

VOL. 2 | NO. 5 | WINTER 2022

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RARE & UNIQUE VEHICLES

SPECIAL THEME: SPEED



Abarth Record Cars

Streamlined Scorpions

First Races and Sporting Events with Electric Vehicles

Speed With Volt and Watt

Métallurgique-Maybach

Edwardian Monster

Paris-Madrid, 1903

The Last Town Race

Delahaye Type 175 in Racing

Final Attempt for Success



AVC

AUTO VETERAN COMPANY

WE WOULD LIKE TO PRESENT YOU THIS UNIQUE OPPORTUNITY TO TRADE IN THESE TWO VERY IMPORTANT RACING DELAHAYES AGAINST ONE SERIOUS PREWAR RACING CAR.



1950 DELAHAYE 175S BY MOTTO & 1952 DELAHAYE 235 BY ANTEM

"1951 Rallye Monte-Carlo Winner"

"1953 Rallye Monte-Carlo Dunlop team car"

1950 Delahaye 175s by Motto (No. 277)

This top-of-the-line Delahaye 175S built-to-order in 1950 for well-known racing driver and legend of the Rallye Monte-Carlo, Jean Trevoux. Mr. Trevoux decided to enter 1951 Rallye Monte-Carlo with the highest ambitions. He sent this very expensive custom-made chassis of Delahaye 175s to Carrozzeria Motto in Torino to be fitted

with a light and stylish aluminium coupé body. Chassis #815042, fitted with ex Le Mans racing engine supplied by Delahaye factory was ready at the end of 1950 in just few months. Jean Trevoux and Roger Crovetto entered the 1951 Rallye Monte-Carlo with number 277 with huge success, securing the overall victory at this major event. Later

in 1951, this Delahaye was shipped to Mexico to participate at II Carrera Panamericana with Louis Chiron behind the wheel. Now, we present this distinctly important racing car in beautiful, original and ready-to-be-raced condition. It comes with comprehensive dossier, known history and many period pictures.



1952 Delahaye 235 by Antem (No. 350)

In the early 1950s, Dunlop was developing a new type of tyre to be tested on the challenging conditions of Rallye Monte-Carlo. An experienced crew of Roger Crovetto and Julio Quinlin were chosen for this purpose and for the car, they chose the high-performing Delahaye 235

with coupé body designed by P. Charboneux. Unknown to have survived, this Delahaye chassis number #818036 after its adventure at Rallye Monte-Carlo was sold to USA. American inventor and sculptor Mr. La Haye (known for inventing parts used widely in the aerospace industry) owned

this car his whole life keeping it in original, unrestored and good running condition. Today, with only 2 owners since new, this Delahaye 235 is on the market after 60 years of single ownership and it comes with comprehensive dossier and especially nice period pictures.



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Dear Readers,

OVER THE PAST FEW MONTHS there have been signs that the classic-vehicle scene is returning to normalcy. As fairs, rallies, shows, and Concours are being held again, we have distributed Rare & Unique Vehicles at the Pebble Beach Concours, Chattanooga Motorcar Festival, and Greenwich Concours in the USA. On December 3–5, Rare & Unique Vehicles has been invited to the Retro Classics Bavaria exhibition in Nürnberg, Germany. A week later we will be part of the prewarcar.com stand at the Prewardays show in Waregem, Belgium.

This issue's theme is **"SPEED"**. We have articles about significant racing cars and engines, motorcycles, and people whose lives centered around speed: Camille Jenatzy, the first person to cross the 100-km/h threshold with his electric La Jamais Contente; Norman "Wizard" Smith, the first Australian to chase the Land Speed Record with his Enterprise; and Eric Fernihough, who gave his life during a record attempt with his Brough Superior, all embody this concept.

We are also privileged to show you two world exclusives. Rare & Unique Vehicles is the first magazine to view a new restoration of a one-off sports car built by students at the Meisterschule Kaiserslautern in 1967–1968. We were invited to a majestic collection of more than 300 prewar motorcycles, and from that collection we are introducing a racing Brough Superior to complement our story on Eric Fernihough.

We also feature an article on the life and works of Carlo Demand, a prolific and talented artist whose graphics communicate the feel of speed in racing. You may also notice our new layout, thanks to Nicole Krohn who previously worked on the design of other classic car magazines.

Our purpose in our magazine is simple: to present the widest variety of rare and unique vehicles from around the world, in detailed articles by knowledgeable specialists, historians, collectors, and enthusiasts. We are committed to historical accuracy.

As you page through issue no. 5, notice that there are very few advertisements, as we want to present the most content possible in our pages. However, for this reason, we need your help. Rare & Unique Vehicles is supported by subscriptions, and if you enjoy what we offer, please subscribe today. Thank you for your support.

