805-1942* by Kimes and Clark. However, the *Catalog* does note, in describing the Klock automobile of 1900, the fact that its manufacturer, Percy L. Klock of Stamford, Connecticut, "during his experimental stage prior to the turn of the Century....casually organized himself as the National Motor Carriage Company." Further, it notes that the vehicles Klock built under his own name were constructed using Duryea patents, and so, apparently, was the rig built for Davis to cross the United States. Such a connection with Duryea was not mentioned in the paper, but it was noted that Frank Duryea was among those present at Herald Square when John and Louise Davis finally set off for San Francisco, and it is known that Duryea showed more that a little interest in the progress the Davises made (or didn't make) on their trip.

But neither Frank Duryea nor Percy Klock should be given full credit (or blame) for the design and construction of the transcontinental touring cart. There was a lot of John D. Davis in it, too. Davis made several trips to Stamford to oversee the construction of the car, and to offer suggestions on the strengthening, addition, or modification of various parts, so the result was something other than what Klock would have built, left to his own devices.

Davis's most bizarre contribution to the design was undoubtedly his secondary emergency brake. The regular service brakes were foot-operated, and acted only on the rear axle. This seemed adequate for normal use, but Davis thought he would need something more in descending the steep grades he would encounter in the west, so he had brakes like those on a coach or wagon installed - a big hand lever linked to brake blocks which bore directly on the tread of the rear tires! In testing this device on a hill near Stamford, one of the brake rods snapped and became tangled in the wheels, fairly destroying the tires, and necessitating extensive repairs, as well as a redesign of the brake. This appears to be the only instance in which such brakes were used on pneumatic tires, and for very good reasons. In the illustration here, you can see the brake blocks poised just ahead of the rear wheels, ready to tear the tires off the rims at the yank of a lever.

Specifications of the automobile were given in the newspapers in only the sketchiest form. Apparently the reporters did not know enough about automobiles to ask pertinent questions about bore and stroke, or wheelbase, or other such things as would interest us today, so few details were recorded. They did note that the machine was driven by a gasoline engine mounted under the seat, and that it had three forward speeds, or gears, as well as a reverse gear. The driver sat on the left, with the steering tiller rising at his right hand: a short, crank-shaped affair with a knob for him to grip. At the driver's left were two levers, one of which picked up low gear when pushed forward, or reverse when pulled back; the other lever, pushed

the back, high gear, and a maximum of 35 miles per hour - if any road could be found on which to try it! Davis claimed the engine put out seven horsepower, ample to climb a twenty-five per cent grade.

Details concerning the engine were not given, but we can infer from the descriptions of things which broke during the trip that it was an air-cooled (or *un*cooled) two-cylinder in-line internal combustion engine with two separate cylinders bolted to a common crankcase. Regardless of what happened to the engine during the trip, no mention was made of any water leakage, nor was anything said about water jackets or radiators, so apparently the car had none.

The wheels were of the bicycle type, with steel spokes and pneumatic tires that were cemented to the rims. Final drive was apparently by belt, but the mechanism was not evident; all was concealed in a belt box which extended from the works under the seat to the rear axle. Thus it was not subject to being covered with dust, mud, or grit that would cause rapid wear. Complete and ready to roll, the automobile weighed about a thousand pounds.

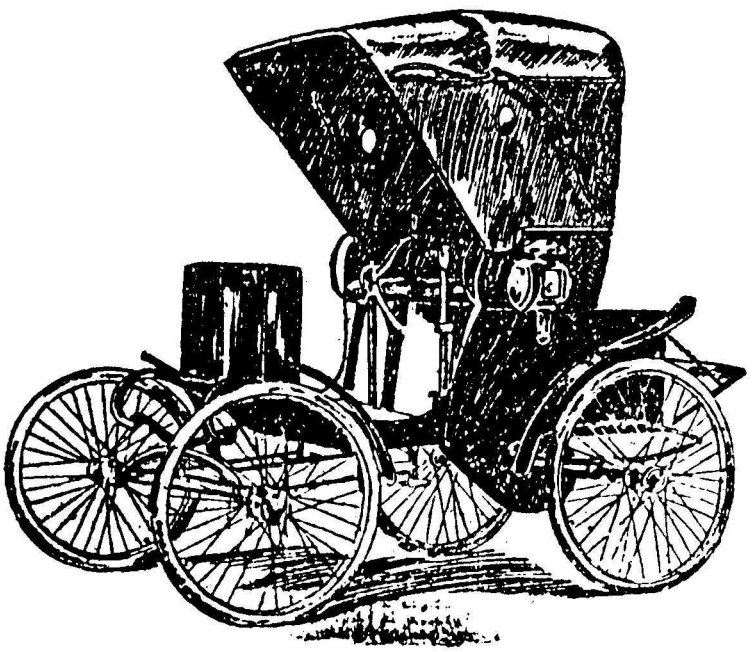
As to bodywork the rig looked for all the world like a regular buggy, except for the presence of all the control levers, and the lack of traces for a horse. Davis had the seat built higher-backed and wider than the stock configuration to make it more comfortable, and thus it would seat three without too much discomfort. The top could be let down, fenders covered all four wheels, and a small tailboard at the back, supported by chains, carried the luggage. A small trunk and a dress suitcase were all that could be carried, and Mrs. Davis was dismayed at how little she would be able to take along in the way of clothing.

Davis had a great deal of difficulty in securing a road meter for the carriage. Cyclometers for bicycles were made for wheels of smaller diameter than the car had. Eventually he got something that would work, as he was able to report the distance he had travelled each day, and the speeds he attained on the better parts of the road.

The picture shown on page 11 was taken from *Scientific American* magazine for July 29th, 1899, and purports to show the Davises ready to leave on their long trip. Some readers may recall having seen this same picture elsewhere, identified otherwise. It is found on page five of *Automobiles of America*, by the Automobile Manufacturers' Association and published by Wayne State University Press, where the caption implies it is a Mobile steamer. There is little doubt that that identification is in error, as the machine pictured bears many of the details found in the text of the news stories of the Davis transcontinental trip.

It is almost inconceivable that the automobile, as seen here, has been "fashioned more strongly than if it were to be used for mere pleasure jaunts," as it was described in the newspaper. If this rig "has been made especially strong to enable it to withstand the shaking up it is bound to get on the roads between (New York) and San Francisco," then the standard model, if such there was, must barely have avoided collapsing of its own weight. It defies understanding how anyone could expect a contraption of such gossamer fragility to hold together for over three thousand miles of ruts and rocks and bottomless mud or sand, but apparently the expectation was that what we see here would be suitable for the job.

Note, too, the lack of equipment that came to characterize later transcontinental auto trips. There are no spare tires, no planks, no chains, no extra lamps, no ropes, and none of the survival gear later motorists thought indispensible. Nor are John and Louise attired in anything that would suggest of any anticipated hardship along the way - no dusters, no goggles, no gauntlets. The press made no note of what Mr. Davis wore for the trip, but duly reported his wife's costume - a shirt waist with skirt of military blue reaching to the tops of her boots (a fairly short skirt by standards of the day!) and a broad-brimmed hat with a quill in it, according to the latest fashion. Storm curtains were supposed to keep them dry when driving in the rain, and a tarp covered their luggage. Was that not enough?



The Call *of July 6, 1899 also showed this sketch of the National transcontinental tourer. Note how close the steering post is to the seat, and how short the tiller. Here the belt box is in place.*

THE TRIP BEGINS

Despite this apparent lack of understanding as to what they were letting themselves in for, John Davis was pragmatic enough to realize there would be trouble on the road. He had, in fact, planned for it, and he stated his plans rather succinctly:

"I do not expect to make the best time during the first part of the run, as the motor is just out of the factory. After we have been going a few days it will undoubtedly run smoother, and I can get more speed out of it. I look for all kinds of mishaps, from punctured tires to breaks in parts of the machinery due to rapid running on rough roads. I shall carry such duplicate parts as are not too heavy and will have a kit of tools to tighten up nuts that become loose or to make any other repairs that are necessary. Every part of the motor is easily accessible, and I have watched the workmen put the machine together so that I think I can adjust anything that gets out of order and overcome any ordinary difficulty. Of course, if we meet with a serious accident we will depend upon the nearest machine shop to fix up things." Accidents in those days included not only what we think of nowadays - collisions, overturnings, and running off the road - but mechanical breakdowns as well.

With all the modifications Davis had specified be made to the car, there was no chance of their leaving for the west on July first as originally announced. In fact, nearly two weeks passed before the car was ready to go. Davis took the train to Stamford, picked up the car, and drove it back to New York (the first factory driveaway?). Along the way, he picked up a couple of horseshoes he found in the road and hung them on the center headlight. Upon his arrival in New York, Davis reported the car "behaved beau-

tifully and its performance exceeded his expectation, both as to power and facility of manipulation."

On July twelfth, Davis drove down to the *Herald's* offices with his wife, and announced that they were ready to leave the following day. A big splash in the paper assured that there would be an enthusiastic crowd of well-wishers there so see them off at 11:00 AM on the thirteenth, and so it was. The throng was indeed large, and several policemen were required to keep them in check. Many bicyclists were counted among their number, and several other automobilists, too. As already noted, Frank Duryea was there in a gasoline-powered surrey; also Arthur S. Winslow, secretary of the National Motor Company which had built the Davis rig, on a Duryea trap, and Whitney Lyon's electric dos-a-dos trap was on hand. Lyon was to be one of the founders of the Auto Club of America a few months later. Many others were listed in the news reports, too.

About five minutes before 11:00 a cry went up: "Here they come!" and, sure enough, there came the transcontinental automobile spinning along 35th Street toward Herald Square. John Davis threaded his way through the crowd and stopped in front of the newspaper's offices and the crowd surged around the car. A reporter was surprised to hear the engine running even though the car was at a standstill. "The engine was throbbing with energy and the entire vehicle trembled perceptibly," he wrote. The editors at the *Herald* came down to wish the travellers well, and there was much shaking of hands and waving of handkerchiefs while the auto "panted and quivered like a thoroughbred fiery steed held in check." At 11:03, Davis shoved the lever forward and the car lurched ahead, escorted by all the other automobiles and as many bicyclists as could keep up the pace. Back toward Fifth Avenue they went, up past Central Park and west on 111th to Seventh Avenue, where the asphalt pavement ended. Seventh Avenue had been macadamized once, but it was heavily rutted and rough by 1899, and many in the entourage declined to go further. But Davis continued to Central Bridge over the Harlem River, along with many well-wishers.