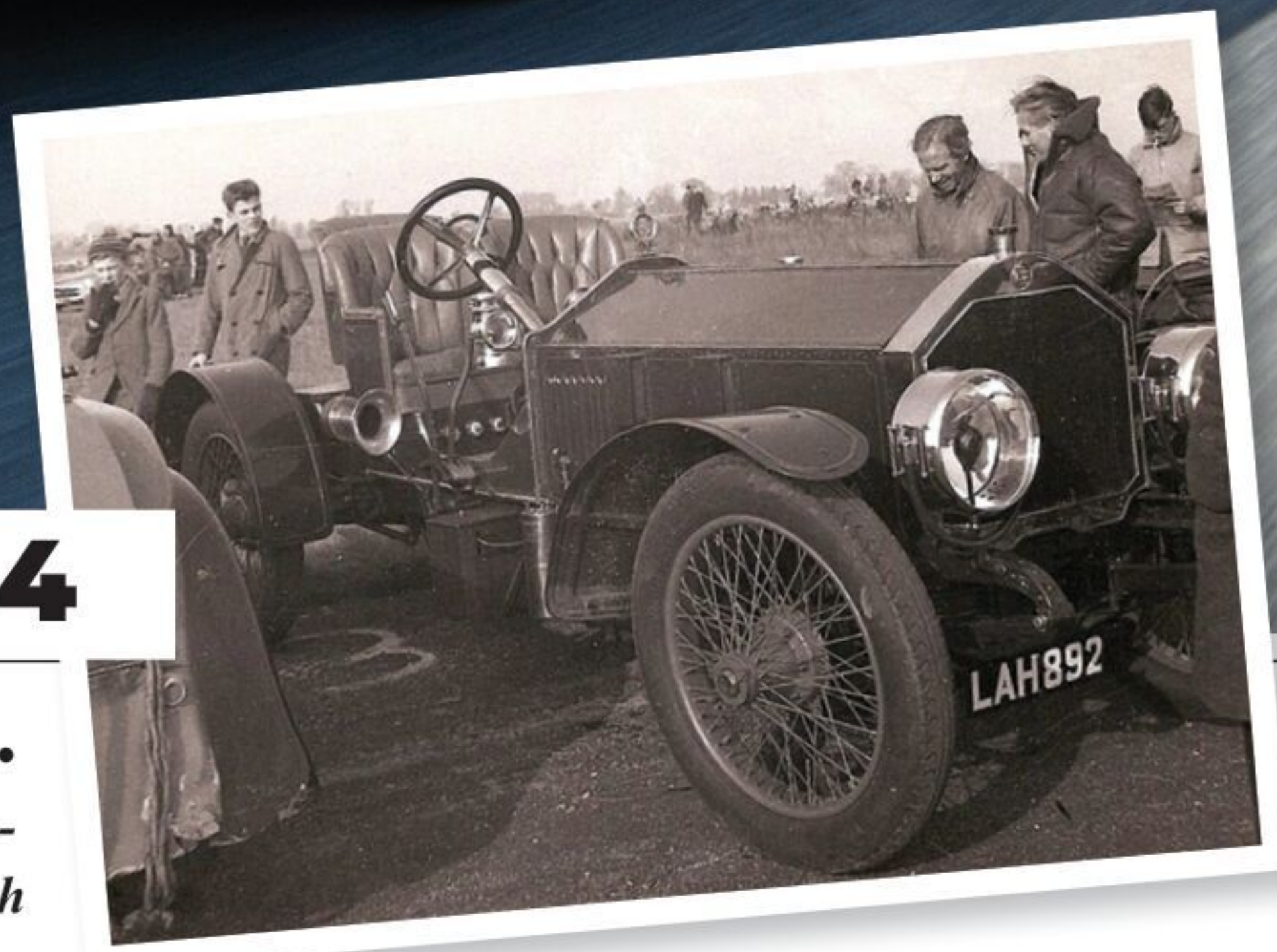
Dr. Pál Négyesi

EDITOR AND PUBLISHER



Racing Bugs • Abarth Record Cars

Tender Titan • Metallurgique-Maybach



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SPEED

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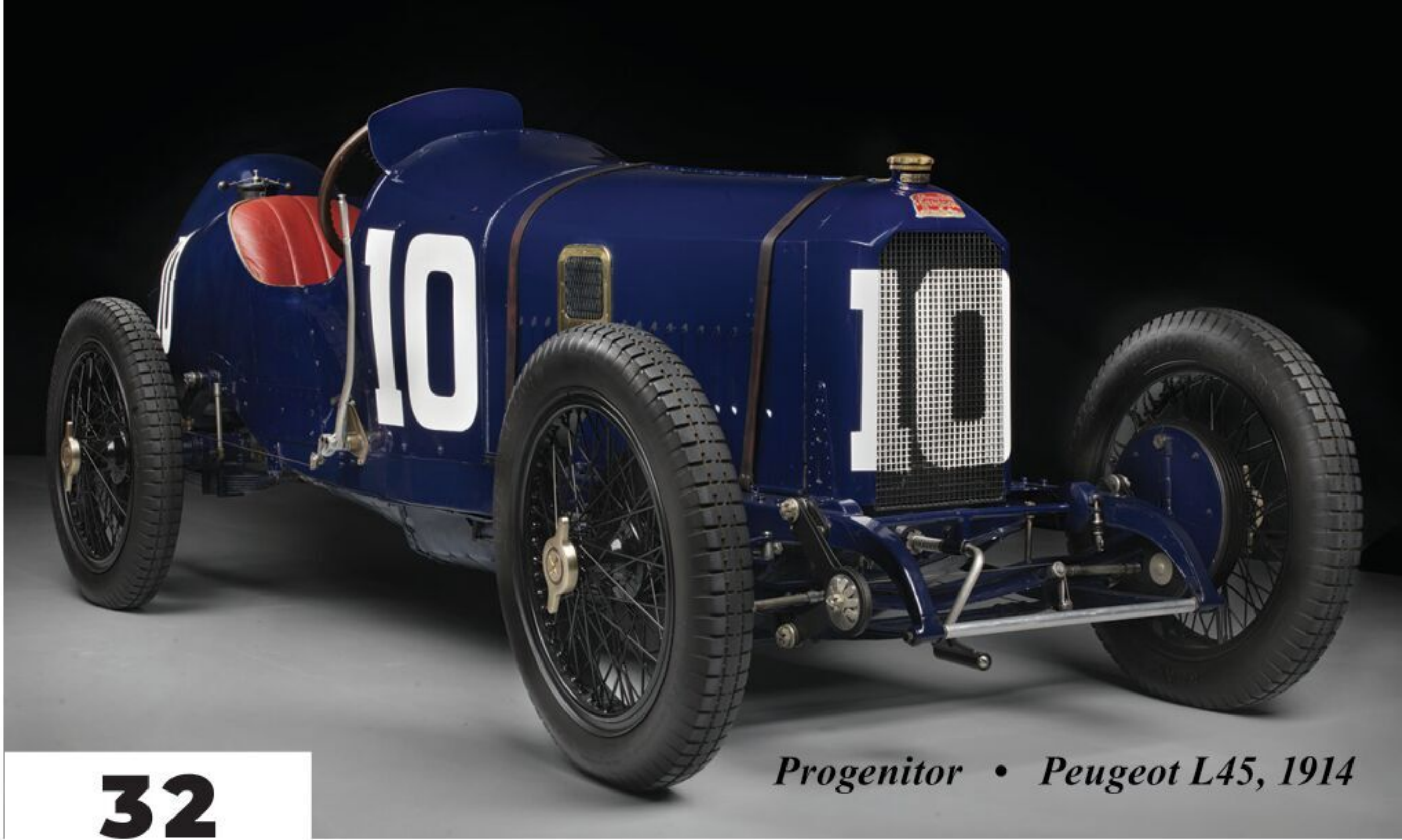
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NEW AUTOMOBILE MUSEUM OPENS IN UKRAINE

A local collector has opened a new museum in the Ukrainian city of Dnipro on the site of a former new-car dealership. The exhibition currently includes 26 cars, mostly American and European classics such as Jaguar XK120, Triumph TR4, Mercedes 190SL, etc.



UNDISCOVERED CLASSICS SNARES RARE PORSCHE PYTHON

Back in the 1950s and '60s, individuals and small companies designed, built, and sold sports cars in limited volume across the USA. What most don't realize is that this same phenomenon was happening in Canada too. Fergus Dudley Barnaby, D.C. built and sold 12 Python sports cars over the years. As of today, just four of these cars have been found. Excitingly, the most powerful of these cars, the "Porsche Python," has now been acquired by Geoff Hacker of Undiscovered Classics.



OFFICINA 942 RELEASES NEW MODELS

Officina942, run by Rare & Unique Vehicles supporter Alessandro Sannia, has released four new die-cast models in its 1:76 scale "1000 series." These are: Lancia Ardea, Fiat 2800, Fiat 615 Autocarro, and Fiat 615 Furgone. You can find more details at <https://www.officina942.it>



FORD ELECTRIFIES CLASSIC F-100 TRUCK

Ford used a 1978 F-100 truck to demonstrate the capabilities of its new Eluminator electric crate motor kit, which is now available at U.S. dealers. The drivetrain is shared with the 2021 Mustang Mach-E GT Performance Edition, meaning all-wheel drive with the help of traction motors, 480 hp of power, and 634 lb-ft (859 Nm) of torque.