Here they drew up for final farewells, the drinking of toasts, and so on and on. It was over an hour later before Davis continued on the trip with the cry "To Frisco or bust!" It was to be like this for much of the journey. The transcontinental automobile trip was a source of wonder and fascination, and, being well publicized, it drew crowds all along the way. Bicyclists would ride out from a town to escort the motorists to their hotel, people would line the roads as they passed, and when the motorists left in the morning the crowd was there to ride out of town with

them. Thus the Davises were often travelling in a great gaggle of traffic, which impeded their progress sometimes; on the other hand, when the car broke down, there was often someone on hand to lend help.

THE TRANSCONTINENTAL ROUTE

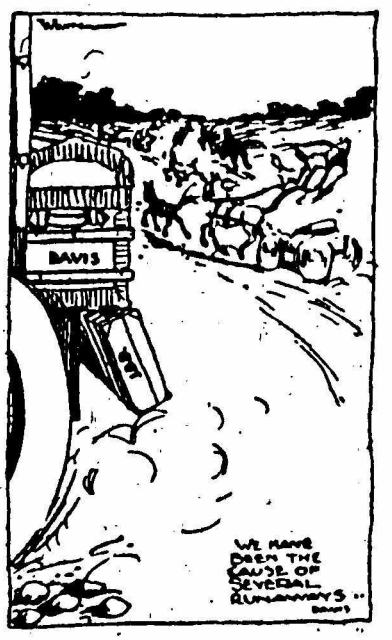
The route Davis had selected for his trip was the usual one used by bicyclists for a decade or so, and which would be used by motorists for at least another decade. It followed the old post road along the east side of the Hudson River (now generally equivalent to US 9) to Albany, where there was a bridge on which to cross, the first one north of Manhattan in those days. Then it turned west along the Mohawk River or the Erie Canal to Buffalo, and then along the southerly shore of Lake Erie to Toledo and west to Chicago. This route, indirect as it was, offered the best travelling, as it avoided the mountains one would have to cross in Pennsylvania on a more direct course. This is not to say it was a *good* road; it was simply the best there was at the time. Some of it offered good travelling, but much of it was full of ruts or tracks, and none of it was what we would consider well-paved today. The "Good Roads" movement had been gathering strength for almost twenty years by 1899, but had made little progress, and it would be another decade before much was realized in that regard.

West of Chicago, the route was a little less well detailed. The Davises would head west through Des Moines, Omaha, Denver, Ogden, and Sacramento on a line prescribed by the League of American Wheelmen, which was to the bicyclists of the 1880s and 1890s what the American Automobile Association would later become for motorists. From end to end, the proposed route was some 3,700 miles long.

ON THE ROAD TO ALBANY

The first day's travel netted the Davises only 37 miles, a one-hundredth part of the total they expected to drive. A hundred days like that would see them at the Golden Gate! But John expected to be there in less than half that time. He was going slowly at first to let the egine break in; besides, it overheated if he went very fast. On the way to Tarrytown, New York, where they spent the first night, the sight of the automobile chugging along had caused two runaways, but Davis blamed the other drivers. They were so absorbed in watching the horseless carriage that they let their reins go slack. Their horses took fright and ran off unchecked, scattering buggy parts along the way.

On Day Two, Friday the fourteenth, the Davises got an early start, but progressed only as far as the outskirts of Peekskill, where the rear cylinder of the engine broke, along with one of the clutches. Davis got a machinist to repair the link in the crankshaft, so he regained use of all his gears, but the only remedy for the cylinder was to tie it down with baling wire temporarily. Still, the repairs took the rest of the morning. Here, John engaged a machinist named Fisher to ride with them as far as Buffalo to make necessary repairs en route. Having had the seat made wide enough for three was a good idea! Even though leakage from the broken cylinder reduced the power output, the car went up grades that bicyclists thought im-



possible, and John was pleased with that, at least. They got no further than Poughkeepsie that day, just 53 miles.

Things went no better on Saturday. Entering Red Hook, they found the road was under construction, but a detour was provided, so Davis steered for that. It looked solid enough, but the ground gave way under the automobile, and Davis had to head into the ditch to avoid tipping over. The rig plowed across the ditch and the sidewalk, and almost into the fence before Davis could shut off the power, but the damage was done. The heavy jolt had snapped a brass casting that was part of the valve adjusting mechanism, and had broken off a petcock that had already given much trouble. Besides that, Davis bruised his right arm and shoulder pretty badly - and that was his steering arm. He had already found that the short tiller made steering difficult on rocky or rutted sections, as the front wheels rattled the crank in his hand viciously, making the rig hard to handle.

To repair the damage to the engine, they removed the broken parts, and John hiked three miles to a blacksmith shop where the fellow soldered them back together. Then it was three miles back, and they put the engine back together and resumed the trip. In no time at all the engine heated up, the solder melted, and the parts became unstuck. This necessitated more baling wire, but still that rear cylinder lost most of its power, and the car got no further than Hudson that day, a distance of 57 miles.

At Hudson, Davis found a machinist to make steel parts to replace the broken brass castings, and thus got the car running on both cylinders again. But it rained heavily on Saturday night, rendering the road, bad to begin with, a terrible mess of sticky gumbo, and it was one o'clock Sunday afternoon before they could leave. Progress was slow, owing to the condition of the road and the amount of traffic going to church, and they were four hours making twelve miles in one section. But the engine was running fine, and John got 30 miles per hour out of the rig where he could.

But it didn't last long. Just short of Stuyvesant, the valve linkage vibrated itself to pieces again, and an adjusting nut got lost. Davis and Fisher, his riding mechanic, spent three hours poking through the mud, looking for that nut, and finally Fisher just adapted some other nut off the car to hold the valve train together.

Mrs. Davis had weathered all these difficulties quite well, but she had come to the conclusion that their trip must have been jinxed by their leaving on the thirteenth, even though it was not a Friday. She knew all the superstitions, so when they spotted a man with a humpback at the station in Hudson she had John rub the fellow's hump to take away the curse. Sure enough, things did seem to go better for the next few days, but then they were served breakfast by a cross-eyed waitress a few days later and the hoo-doo was back. Poor Louise! Apparently, she never noticed that those two horseshoes were hung on the headlight upside down, so all the luck would run out. If John had tacked them on with the ends pointing up they would have filled up with luck - or so some folks would say.

HEADING WEST ACROSS NEW YORK

On Monday morning, Davis had a machine shop in Albany make a replacement for the valve adjusting nut, and, while he was at it, had a number of other parts that were likely to break reproduced. With the car repaired and spares on hand, things looked rosy, and the trip went well that afternoon: 33 miles to Amsterdam in just two hours and 45 minutes running time! John got up to 27 miles per hour on one good section of macadam, and sailed down Union Street in Schenectady at 22 1/2. It was smooth asphalt, a rarity at that time. But speed was self-defeating, as it caused the engine to overheat, and they would have to stop to let it cool.

On Tuesday, the automobile continued its trip in fine fashion until it reached the outskirts of Little Falls, New York, 42 miles up the Mohawk River from Amsterdam. There, while descending a steep hill, the cheers of the crowd which had turned out to see the auto go by suddenly turned to shouts of alarm: the right rear wheel was collapsing. Davis felt the car listing to starboard at about the same time, shut off the engine and steered for the curb. Mrs. Davis sprang from her seat onto the sidewalk just as the car settled down upon the wreckage of what had so lately been its wheel. *Now* what?

From someone among the crowd Davis was able to borrow an old wooden wagon wheel, which was duly haywired onto the end of the axle, and the vehicle was moved to a stable, where it was locked up. The Davises took the train to Utica, where facilities to have the car repaired might be better. John also ordered a pair of new, sturdier rear wheels from the factory while there, too. Then he got a machine shop to prepare a temporary wheel which would be good enough to use in running the car into Utica, a distance of some 22 miles.

The following day, the entire party took the replacement wheel down to Little Falls and installed it; then Davis drove slowly to Utica while the machinist rode alongside on his bicycle to keep an eye on the temporary lash-up. Presently the new wheels came from the factory, and they were soon installed, but the cement that secured the tires to the rims was slow to dry. Thus, it was Friday morning at 5:00 AM before the Davises could continue their trip.

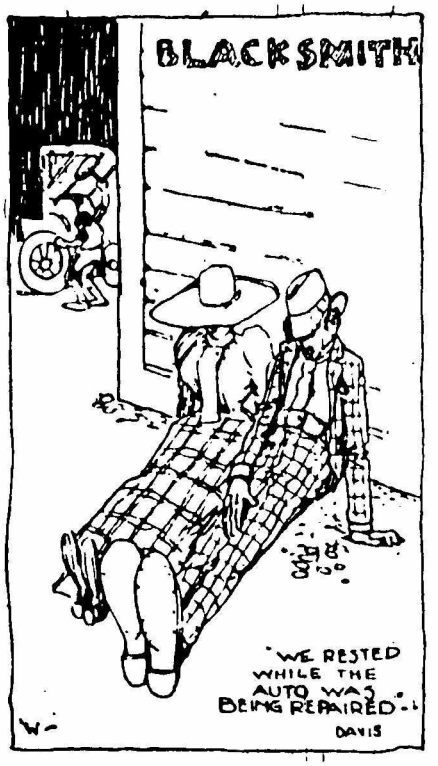
The car was not running right, though. It bucked and skipped and coughed. An examination of the ignition system revealed that someone had been fooling with the sparking brushes, and new ones had to be put in. This kind of thing had happened before. No matter where the car was stored at night, no matter how well secured, someone always knew where it must be and soon there would be a gang of curious would-be mechanics clustered around it, yanking the levers back and forth, twisting this and pushing that, trying to see what made it go. In the morning, Davis would find everything tampered with and he and Fisher would spend hours readjusting parts so that the rig would run again. Seldom was there malicious mischief, it appears; these fellows tampered with the machinery and broke things mainly out of curiosity and ignorance of what they were doing. Even during the day, if the car was stopped somebody was sure to meddle with some part of it. It was a vexing problem, and there was little solution for it.