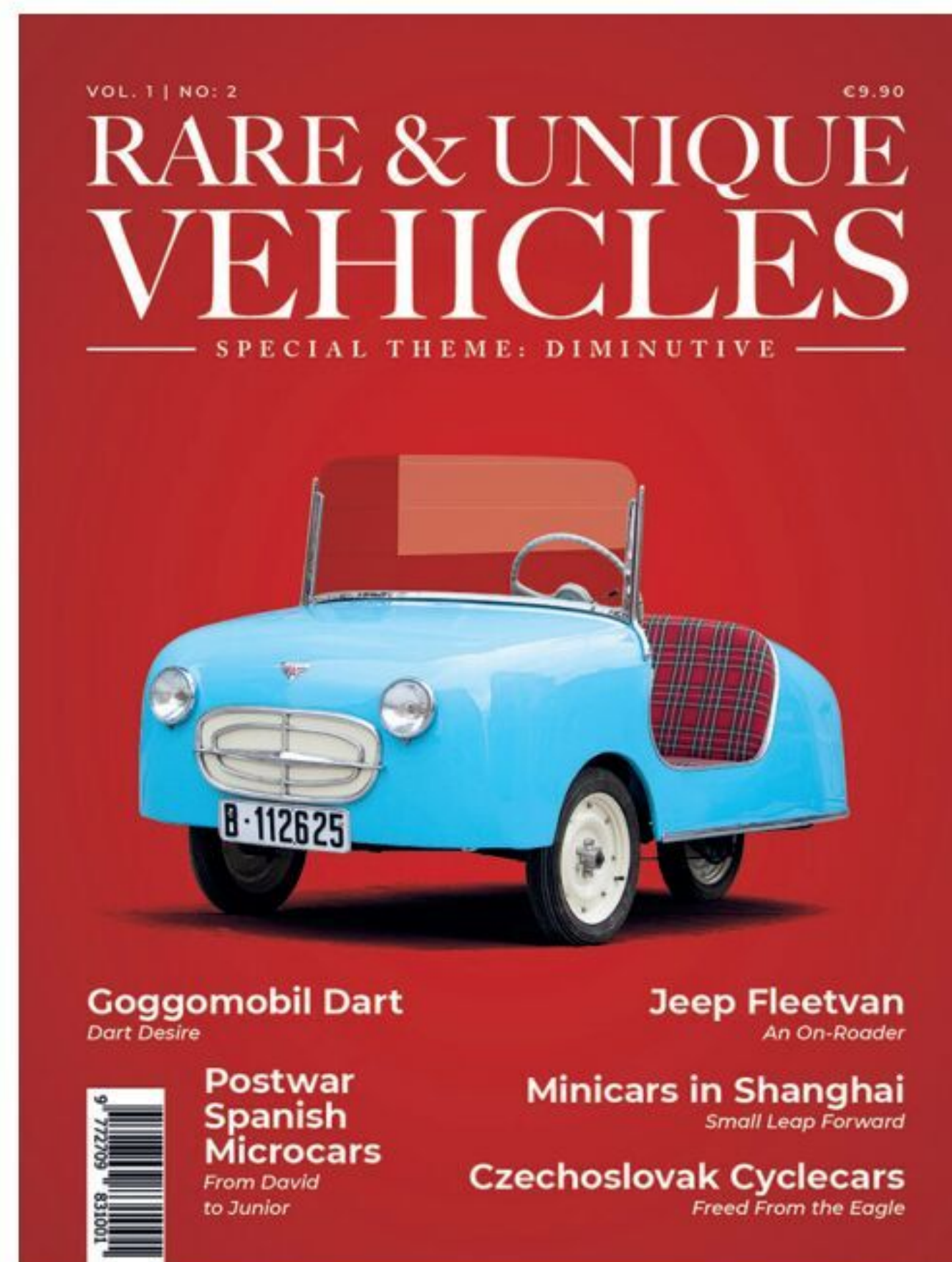
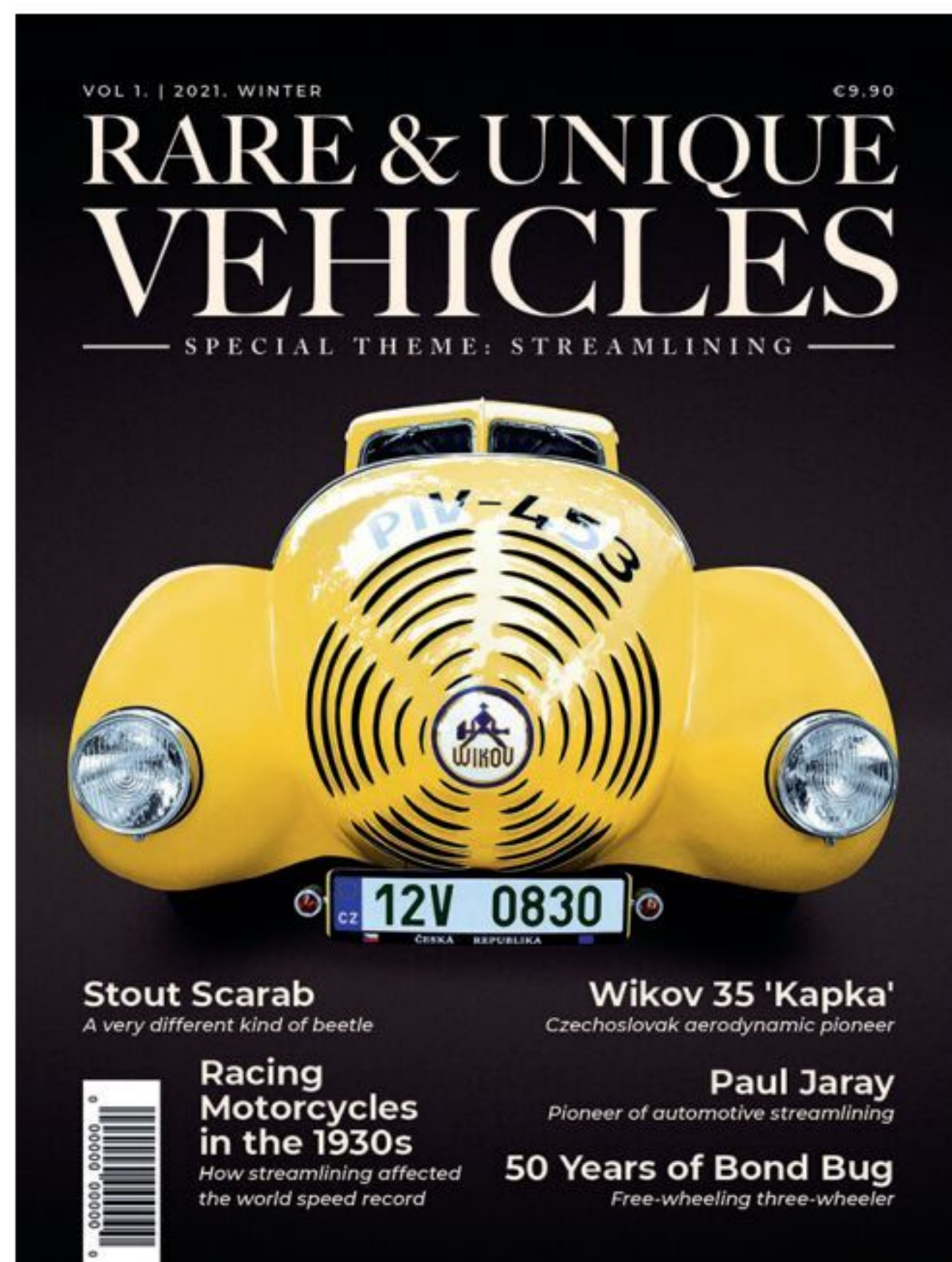
TOYOTA AUTOMOBILE MUSEUM ADDS HONDA NSX

While the Toyota Automobile Museum naturally focuses on the Japanese manufacturer's history, it tilts towards a more general educational role with a themed section featuring major milestones in the history of motoring. Therefore it should come as no surprise that the museum now displays a Honda NSX, one of the most important Japanese sports cars.



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Rare & Unique Vehicles is dedicated to quality, well researched articles from internationally renowned authors and historians. We made a choice to have few ads to allow us to provide the maximum content in each issue. We therefore rely upon your subscriptions to maintain the financial stability of the magazine.



Here is a link to our subscription page:
<https://rareandunique.media/subscriptions/>

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(four quarterly issues) is only

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Purchase separately,
an individual issue beginning with No5 is

€12.90 (\$15.20).

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SHIPPING IS ADDITIONAL.

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Thank you*



Venturi
THE ADVENTURE OF
CREATING A MARQUE

Creating a sports car: That was the vision of Gérard Godfroy and Claude Poiraud. Fortunately, they also had complementary abilities, Godfroy being a designer and Poiraud an engineer. As a result, the two were able to present a mockup of their “Ventury” (yes, with a “y”!) at the 1984 Paris Salon – and find the necessary investors to build a whole new marque from scratch. The MVS Venturi was presented in May 1986, with the 200-hp four-cylinder engine of the Peugeot 505 Turbo, which was to be replaced with V-6 engines of ever-increasing power. Nevertheless, only 645 cars were built until 1999 – more than enough to ensure a varied and fascinating story, including a partnership with the Formula 1 team of Gérard Larrousse. Author Pierre Daubrosse witnessed the whole story from the beginning, the first edition of his book having been published in 1996. This new, revised edition is, to our knowledge, the only book about Venturi – and a good one: It gives a chronological account, but is also entertaining, despite the sober book design. **FS**

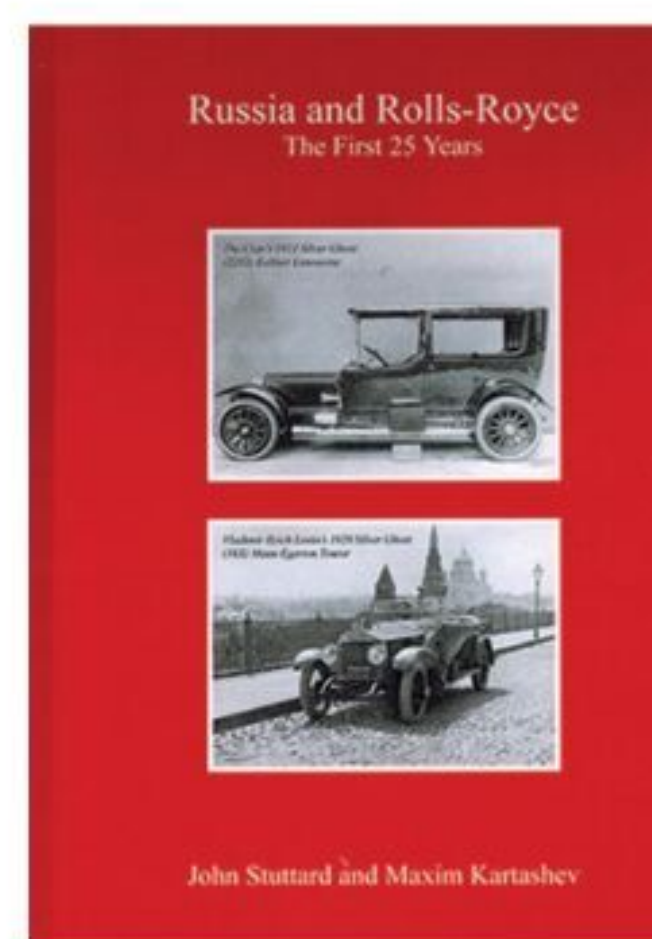
Pierre Daubrosse
Venturi GT à la Française, ETAI,
176 pages, 280 images, in French,
49 Euros,
ISBN 979-10-283-0428-7

*Just as Rare & Unique Vehicles proves that classic-car magazines still can flourish, the fact that there are dozens of classic car books published monthly proves the longevity of printed materials. **Frederik Scherer** and **Dr. Pál Négyesi** offer you a selection of several interesting titles.*

The Budapest-Constantinople Touring Race, 1912
LET’S GO!

Back in 1912, dozens of very daring motorists crossed the Balkans from Budapest to Constantinople (Istanbul) on invitation from an Arabian prince. While this may sound like the plot of a Hollywood movie, the tour actually took place and it was as difficult as one can imagine with nonexistent roads, a rough-and-ready organization committee and the feeling of impending war. The discovery of a stash of glass plate negatives in 2017 led to a commemorative exhibition in Istanbul, which then toured the region. In the process a lot of new information came to light in Hungary, Turkey, Bulgaria, and Romania, which have been incorporated into the book. **PN**