Once the ignition was repaired, the auto fairly flew up the road to Syracuse, making the 54 miles in four hours and fifteen minutes running time. There were thousands on hand in Syracuse to see the transcontinental automobile pass through, but, alas, it was not to be. Right in the middle of town, at Fayette and State Streets, a bolt in the crankshaft let go and when the forward piston came up on its next resolution, it tore out a large chunk of the cylinder wall and bent the crankshaft besides. And there she sat. There was no patching up damage like that at a local machine shop; a new cylinder had to

come from the factory, and it was duly ordered. In his dispatch that day, Davis wrote "Truly it is 'Frisco or bust,' but so far it has been mostly 'bust'."

The new cylinder was a long time coming, though. The Davises lived in Syracuse for better than a week waiting for it, and John would check every day with the express companies, only to be disappointed again. The car, laid up in a local garage, drew a constant stream of curious admirers, and the workers had to rope off that part of the shop where it stood. Finally the cylinder arrived, and it was found that the factory had neglected to drill and tap the hole for one of the valves, so that job had to be done locally, which took another six hours. Thus it was not until Saturday, July 29th, that the transcontinental journey could be resumed.

It appears that it was this week's hiatus in the trip which led the editors of the *New York Herald* and the *San Francisco Call* to reconsider their dedication to reporting its "progress." Their coverage was more a dreary catalog of mechanical ills than a travelogue of westerly-heading motoring, and this was certainly not the kind of thing which sold newspapers. For some time, the cartoons in the *Call* which illustrated the daily reports had been drawn in more of a humorous vein than a serious one, and for good reason: the whole venture was proving ludicrous, and with each passing day it became more of an embarrassment. And by reporting each breakdown in detail in major newspapers of wide circulation, the embarrassment was disseminated around the world. The *Call* ran a story datelined Paris, July 31, 1899, which started:



"The American colony here is constantly twitted by French automobilists on the grotesque picture of Mr. and Mrs. Davis crawling wearily from village to village in the Empire State, not conspicuous for bad roads.....French chauffeurs think some foreign friends would do better by telling what they have done than what they are going to do."

Nevertheless, the *Call* and the *Herald* continued their coverage, at least for a while longer.

The first day out of Syracuse netted Davis a mere 32 miles in two and a half hours. The new cylinder had yet to wear in, and the engine was back to overheating if pressed too hard. The following day, shortly after leaving Auburn, the "spindle" (presumably what we would now call the *stem*) of one of the inlet valves broke, and the car dragged into Phelps on one cylinder. A gas engine shop there advised that the valves were not sturdy enough anyway, so Davis allowed them to make and install stouter ones, which took the better part of the day. That day's run was 35 miles, ending at Newark, New York.

Rochester was to be the next day's destination, a mere thirty miles or so, but it was not easily accomplished. The nuts on the new valves kept loosening and falling off, until finally, in mid-afternoon, some means of securing them was devised. This worked fine until they hit Pittsford, just outside Rochester, where the new valve, nuts and all, snapped off and fell in the road. At Rochester, new intake valves with even heavier stems (5/16 inch in place of 1/4) were made and installed.

It was only a matter of seventy-five miles or so from Rochester to Buffalo, caertainly no more than one day's drive, but our intrepid transcontinentalists consumed two in doing it. More problems arose, but at least they were of a different sort. First, the gong broke. Davis needed it to warn teams and drivers of his approach so frequently that it fell apart, and he had to get it repaired at Churchville, sixteen miles out of Rochester. Then, not four miles down the road, the carriage slid off the road into the ditch and

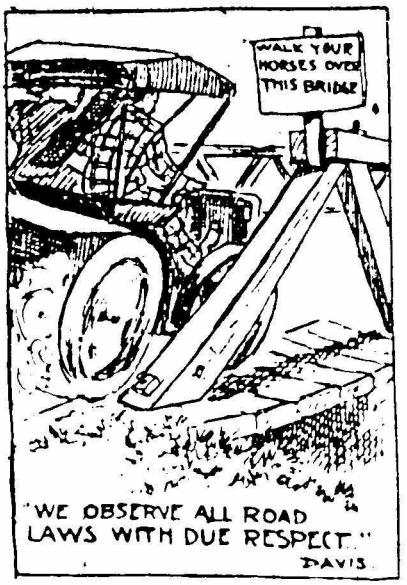
Before the trip began and in its early stages the cartoons in The Call *took the trip seriously, but it wasn't long before the drawings took a humorous turn.*

hit a culvert, which bent the front axle like a coat hanger, and the rest of the day was consumed at a blacksmith's shop getting it straightened.

But the following day, everything went right for a change, at least until the travellers reached the outskirts of Buffalo. The car chugged along at a rate of twelve miles an hour, not bad for the sandy ruts they had to use, but a storm was brewing, and the wind began to blow off Lake Erie, so Davis found himself driving into a head wind. Then, just two miles from Buffalo, the car suddenly quit running. Nothing had broken; it just stopped. Out of gas! The voluminous buggy top caught so much wind that it slowed the vehicle considerably, and gasoline consumption had increased dramatically. One of the reporters who had come to welcome the motorists took the train to town and sent back a quart of gasoline so Davis could get running again. By then his escort had arrived, and the transcontinental motor car made a triumphant entrance to Buffalo, amid a heavy rain and hail storm. Another reporter, riding on the tail board, slipped and broke it, but that was not hard to fix.

Buffalo, having been Davis's former home, was an intentional stop. The motorists attended the theater, and were wined and dined like proper dignitaries. A day was spent visiting friends and giving them rides, and sixteen and a half miles were thus added to the odometer. Davis noted in Buffalo that he had thus far travelled 486 1/2 miles in 49 hours running time, making his average speed while on the road something under ten miles per hour. Contrasted with Alexander Winton's performance a couple of months earlier (over seven hundred miles from Cleveland to New York at an average speed of fifteen miles per hour) it was not very good. It looked like the *Herald* and the *Call* had backed the wrong horse.

Davis was three days making the run from Buffalo to Cleveland, and the car continued to run well, although the going was not easy. Just out of Buffalo on Friday, Davis made a wrong turn and went fifteen miles out of the way. On Saturday, the roads were filled with horse-drawn rigs and bicycles heading for a ball game, and extra precautions had to be taken to avoid frightening the horses. During the night at Erie, Pennsylvania, the car was again tampered with, and had to be put back in order before they could continue. On Sunday, they made the best day's travel ever: 96 miles to Cleveland, where they arrived utterly exhausted. Here, new tires with flat treads were to be installed, some repairs were to be made to the works, and the Davises were to be given a rousing sendoff by the automobilists of Cleveland bright and early Tuesday morning.



THE END OF THE LINE

Whether or not that happened as planned went unreported. The *New York Herald* and the *San Francisco Call* pulled the plug on the story at this point. With no explanation whatever, the last report on the trip appeared in the *Call* on August seventh, and in the *Herald* the following day, and that was that. Even though the little car had run all right for several days, the trip was apparently much too slow and tedious to suit the newspapers' editors. The attempt to cross the continent by automobile was coming to be seen as ridiculous and even laughable, and the papers wanted no part of anything like that. Thus, the daily reports end at Cleveland, but some news about the trip was given in one or another of the automobile magazines, in *Scientific American*, and in the *New York Times* now and then.

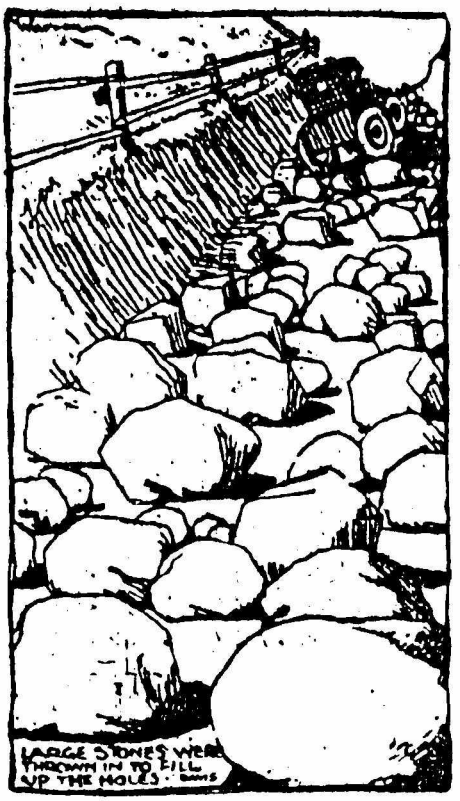
Elsewhere in the news, a report from New York datelined August fifth gave a more encouraging indication of what an automobile of 1899 could do. It was stated that Elwood Haynes and E.L. Apperson had landed there at four o'clock that afternoon, driving an automobile of their own manufacure in twenty days from Kokomo, Indiana, a matter of 1,050 miles. It was said to be the longest auto trip on record in the US. At the same time, Davis had been on the road for twenty four days, and had gone but six hundred miles, a very inferior performance. It's no wonder the newspapers gave up on him.

But Davis was not ready to give up yet. He did go on, but apparently with ever-increasing difficulty. The *New York Times* reported on August 20th that the Davises had left Toledo, Ohio, a couple of days earlier, only to have the rear axle break some distance west of town, necessitating the rig being brought back on a truck. It would appear that there had been plenty of trouble between Cleveland and Toledo, too. Those cities are only about 110 miles apart, and yet Davis was twelve days in making that distance.

As if that weren't enough, an attachment was issued against the vehicle at Toledo, as one of the parts suppliers in Stamford had not been paid for the parts he had furnished for the automobile. It seems the National Motor Carriage Company was in just as poor shape as its product. *Scientific American* for September 2nd, 1899 wraps it up neatly:

"The number of breakdowns which (the Davises) have had is stated to be 25, and the trip has been abandoned. It would have been interesting to see, if the carriage had ever reached San Francisco, how much of the original machine would be left. So far, the trip has been not a particularly good brief for the American motor carriage. The natural inference is that our carriages are too light for the rough service which is entailed and the badness of many of our roads."