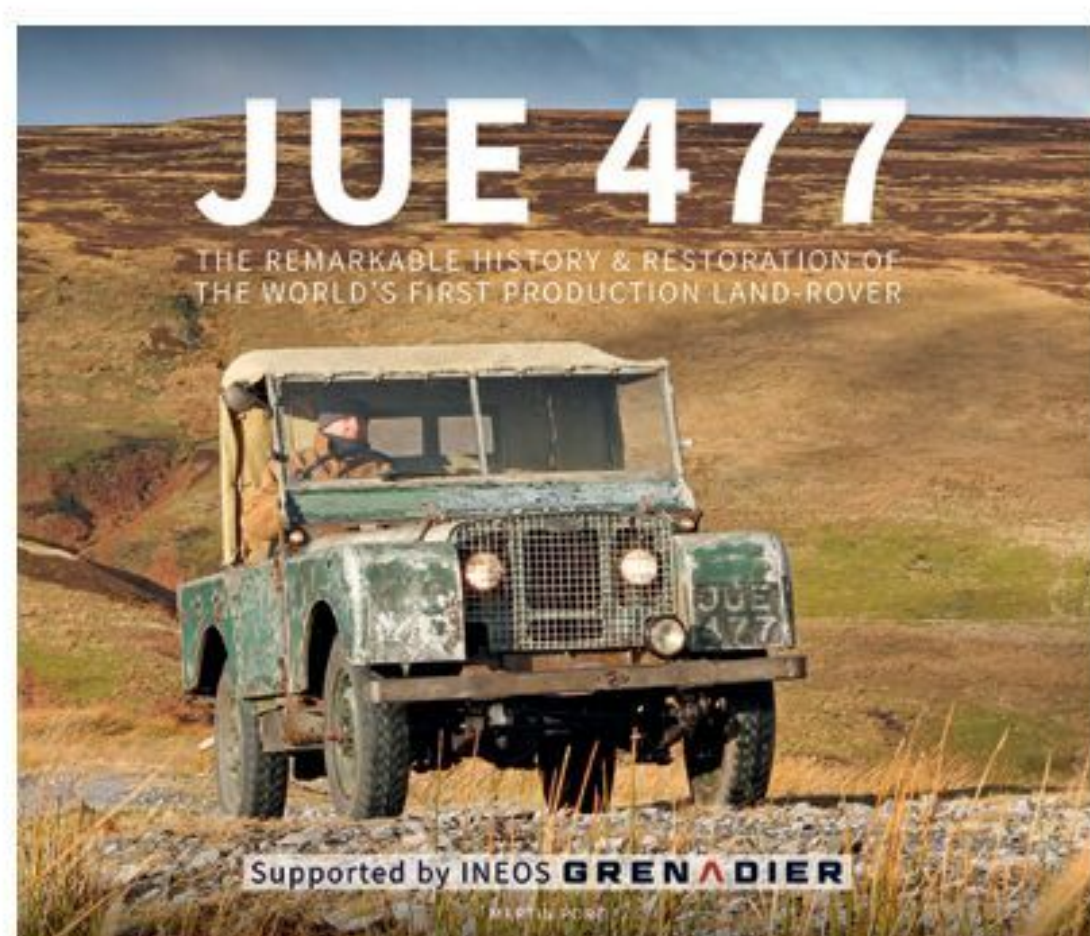
Dr. Pál Négyesi
Kalandra Fel.
A Budapest-Konstantinápoly Autós Túraút, 1912, Gül Baba Alapítvány, 2021.
120 pages in Hungarian.
HUF 1500 from our editorial office.
ISBN: 978-615-81808-2-5



Russian Rolls-Royce
TSARIST
LUXURY

Czarist Russia was known for its architecture, fine art, literature, and music. With this appreciation of quality and the wealth of the nobility and business, it was not long before Rolls-Royce found a niche market in the years before the First World War. After being introduced to the marque in 1913, the Czar became a loyal customer. His 1913 Silver Ghost Kellner-bodied limousine became a favorite mode of transport. The 1917 Revolution did not end Russia’s appreciation of the marque, and more cars were ordered until 1933, when relations soured. Just five out of over 84 Rolls-Royce motor cars which were delivered to Russia can be found today in Moscow and St. Petersburg. A further five cars with Russian connections can be found in other countries. John Stuttard from the British 20-Ghost Club, together with Maxim Kartashev from the Russian Polytechnic Museum, spent a year researching these cars, their origins, and their fate. Many of the photos are being published for the first time. **PN**

John Stuttard, Maxim Kartashev
Russia and Rolls-Royce: The First 25 Years
The 20-Ghost Club Ltd., 2021. 100 pages,
200+ illustrations in English.
EUR 36 or USD 49 from Philip Hall,
ah.rr@btinternet.com

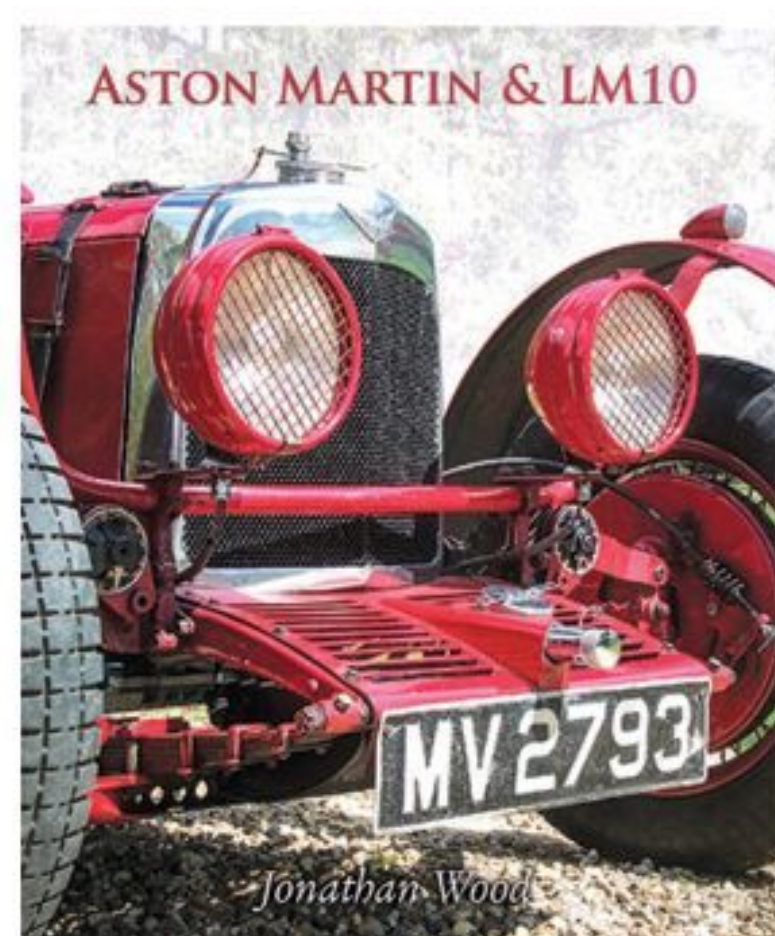


JUE 477 ACHIEVING THE IMPOSSIBLE

The first production Land Rover braved the elements for almost 30 years, parked outside and turning into a wreck before being stored in a derelict barn. Land Rover specialist David Shoolheifer set about restoring it, with the aim of “retaining as much of the original vehicle as was physically possible.” The book detailing the process is well written and well designed, and is indeed a fascinating tale for those who are interested in all things mechanical. But even though the team accomplished incredible tasks, the concept of this “restoration” against the background of restoration ethics seems idiosyncratic. The historical context is not readable anymore on the finished car, because some interventions seem to be about looks instead of historical consistency. The most credible story it can possibly tell future generations is how it became a “test mule” for restoration techniques. Consequently, it may be physically historic, but it is contemporary in what it represents: all the current discussions on automotive restoration at once, built into one car. **FS**

Martin Port

JUE 477. The Remarkable History & Restoration of the World's First Production Land-Rover; Porter Press, 128 pages, ca. 240 images, in English, ca. 26 Euros, ISBN 978-1-907085-78-9



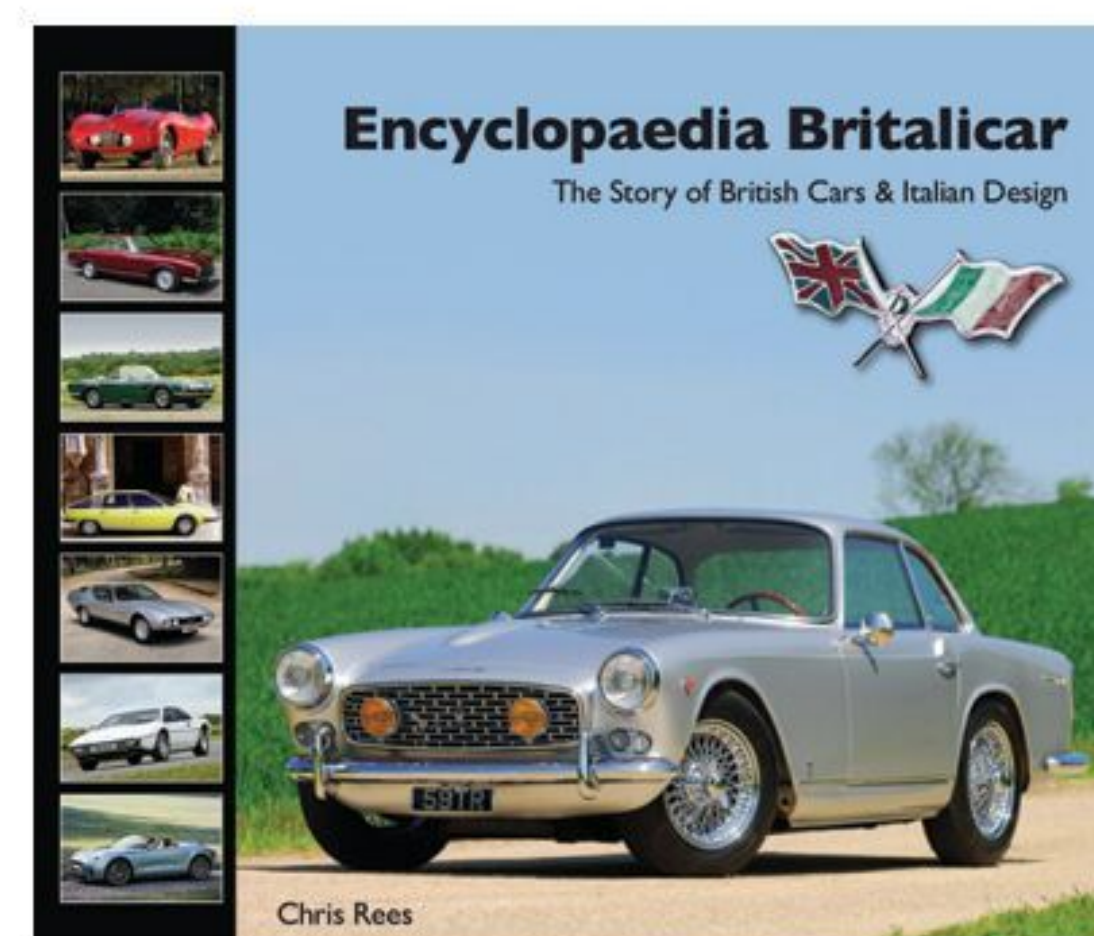
Aston Martin & LM10 EARLY ACCOMPLISHMENTS

LM10 had an eventful life: fifth place and a class win at Le Mans in 1932, experimental car, vintage racer. Hugh Palmer, its owner since 2009, gathered loads of information and passed it on to Jonathan Wood in order to write a book. Being an accomplished automotive writer, his quality standards are above the average. But as Wood states in the foreword, “it soon became apparent that it was impossible to separate the car from the company.” Consequently, he has put together a new in-depth account of Aston Martin’s early years (beginning with the founding of Bamford & Martin), before analyzing the history of LM10 in particular, all written in a factual yet sophisticated manner. There are endnotes in each chapter, and a bibliography. “Profiles” give additional information, but these texts are laid out in an italic font over several pages, much to the detriment of readability. Given the huge amount of text and information, shortcomings in the book design seem rather unfortunate. Nevertheless, this is an important book that you can easily spend days or weeks with. **FS**

Jonathan Wood

Aston Martin & LM10

Self-published by Hugh and Miranda Palmer, 350 pages, 376 images, in English, ca. 87 Euros from www.astonmartinlm10.com



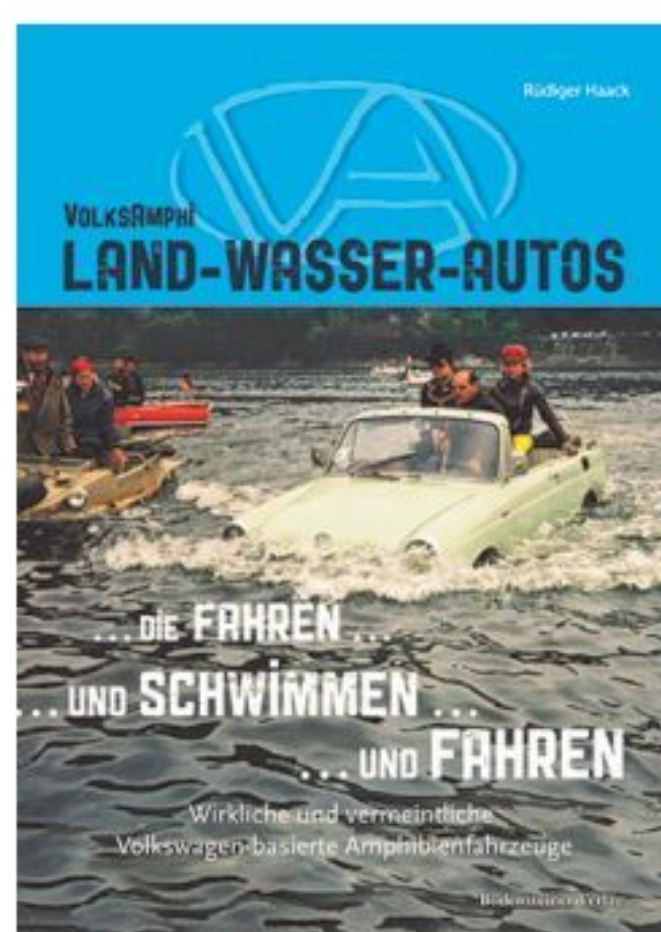
British Cars & Italian Design MEDITERRANEAN FLAIR

A Jaguar E-type rebodied by Drogo, an MG TD Barchetta by Schiaretti, the Touring-designed Sunbeam Venezia – just some of the extremes from a very rich palette illustrating the relationship between British cars and Italian design, which goes back to the 1920s. Chris Rees is currently the editor of Auto-Italia magazine, but his involvement with limited-edition British cars and the quirky part of motoring history goes back more than 30 years. He is an expert on British specialty cars, so it is no wonder that he decided to combine his two interests in one book. There are two parts of the book – one which lists cars by brand and a shorter, but very important chapter on the coach builders and design studios. The latter, a sort of mini encyclopedia, also serves as an index – so you can see the wide range of British clients that Bertone, Touring, Zagato, and others once worked for. Naturally the book is peppered with nice mini-stories, like the one on the competition for a slogan advertising the Touring-bodied Aston Martin Mark II Spider. “Who said a Spider couldn’t fly?” was the winner, and in similar vein, we can only ask: Who said a Briton can’t cover Italians comprehensively? **PN**