But even this was not the end of it. Somehow, against all odds and without sponsorship, Davis slogged on, and *Horseless Age* could report on September 20th that the trip would resume at Toledo, and on October 18th that the motorists had arrived in Chicago "with the wreck of a machine." Even at that point, with winter approaching, Davis said he intended to press on toward Denver. Whether he did or not remains unclear, for that is the last known report on the attempt to cross the country by automobile in 1899. Thus it is not known just where, or when, or exactly why the trip ground to its



final, inglorious halt, but halt it did, and thus the place in American automotive history which John D. Davis expected was denied him.

There is something wonderfully quixotic in the story of John D. Davis and his unsuccessful transcontinental motor trip. That a man with so little experience in motoring should even attempt a 3,700 mile trip in an untested, unproven machine, accompanied only by his wife who knew even less about it than he did, must represent the height of romantic idealism of some sort. He certainly dreamed the impossible dream, and, further, he pursued that dream as relentlessly as possible, long after everyone else had given up on him, until he hit the inevitable bitter end. It is no wonder that he failed; the real wonder is that he tried so hard and so long against such odds. For that, John D. Davis deserves some place in American automobiling history as the first person to attempt a transcontinental motor trip, and this account is intended to accord him that.

EPILOGUE

The woeful failure of the transcontinental automobile trip of 1899 must have discouraged anyone from making a similar attempt for a while, for it appears that no one tried it the next year. However, in 1901 another such trip was announced, and it looked certain of success, for the automobilist was to be Alexander Winton himself, with Charles Shanks providing the publicity. With two successful runs from Cleveland to New York to his credit already, Winton certainly had the necessary experience, and he had his own tested, proven machines to boot. How could he miss?

Winton started from San Francisco on May 20th, 1901, and managed to drive across California, work his way up the pioneer trails crossing the Sierra Nevada, where the gold-seekers had swarmed in fifty-odd years before, cross the Donner Summit, and slip and slide down the rocky slopes past Donner Lake and on out to Reno, but the sandy desert of Nevada did him in. He could make no headway there, the sand and grit ruined the machine, and there was the constant fear of running out of water. By the first week in June, Winton and his car were on the train, headed east the easy way.

It may have been the knowledge of how Winton failed in 1901 which prompted Dr. H. Nelson Jackson to select a route avoiding the deserts of Nevada when he tried the same transcontinental trip two years later. It was not easy to angle northeast across California and southeastern Oregon and follow the old Oregon Trail east, but at least it was successful, and Jackson became the first to complete the coast-to-coast run by automobile. His story, and those of Fetch and Hammond, who likewise managed to cross the country by auto in the summer of 1903, are too well known to bear repeating here, but it does tend to put their achievements in perspective to study the earlier attempts which failed.

One wonders whether any of the successful transcontinental motorists of 1903 happened, in the course of their travels, to roll across the spot where the first attempt ground to its final pathetic end. Indeed, it's interesting to speculate whether someone making such a trip today might catch a fleeting glimpse of the ghosts of John D. Davis and the long-suffering Louise still patiently nursing the fragile wreckage of their 1899 National transcontinental touring cart ever westward, doomed like some weird automotive *Flying Dutchman* to head eternally for 'Frisco, never to get there.

Riley Nine: the Wonder Car

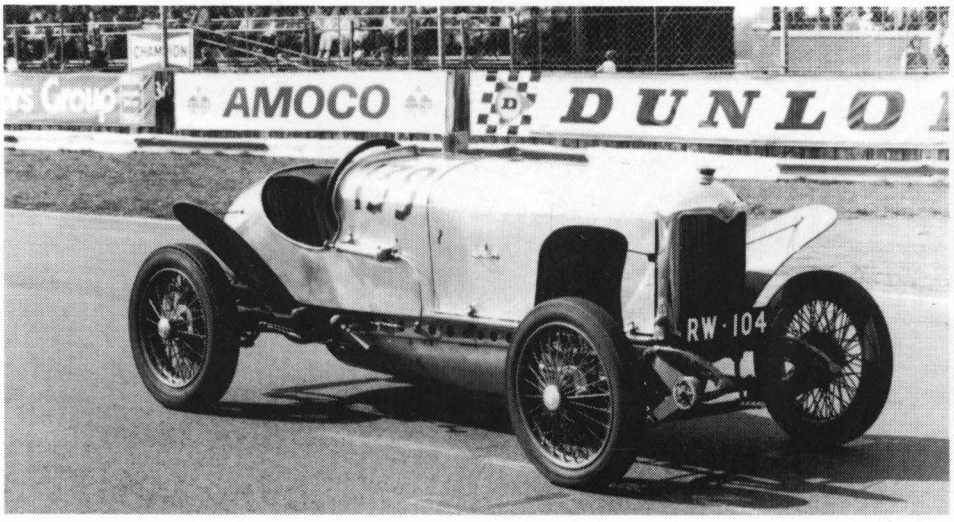
by David G. Styles

As the Great War of 1914-1918 was drawing to its close, thoughts at Riley (Coventry) Limited began to turn back to motor cars. When the Armistice was finally signed in November 1918, it was pretty clear that much preparation work lay ahead as Britain and the Allied Nations began to prepare for peace. It soon became quite apparent at Foleshill that it would be quite a while before the manufacture of motor cars could be resumed, and for some time yet there would only be four Riley brothers and their father (who was now approaching seventy years of age) to run the family company.

The two true engineers of the family, Percy and Stanley Riley, were kept busy tying up the loose ends of Ministry of Munitions contracts for almost another two years, so the time they were to have available for the design and development of motor cars was to be very limited, with the result that Harry Rush was recruited into the company. Rush, it will be remembered, was the designer of the Eleven series of cars, which were later to become the 11/40 series and then the Twelves - all four-cylinder side-valve engined cars of not especially futuristic, but certainly extremely reliable and high-quality, design. Indeed, these cars were to be the consolidation of Riley (Coventry) Limited's position - financial and charismatic - since the Company, having waged its war without a penny profit, was almost "on its uppers," having no resources for plant replacement and re-investment.

Harry Rush was given a pretty clear field to develop the side-valve Rileys, which meant that, as their commitment to military contracts diminished and as their brother, Cecil, returned to England (late in 1920), Percy and Stanley could combine their efforts to devise a new light car. The basic concept of this new machine was Stanley's, and much of the design experience he gained from the development of his pre-war ill-fated Nero Ten was incorporated into this new light car design. Basically, the chassis and running-gear were Stanley's design work, whilst Percy concentrated on the engine, gearbox, and driveline, including the differential of the new car, which was ultimately to be called the Riley Nine.

Before they could give their full attention to this new design, which was kept very quiet initially, Percy had to complete his design work on a series of Eleven-engined electricity generators which were being built for the War Department. That done, the two brothers worked tirelessly from the autumn of 1922 on their new car, which from the beginning was conceived to sell against the then-highly-successful small cars from the continent of Europe. Percy Riley was not so opposed to motor sport as is commonly believed today, and the sporting potential of this new light car innovation of theirs was far from lost upon him or his brother.



The prototype 11/40 short wheelbase sports side-valve Riley (1500 cc class), built in 1922-24 and still being raced. David Styles photo.

The proposal to manufacture this new light car in addition to the very successful and popular 11/40 Series was put to the Board of Riley (Coventry) Limited at the end of 1924, as far as can now be established with any degree of certainty, when the initial design drawings had been completed. It was laughed out of the place! Victor Riley, Managing Director of the Company, had sympathy with his two brothers, but found himself falling on the side of the dissenters (who were led by S. Gordon Marshall, then Sales and Publicity Manager of Riley (Coventry) Limited) when it came to deciding the fate of the new design. It was described as a toy, not in any way the kind of car which Riley should be building.

The new car wasn't actually written off by the Board - they simply told Stanley and Percy to go away and prove its potential, clearly believing that they would not. Fortunately, at this time the Riley Engine Company was still virtually under sole proprietorship of Percy, who had founded the company back in 1903. So he and Stanley decided to take their new brainchild off to the Aldbourne Road works, finish off the design work, and build it there.

The prototype crankcase and cylinder block design drew heavily upon Percy's experience from the pre-war 17/30 (as indeed did Harry Rush in his Eleven series), so the crankcase was separate from the cylinder block. The cylinder head clearly had to be separate from the block to accommodate the 45-degree valve gear. The now-famous - and much-copied - "PR" cylinder head had 1 5/16 inch diameter valves seated inside hemispherical combustion chambers. The crankshaft was a two-bearing design, machined all over, with 1 9/16 inch crankpins. Main support in the chassis for the engine came from the now-familiar (and patented - British Patent 270519 of 1926) cross-shaft, which was rigidly bolted to the chassis via cast mounting pedestals. The engine was located on the cross-shaft by rubber cones, which were mounted into seats cast into the outer walls of the cylinder block - one each side - and located by aluminum alloy cones which compressed the rubber into the seats with the aid of lock-nuts on the outer faces of the alloy cones.

The gearbox was also new, patented by Percy Riley in 1925 (British patent 257413)

as the now-also-famous (and equally much-copied) Silent Third design. Drive was transmitted from the gearbox, through a single universal joint at the connection between gearbox and torque-tube, to a fully-enclosed propeller shaft (as in Stanley's Nero Ten), thence to a newly-designed spiral-bevel differential.

Stanley's chassis featured channel-section longitudinal mainframe members, virtually parallel to the ground, except for the arch over the rear axle, under which were hung front and rear semi-elliptic springs and the axles. His brakes were of 10-inch internal diameter, with the pedal and hand-lever connected by rods to two cam-actuated shoes per drum. The brake-drums were integral with the 27 x 4.40 inch wire wheels, which were held in place by four stud mountings.

The novel coachwork was probably Stanley's greatest legacy to the world of automotive design, the concept of which is used to this day by all the world's major motor manufacturers. It came from an idea he sketched as a schoolboy and featured, for the first time, seating inside the wheelbase for all four occupants. The rear seats were mounted quite close to the front ones (allowing adequate knee-room) and footwells, which extended below the top of the chassis frame and under the front seats, in combination with wide rear doors, allowed the rear-seat passengers to enter and leave the car with ease - and, in the case of ladies, with modesty intact. Rear-seat comfort was comparable with many a larger - and far more expensive - vehicle, whilst the car was able to be endowed with a relatively low and sleek body-line.

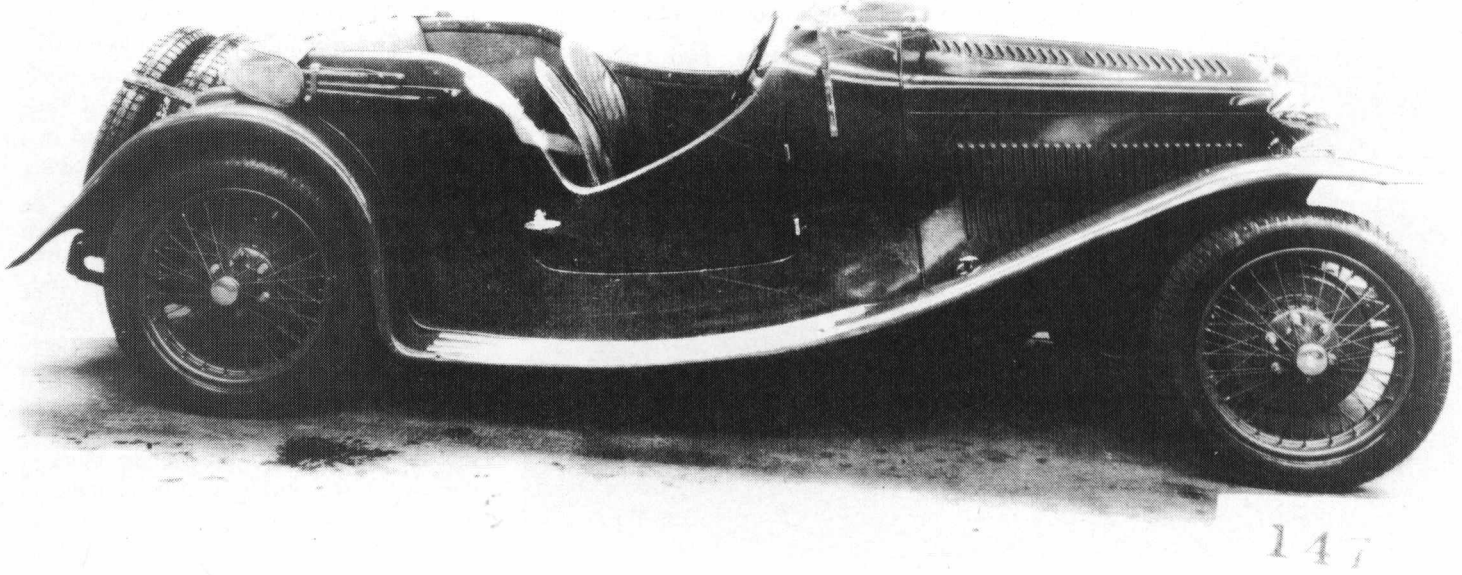
Once built, the new Nine had to be road-tested and, partly to avoid giving too much away to their opponents and partly to prove that the car really could take a beating under the most arduous of conditions, it was driven all over Ireland, western Wales, the Alps, France and Germany. Much of the continental mileage was driven by Cecil Riley, who was home from West Africa for a short break. The only modifications made after the testing were a reduction of compression ratio to make the car slightly more tractable and a center steady bearing in the torque tube to reduce whip in the propeller shaft. So it was proved that the little car, initially equipped with the crudest of tourer bodies, could match anything "Continental" in its capacity for punishment and in its performance. By now it was Spring 1926, and the two were almost ready for another "go" at the Board of Directors to put it into production. They had gained their brother Allan's support and he had made highly-confidential arrangements to build the prototype Monaco body at the Midland Motor Body works.

It is commonly believed that the first appearance of the Riley Nine was at the 1926 summer hill-climb meeting of the Midland Automobile Club at Shelsley Walsh, but a few months before that Stanley was invited to go to a Riley Motor Club rally at Cheddar, in Somerset. He decided to go only at the last minute, but when he looked for a car to take on that Saturday morning there was only the barely-finished Monaco prototype in the factory yard. It was a case of "Take the Nine or don't go!"

Quickly realizing that here was his chance to convince the rest of the board of this little car's merits, Stanley drove off gleefully from Coventry, knowing that he would incur the wrath of certain parties, but equally sure that the new car would attract the interest and curiosity it did. Parking the car in the spectator parking area, Stanley stood nonchalantly by while Riley dealers and club members first looked, then pounced upon, this new creation. Harold Goodwin, Riley's Birmingham main dealer, was furious to think that this new development had been kept secret from him for so long and was quick to tell Victor Riley so! Others also wanted to know why they hadn't been "let in on the secret." How could Stanley possibly tell them that the car had been treated with derision in the Coventry boardroom?

Now the car's future was just about sealed. Stanley and Percy had the firm support of their brothers Allan and Cecil, together with that of a number of Riley dealers. The time for settlement of the issue was now right. Hardly surprisingly, the next board meeting approved the full-scale development of the Nine for introduction in the 1927 Season, with just two coachwork designs heralding the new model - the Monaco Saloon and the Four-Seat Tourer. Needless to say, Gordon Marshall was livid, for not only had he been outflanked by Stanley and Percy Riley, but he had been embarrassed into consent for the new model by his dealers.

In that same board meeting, it was decided to make the new model's public debut at Shelsley Walsh for the M.A.C.'s July hill-climb meeting. The Riley Nine had arrived. It was an instant success - so much so



The 1933 Riley Nine March Special. Riley (Coventry) Ltd.

that within two years, the production facilities of the Riley Companies had to be reorganized to cope with the demand, which had far outstripped the capacity of the engine works at Aldbourne Road. As a result of the Nine's overwhelming reception in the market place, work on the then-new overhead-valve supercharged 11/50/65 was abandoned at the end of 1926. J.G. Parry-Thomas's interest in the new car was actively encouraged by the donation of a running chassis for his experimentation at about the same time, and the still-successful side-valve range of cars was withdrawn from production at the end of 1928. Not only had the Riley Nine arrived, it had swept all before it and became the mainstay of Riley production in just over a year.

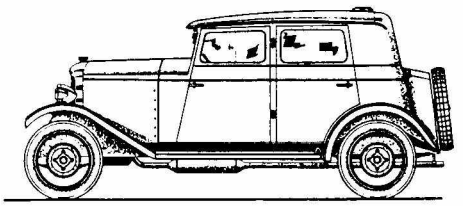
The press was ecstatic about this new machine. It was variously described as being "capable of out-performing many a car with an engine capacity of as much as three times that of the Riley.....Comfortable and spacious as many a luxury car costing far more.....Possessed of an amazingly quiet gearbox which also equips it with an outstanding performance for a 9 h.p. machine.....A little car with the heart of a lion." It was also almost universally acclaimed by the press as "The Wonder Car," an accolade of which Riley was quick to take advantage in its publicity.

From a little car which was shunned by all but those whose brainchild it was, the Riley Nine was to became one of the most successful cars of the pre-World War 2 era. From it came the Brooklands Nine and Riley's first international racing success, Dudley Froy's win of the 1931 German Grand Prix, followed the next year by Elsie Wisdom and Joan Richmond's outright victory in the Junior Car Club 1,000 Miles Race of 1932. Riley Nines secured eight class wins in the RAC Tourist Trophy Race at Ards, scored first on handicap and fourth overall in the 1933 Le Mans, won the Rudge-Whitworth Cup in the 1934 Le Mans, and excelled in many, many more events too numerous for these pages.

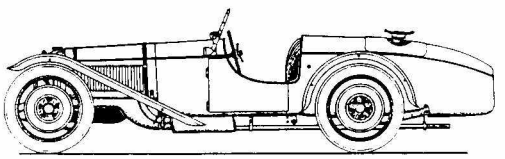
The Riley Nine was in production for eleven seasons, from 1927 to 1938, and for nine of those there was a Monaco in the range. Withdrawn for 1936, popular demand compelled Riley to put it back into the range for 1937, with a radically-changed, Adelphi-based, design which lacked the impact and luster of the earlier models. Riley Nines travelled far and wide, gaining world-wide fame in the process. Among the models produced were the initial two, plus the San Remo Saloon, the Colonial Tourer, the Biarritz, the Sports Four, the Two- Seater, the Ascot, Gamecock, March Special, Lincock, Kestrel, Falcon (two models), Merlin, Touring Saloon, the revived Monaco and the Victor. Sporting models included the Brooklands and the Imp, including the Racing, or Ulster, Imp, as well as many special body designs produced by a proliferation of coachbuilders at home and abroad.

The sad fact is, however, that the success of this magic little car was also to be Riley's downfall in the end, for none of the attempts to repeat its success were nearly as successful as the original. The result was a myriad of new design developments (from many of which Percy disassociated himself), including the 11/2-Liter (which was successful but no match for the sales volume achieved by the Nine), the 8-90 V-8, the Big Four and the ill-fated Autovia, which was actually Victor's folly but was built at Foleshill.