Chris Rees

Encyclopaedia Britalicar

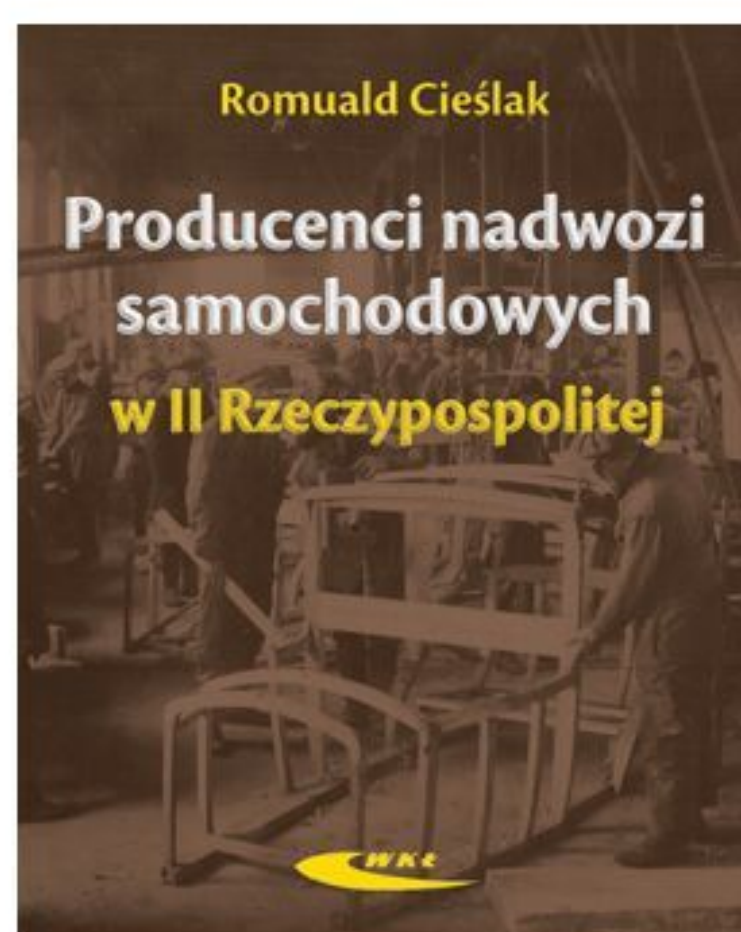
Quiller Print, 2021, 304 pages in English. GBP 48 from quillerprint.co.uk ISBN 978-0-9926651-3-5



VolksAmphi
THE REAL FLOATING
POWER

Amphibious vehicles can go on in places where others go down. For almost a century, engineers have been challenged by the idea of making cars maneuverable on land and at sea – for military and civil purposes alike. Rüdiger Hack is a longtime amphibious enthusiast. For his new book, he chose an unusual approach: All the vehicles featured are Volkswagen-based, but not in a technical way. In Hack’s logic, everything counts as long as it can be associated with today’s Volkswagen Group, creating the fictitious make “VolksAmphi.” That’s why we see not only the KdF-Typ 166, but also a Skoda Typ 972, or even the ubiquitous Trippel SG 6, which had been built at the former Bugatti premises in Molsheim during the war years. Even though the author admits that the VW relationship may be far-fetched in some cases, it still seems an odd choice to hold on to. The book certainly provides interesting discoveries, especially when it comes to civil amphibians and those that are VW based in the truest sense of the word. But one can’t help thinking that there is so much more floating around! **FS**

Rüdiger Hack
VolksAmphi. Land-Wasser-Autos
Bodensteiner Verlag, 128 pages, 325 images, in German, price 29,80 Euros from www.bodensteinerverlag.de ISBN 978-3-9816013-8-1



Polish Coachbuilders
PROTECTED
ENVIRONMENT

Romuald Cieślak, a Polish historian who previously wrote a book on the story of Polish automobile assemblers between the two world wars, has now compiled another volume on coachbuilders in the same period. It includes both coachbuilding workshops and industrial plants that produced both bodies and complete vehicles. In addition to the Second Polish Republic, it includes companies from the Free City of Gdansk. Cieślak used a lot of contemporary sources to provide an insight into this little-known facet of Central European motoring history. It is apparent that the Polish government tried to protect its nascent motoring industry, but it speaks volumes that, out of around 9000 vehicles produced in Poland between 1928 and 1931, there were 6000 assembled by the local General Motors subsidiary. The book is a softcover and it is only in Polish, though there is a one-page English-language summary at the end. **PN**

Romuald Cieślak
Producenci nadwozi samochodowych w II Rzeczypospolitej
Wydawnictwa Komunikacji i Łączności, 2021. 238 pages, 268 illustrations in Polish. ca. 15 euros from wkl.com.pl ISBN: 978-83-206-2031-3



Chryslers in Australia
AMERICANS
DOWN UNDER

Gavin Farmer is a well-known Australian motoring historian and writer, who once worked for Chrysler in Australia. His latest self-published books deals with the story of his former employer. It chronicles the history from the T. J. Richards years through the boom years of post World War 2 and onto the sad ending in 1981 when the last Valiant was driven off the Tonsley Park production line. Great Ideas in Motion II investigates all aspects of Chrysler's thirty-plus years in Australia, looking at such legendary automobiles such as the Dodge- De Soto- Plymouth sedans from 1946-through-1957, the Chrysler Royal, the Dodge Phoenix, the Centura, the full Valiant period including the Pacer, Charger, VIP, Chrysler by Chrysler as well as the connections to the Rootes Group and finally to Mitsubishi. The foreword has been written by former Managing Director Ian Webber. The book is limited to 500 copies.

Gavin Farmer
Great Ideas in Motion II:
A History of Chrysler in Australia
Ilinga Books, 440 pages in English. AUD 160 from www.ilingabooks.com.au ISBN 978-0-64884444-3-3 on track, still having far too many projects on the go.