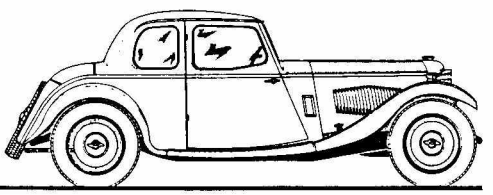
The Six was Percy's other major contribution to the Riley range. He was dedicated to the view that its development - along with a refinement of the Nine in a new small car - would have dispensed with the necessity to develop so many alternatives, which, in his opinion, were wasting research resources and diminishing Riley's influence in the market place at large. Regrettably, history proved him to be right, since the last-ditch attempt at revival hung heavily on the Victor Nine Saloon of the 1938 season. The Victor was, however, not victorious, and the Riley companies passed into the hands of



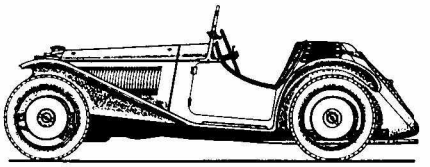
1926 Riley Nine Monaco Prototype



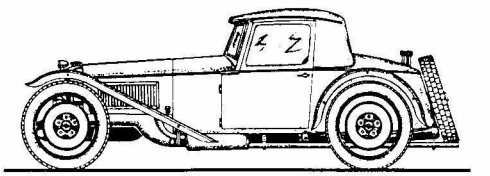
1928 Riley Nine Speed Model



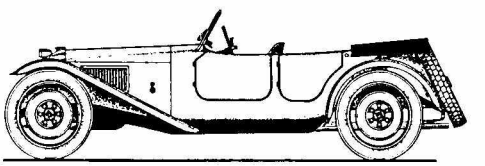
1934 Riley Nine Lincock Fixed-Head Coupe



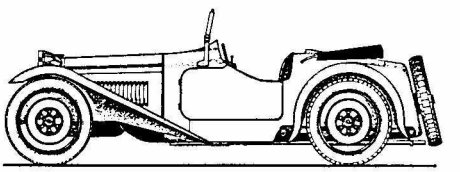
1934 Riley Nine Imp Sports Two-Seater



1928 Riley Nine Speed Model
Fixed-Head Coupe Prototype, WK 9622



1929 Riley Nine Speed Model Sports
Four Prototype, VC 1560



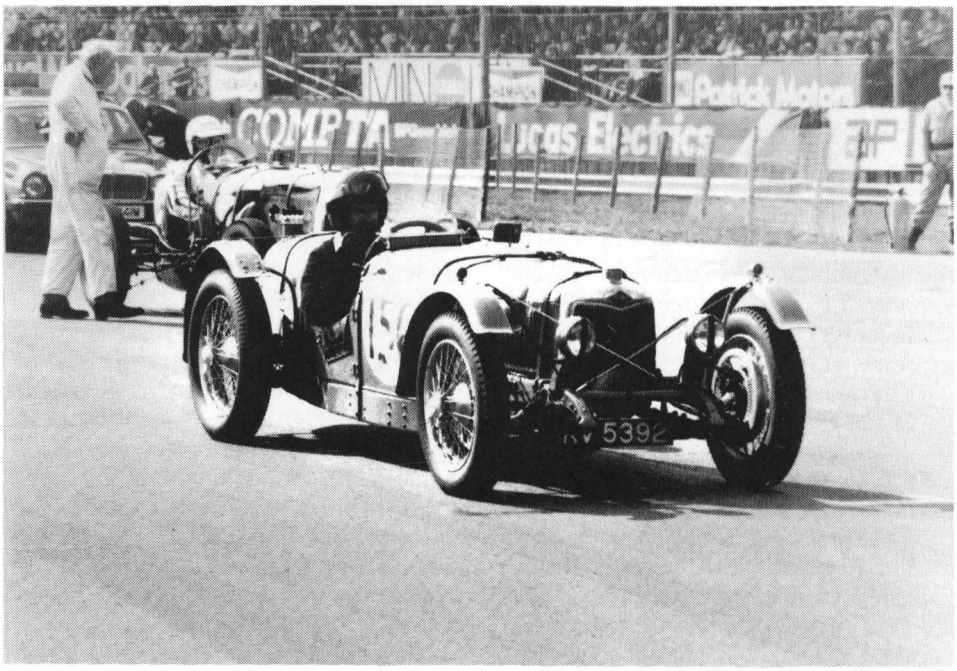
1931 Riley Nine Experimental Drophead
(Development model for Gamecock Nine)

Some Riley Nines which reached the production stage.....and some that did not. Drawings by David Styles.

Lord Nuffield at the end of that year.

Even though Riley (Coventry) Limited and its associated companies failed, Stanley and Percy Riley left a legacy which has lasted over sixty years, since cars are still being made with a wheel at each corner, incorporating Stanley's close-coupled seating with recessed footwells. Indeed, the wheel-at-each-corner approach has returned in strength with the modern fashion for five-door hatchbacks. The Silent-Third gearbox concept is still embodied in manual gearboxes and the 45-degree overhead valve gear, albeit operated these days by one or two overhead camshafts in many cases, is still incorporated into hemispherical combustion chambers with transverse gas flow across the head.

So, apart from design ideas which have remained past the Riley Nine's Diamond Jubilee, what else did this "Wonder Car" give to the world of motoring? First, a fine and comfortable small family car; second, a superb sports car with an inimitable record of success; and third, many cars of other names which may never have come into existence had it not been for the Riley Nine. Examples of these are the mighty and, in its time, almost invincible English Racing Automobile - E.R.A.; the successor to the E.R.A., Raymond Mays' British Racing Motors - B.R.M.; the late-1930s and post-war Lea-Francis, which was a crib of the Riley 11/2-Liter, leading up to Connaught racing cars; the fine post-war Healey range of sports and touring cars; and, finally, an engine design layout which lasted in production for thirty years, adapted into 2 1/2-liter form and ending with B.M.C.'s Riley Pathfinder Saloon.



The Brooklands Riley Nine was one of the factory team cars at Le Mans in 1933 and 1934. It won the Rudge-Whitworth Cup in 1934, and set the highest index of performance (1.4) ever. Rileys came in fourth overall in 1933 and second, third, fifth, sixth, eleventh, thirteenth, and fifteenth in 1934, taking the 1500 cc and 1100 cc classes as well. David Styles photo.

Over its eleven-year life, some 27,000 examples of the Nine were built. There were many imitators, but only one Riley Nine - only one "Wonder Car." As long as there are people who remember and cherish what is good from our long motoring heritage, the Riley Nine - and its legacy - will live on.

TYPE: RILEY NINE PROTOTYPE
YEAR: 1925-26

Chassis: Channel-section mainframe, arched over rear axle, with semi elliptic springs all round.

Wheelbase: 8' 10" Track: 3'11" Tires: 27 x 4.40

Wheels: 19" x 2.50" wire, four-stud mounting, with integral brake drums.

Engine: Riley Nine ohv four-cylinder (60 X 95), 1075 cc. The original engine bore/stroke arose from use of purely metric dimensions. These were later changed to Imperial dimensions (of 2.375" bore x 3.75" stroke) to suit machine shop requirements, resulting in new metric dimensions/conversions of 60.325 x 95.25, which produced an actual capacity of 1089cc (most commonly referred to, even in Riley catalogues, as 60.3 x 95.2 = 1087cc).

Driveline: Riley Silent-Third 4-speed + reverse gearbox to spiral bevel crown wheel and pinion in semi-floating banjo rear axle, via enclosed propeller shaft in torque tube.

TYPE: STANDARD WHEELBASE PRODUCTION MODELS
YEAR: 1926-35

Chassis: Channel-section mainframe, raised over front axle and arched over rear, with semi-elliptic springs all around.

Wheebase: 8' 10 1/2" Track: 3' 11 3/4" Tires: 27 x 4.40 (4.50 x 19)

Engine: Riley Nine ohv four-cylinder, 1089 cc.

Driveline: Riley Silent-Third 4-speed (20.37/13.13/7.67/5.25:1 Fwd + 20.37:1 Rev (to 1933 - also All-helical of same ratios in 1933 only), or All-helical 4-speed (20.86/13.5/8.06/5.5:1 Fwd + 19.36:1 Rev in 1934), or ENV preselector 4-speed (21.45/12.26/8.06/5.5:1 Fwd + 33.82:1 Rev to 1935) gearbox to spiral bevel crown wheel and pinion in semi-floating banjo rear axle, via enclosed propeller shaft in torque tube.

TYPE: STANDARD WHEELBASE PRODUCTION MODELS
YEAR: 1926-35

MODELS CATALOGUED:

FIRST SERIES: CHASSIS NUMBERS 600001-604293 (MKS I-III)

1926-7	Monaco Fabric Saloon:	£285	Four-Seat Fabric Tourer:	£235
1928	San Remo Saloon:	£265	Nine Sports Four Tourer:	£298
	Monaco Saloon:	£298	Fabric Two-Seater:	£265
	Fabric Four-Seater:	£265	Chassis only:	£200
	Colonial Chassis:	£210		
1929	Special Sports Four:	£298	Monaco Fabric Saloon:	£298
	Biarritz Saloon:	£325*	Two-Seater:	£265*
	Four-Seat Tourer:	£265*	(* = Sports engine £27 extra)	

SECOND SERIES: CHASSIS NUMBERS 604294-6011012

1930	Monaco Saloon:	£298	Biarritz Saloon:	£325
	Four-Seat Tourer:	£265	Coachbuilt Two-Seater:	£265
	Coachbuilt Tourer:	£298		

(Special Series engine available on all above at £27 extra)

THIRD - "PLUS" - SERIES: CHASSIS NUMBERS 6011013-6014999

1931	Monaco Saloon:	£298	Biarritz 2-Panel Saloon:	£325
	Fabric 4-Seat Tourer:	£298	Two-door Coupe:	£298
	Army Tourer**:	£310		

(**= Increased ground clearance to 11 1/2"; 5.25 x 21 tires)
All above models available with Special Series engine at £27 extra.
Sunshine Roof on Saloon Models optional extra at £7 10s.

FOURTH - "PLUS ULTRA" - SERIES: CHASSIS NUMBERS 6015000-6018999

1932	Monaco Fabric Saloon:	£298	Monaco 2-Panel Saloon:	£298
	Biarritz Saloon:	£325	Drophead Coupe:	£298
	Army Tourer**:	£310	Gamecock 2-Seater:	£298

(**= Increased ground clearance to 11 1/2"; 5.25 x 21 tires)
All models available with Special Series Engine at £27 extra,
Sunshine Roof on Saloon models optional extra at £7 10s

FIFTH SERIES (FROM OCT 1932): CHASSIS NUMBERS 6019000-6019799

SIXTH SERIES (JAN-OCT 1933): CHASSIS NUMBERS 6019800-6022600

1933	Monaco Coachbuilt Saloon:	£298	Lincock F/H Coupe:	£298
	Ascot D/H Coupe:	£298	Gamecock 2-Seater:	£298
	Lynx 2dr 4st Tourer:	£298	Falcon 4-Door Saloon:	£315
	Kestrel Saloon:	£308	Trinity 2/4-Seat Coupe:	£325
	March Special 2/4 St Sports (Spl Series Engine included):			£335

Special Series Engine extra at £27 (standard on March Special)

SEVENTH SERIES (FROM OCT 1933): CHASSIS NUMBERS 6022601-6027000

1934	Monaco Saloon:	£298	Falcon Spl Srs Saloon:	£325
	Lincock F/H Coupe:	£298	Kestrel Spl Srs Saloon:	£325
	Ascot D/H Coupe:	£298	Lynx 4dr 4st Tourer:	£298

Special Series Engine £17 extra (standard on Falcon/Kestrel)
ENV "Preselectagear" optional extra at £27

TYPE: 66, 67 AND 68 SERIES MODELS
YEAR: 1936-38

Chassis: Channel-section boxed and drilled mainframe, raised over front axle and arched over rear, with five crossmembers & cable bracing. Semi-elliptic springs all round.

Wheelbase: 8' 10" Track: 3'11 3/4" Tires: 4.50" x 19".

Engine: Riley Nine ohv four-cylinder, 1089 cc.

Driveline: Either Armstrong-Siddeley 4-speed preselector: 66K Model = 20.09/11.64/7.84/5.5:1 Fwd + 25.19:1 Rev. 66M/67M & 67C Models = 23.46/13.35/8.69/5.75:1 Fwd + 31.5:1 Rev. S67Z Model = 22.4/12.79/8.32/5.5:1 Fwd + 27.40:1 Rev.68V Model = 18.79/10.91/7.39/6.75:1 Fwd + 23.33:1 Rev. Or Borg-Warner 3-Speed Dual Overdrive Gearbox: S67CX/S67ZX Models = Direct 17.35/10.46/6.75:1 Fwd + 22.5:1 Rev. Overdrive 2nd/Top 7.55/4.87:1

MODELS CATALOGUED:

1936 SERIES - PREFIXED "66": CHASSIS NUMBERS 101-2200

S66K Kestrel Spl Srs Saloon:	£295 -	66M Merlin Std Srs Saloon:	£269

1937 SERIES - PREFIXED "67": CHASSIS NUMBERS 2201-3399

67M Merlin Std Srs Saloon:	£275 -	S67M Merlin Spl Srs Saloon:	£285
S67C Spl Srs Trg Saloon psg:	£290 -	S67CX Trg Saloon o/drive g/b:	£290
S67Z Monaco Spl Srs Saloon:	£298 -	S67ZX Monaco Spl Srs o/drive:	£298

1938 SERIES - PREFIXED "68": CHASSIS NUMBERS FROM 3400
68V Victor Saloon: £290

SPORTING RILEY NINES:
TYPE: 9 HP SPEED MODEL (Brooklands)
YEAR: 1928-32

Chassis: Channel-section mainframe, raised over front axle and underslung at rear; semi-elliptic springs all around.

Wheelbase: 8' 10" Track: 3' 11" Tires: 27 x 4.40 (4.50 x 19)

Engine: Riley Nine ohv four-cylinder, 1089 cc.

Driveline: Close-ratio Riley Silent-Third 4-speed + reverse gearbox to spiral bevel crown wheel and pinion in semi-floating banjo rear axle, via enclosed propeller shaft in torque tube. Standard gear ratios = 11.78/7.155/5.96/4.77:1 Fwd; 18.50:1 Rev.

MODELS CATALOGUED:

CHASSIS NUMBERS 60/1-60/24(?) AND 8001-8093

1928	9 hp Speed Model:	£395
1929-31	Brooklands 9 Speed Model:	£420
1932	Brooklands 9 Speed Model:	£420 (Standard Model)
	Brooklands 9 Speed Model:	£475 (Plus Series)

TYPE: IMP NINE SPORTS
YEAR: 1933-35

Chassis: Channel-section mainframe, raised over front axle and underslung at rear, with semi-elliptic springs all around.

Wheelbase: 7' 6" Track: 3' 11 3/4" Tires: 4.50 x 19

Engine: Riley Nine ohv four-cylinder, 1089 cc.

Driveline: Riley Silent-Third 4-speed gearbox, with standard ratios of 20.37/13.13/7.67/5.25:1 Fwd + 20.32:1 Rev, or ENV preselector gearbox with ratios of 20.47/12.66/7.67/5.25:1 Fwd + 20.47:1 Rev. Racing (Ulster) Imp fitted with 11.78/7.155/5.96/4.77:1 Fwd + 18.51:1 Rev. Drive to spiral bevel crown wheel and pinion in semi-floating banjo rear axle, via enclosed propeller shaft in torque tube.

MODELS CATALOGUED: CHASSIS NUMBERS ISSUED BETWEEN 6022601 AND 6027900

1933	Imp 9 2/4 seater (not produced for sale)	
1934-35	Imp 9 Two-seater:	£298
	Ulster Imp Racing Two-Seater:	£450

Preselectagear option on '34 Imp - £27; Scintilla Magneto option £10

The 1934 Fageol Modular Auto: Too Little Too Soon?

by J.H. Valentine

MoToR magazine of July 1936 contains two very interesting paragraphs on page 99. The first describes a new type of body design and assembly technique proposed by Frank Fageol using no chassis frame. Dual body shells were to be used, with the inner one spaced a half inch from the outer, spot-welded together using suitable flanges. Frank and his brother Bill were at that time producing their Twin Coach transit buses in Ohio, which were also chassis-less or unitized.

The next paragraph tells how "A little over two years ago, largely as a hobby, Frank Fageol and his brother built a small chassis-less automobile with the engine mounted in the rear. The body was built along the lines described and when finished 'we hammered it over a lot of rough roads. Its absolute freedom from vibration, squeaks and groans has been a real joy.' The Fageols built their first chassis-less bus nine years ago."

Variations of this vehicle and its construction are covered by a United States patent, number 2,128,930, UNIT SECTION OF AUTOMOBILE VEHICLE, applied for on May 18, 1934 and granted on September 6, 1938.

The Fageols and their Twin Coach Company were concerned with imaginative vehicles best suited to the needs of the business and transportation sectors. Frank presented his new Taxi Coach in 1931, a low-floor vehicle not unlike today's minibuses. The June 1931 issue of *Automobile Trade Journal* said it weighed practically the same as a passenger auto, and had similar performance from its front-mounted 100 horsepower Hercules engine. Presumably, unit body construction had been used. The concept was perhaps fifty years too early, as no orders poured in.

The prototype auto the brothers were road testing three years later seems to have been intended for fleet use by the business community. The Fageol patent tells us the primary object was "to provide a novel vehicle of light weight and relatively small bulk having ample space for accommodating passengers or merchandise and which is inexpensive to manufacture.....having a separate body, providing roomy and comfortable space for accommodation of a driver and passengers or merchandise, which is constructed as a complete unit adapted to be supported between detachable individual units, each comprising an axle and road wheels and each readily removable for repair and servicing and adapted for replacement by similar units.....thereby providing a vehicle especially adapted for low cost rental taxicab and individual transportation purposes."

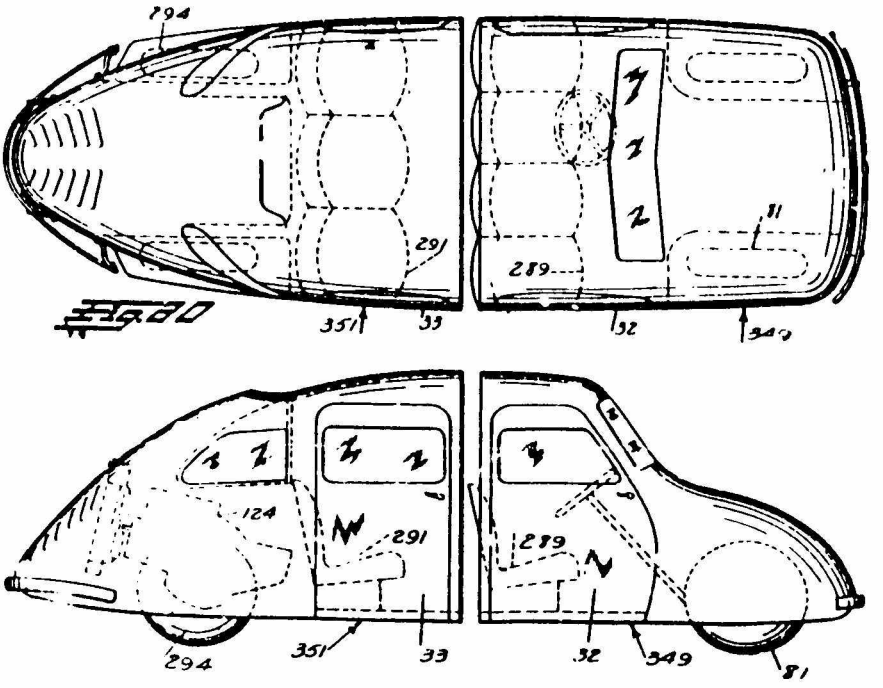
The text also tells us "Where a number of vehicles of our invention are operated as a fleet.....A single vehicle may be made to serve as a passenger or a commercial car by providing a separate unit fitted for the carriage of merchandise, in packages or in bulk. The freight carrying unit would be available for interchange with the passenger carrying unit and, therefore, an all purpose vehicle would be provided involving a relatively small initial investment."

The brothers' patent secured their claim of "A sectional automobile comprising a complete self-contained front end unit including wheels, springs, steering mechanism and a framework of substantially the length of the assembled unit; a complete self-contained rear end unit comprising wheels, springs, a compartment and a framework of substantially the length of the assembled rear unit; and a body preassembled and finished as an entity and designed to serve as the sole interconnection between the front and rear end units, said body having a framework provided at its front and rear ends with means for detachable connection with said frameworks of the front and rear end units respectively." The patent disclosure contains figures showing two basic auto styles. Both are rear-engined four-door sedans with rear-hinged passenger doors and a short, low, sloped nose section.

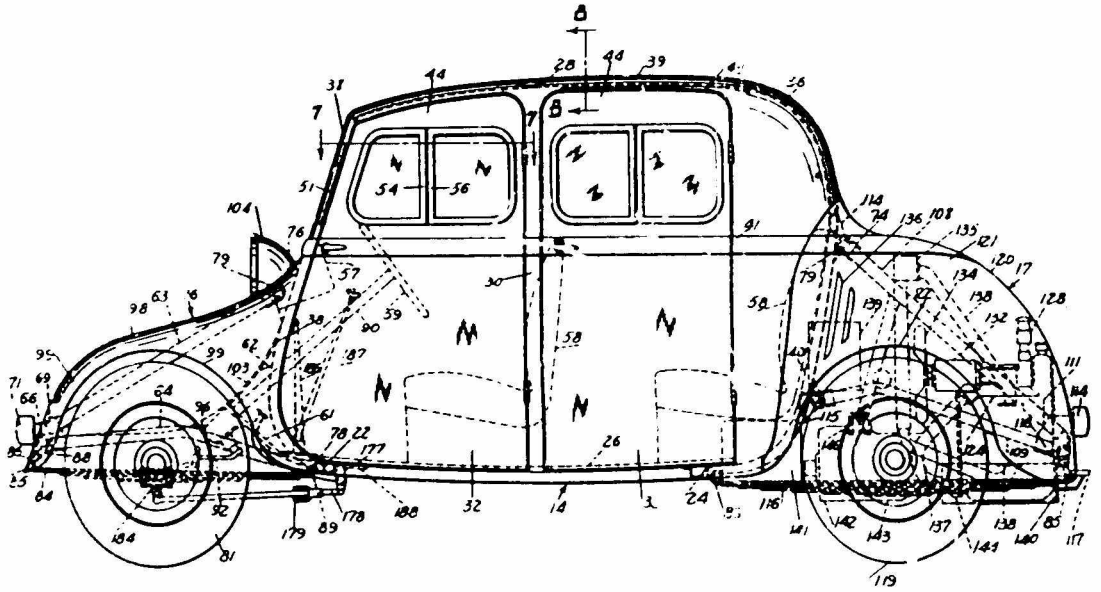
The first figure shows a low, full-width passenger body of double-wall construction. The flat windshield is inclined at twenty degrees. The doors are cut into the curve of the roof to aid entry. Framed, two-section sliding windows are located in each door.

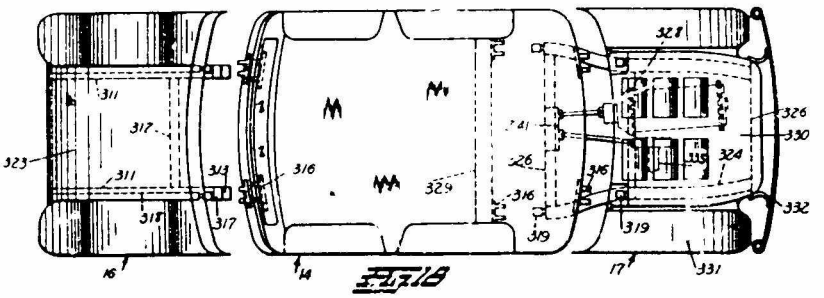
Headlights are carried just below the windshield. The one-piece trunk covers the wheels as well. Longitudinal leaf springs mount above the dropped solid front axle, with their rear ends anchored on the body unit.

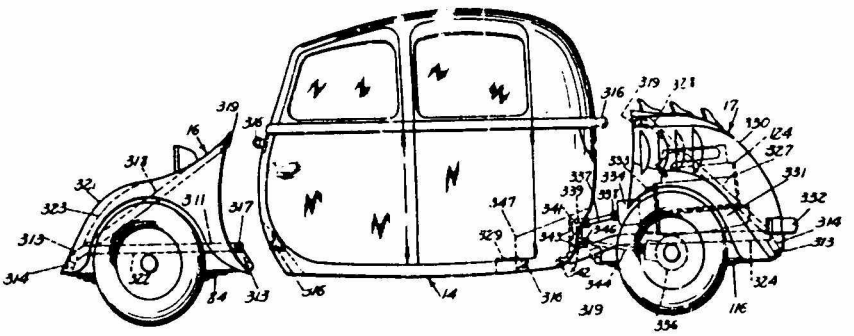
The rear unit is shown with the engine behind the rear wheels, mounted very low,



The second, more streamlined design for the modular auto, from Fageol's patent disclosure. Note the passenger seating outboard of the driver.







with the radiator forward. The engine shown has a flat opposed layout, with cooling air entering through louvers forward of the radiator position. The outside sheet metal serves as both hood and rear fenders.

The transmission is positioned forward of the differential. A framework bearing these items is supported by the rear longitudinal leaf springs, whose front ends are anchored on the body unit. Universal joints are shown at each end of the short axles which connect the differential to the driving wheels.

An alternate rear module arrangement has the engine facing rearward, inclined upward at twenty degrees, with the radiator behind, using an angle-drive transmission mounted forward of the differential. A compact transmission and clutch assembly is detailed, utilizing a bevel-gear arrangement.

A variation on this design has separate fenders, with the resulting narrower rear hood and trunk. An alternative engine drive uses shafts and a spur-geared housing to redirect power to a transmission positioned beside the offset engine.

Two more complex transmission variants have straight or angle-drive gears, combining transmission and clutch in a compact arrangement more closely attached to the engine.

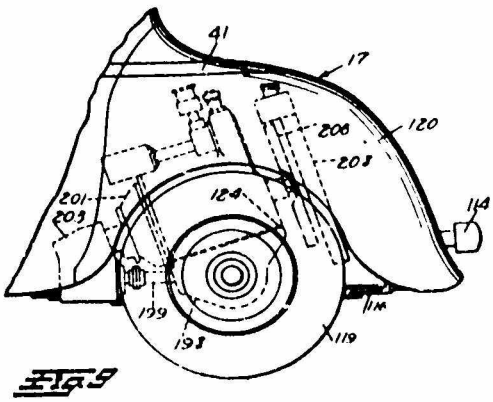
The second design is streamlined rather than bustle-backed. The smooth body lines would preclude any easy modular disassembly. Wheel positions are fully enclosed. An air scoop at the rear of the roofline is used, which precludes a center rear window. Side windows behind the rear doors curve back to aid rearward vision. The plan view shows four cushions in the front seat position, with the steering wheel in front of the second from left. Thus, one passenger would sit outboard of the driver. The rear seat has three wider cushions.

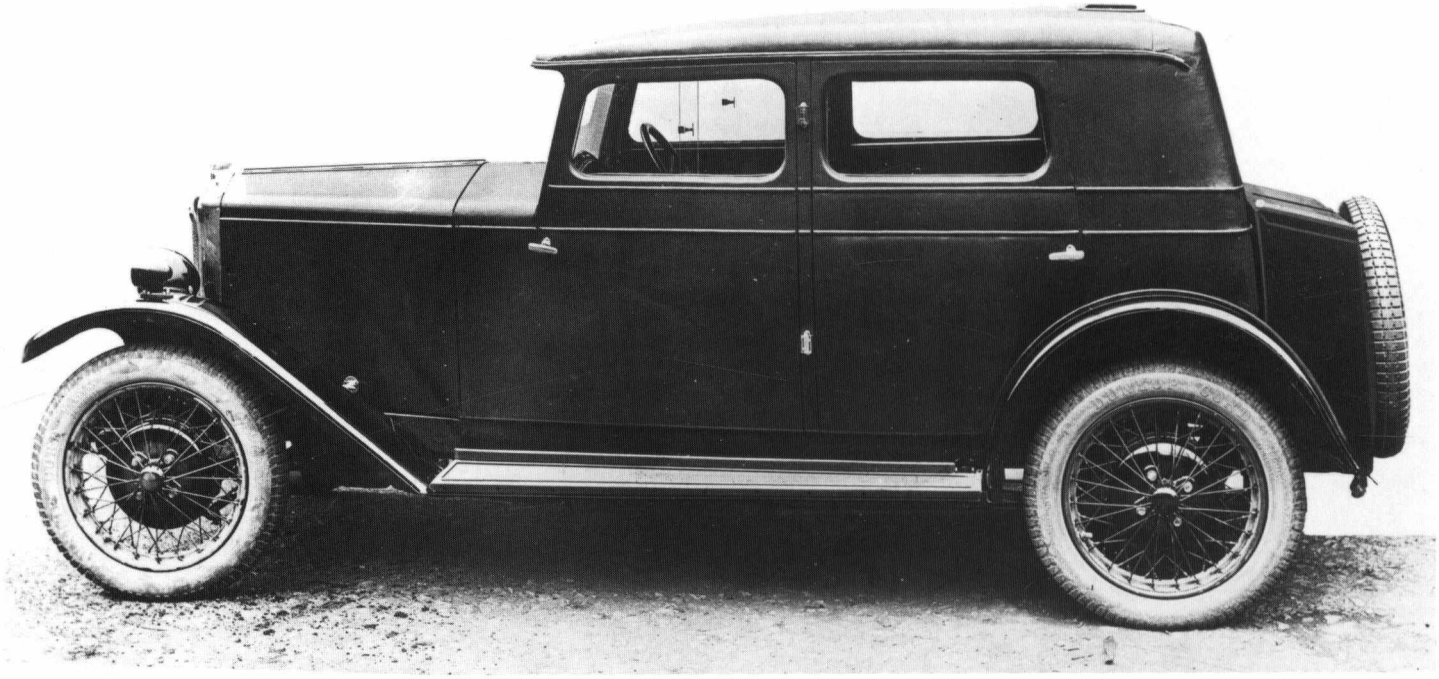
The brothers felt "The configuration of the body insures minimum air resistance when the vehicle is traveling at high speeds and the distribution of the weight of the power plant and the associated drive mechanism is such as to enable the vehicle to travel at high speeds in perfect safety."

In a variation on the streamlined design, provision was made for modular construction, by combining the front module with the front passenger area. The auto was thus split between the doors, with the rear seat and power module combined, replaceable with a power and load-carrying unit for alternative usage by a fleet owner.

It seems most likely that the first, bustle-backed style was the one built. Those who have seen photographs of the auto report that it has the cross-opposed rear engine layout. Perhaps more information will come to light, including the name assigned to the vehicle. One can speculate, in the style of Twin Coach, that it might have been "Tiny Coach" or "Twin Cab" or....?

Above, the three-module "first" design of the Fageol auto. Below, alternate engine placement uses angle drive to axle.





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