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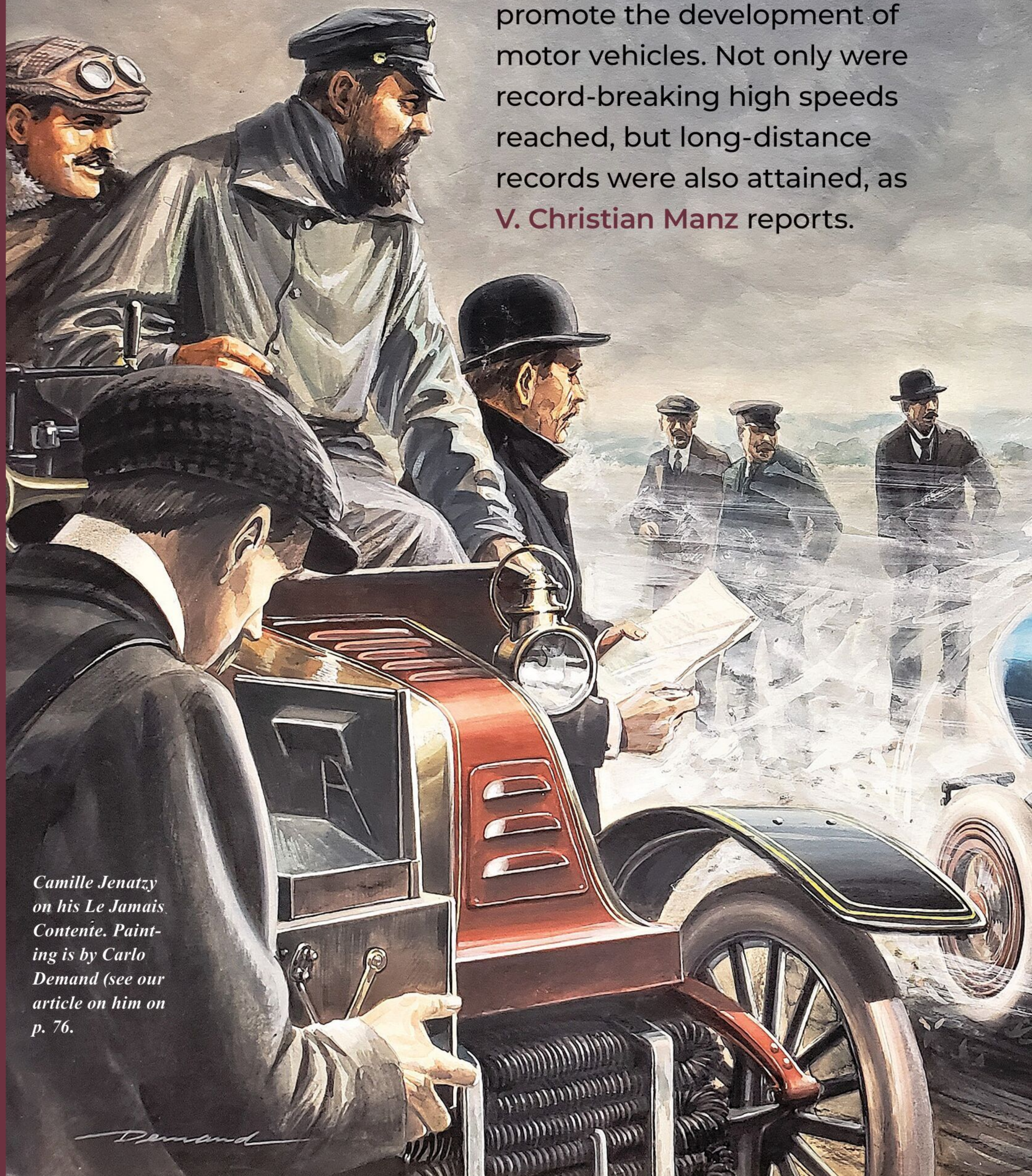
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PROMOTION



WWW.RETRO-CLASSICS-BAVARIA.DE

The diabolic speed of 100 km/h was first reached by an electric vehicle, by daredevil individuals making enthusiastic attempts to promote the development of motor vehicles. Not only were record-breaking high speeds reached, but long-distance records were also attained, as **V. Christian Manz** reports.



Camille Jenatton on his Le Jamais Contente. Painting is by Carlo Demand (see our article on him on p. 76).

FIRST RACES AND
SPORTING EVENTS WITH

ELECTRIC VEHICLES

**SPEED WITH
VOLT AND WATT**



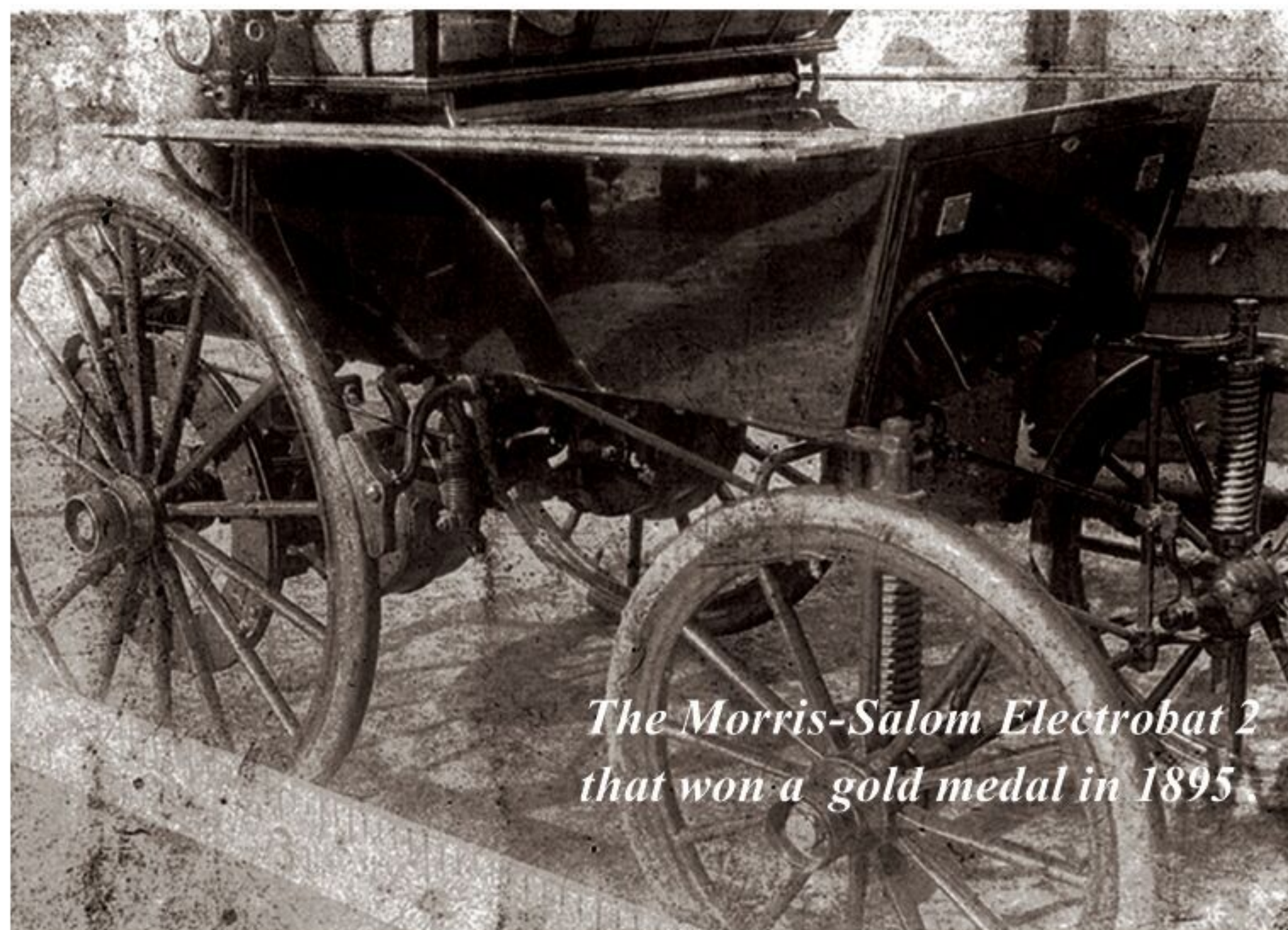
The 1896 Providence Horseless Carriage Race was won by an electric Riker.



An 1898 Riker electric, which was owned and raced by Andrew Riker himself.



The Morris-Salom Electrobat 2 that won a gold medal in 1895.



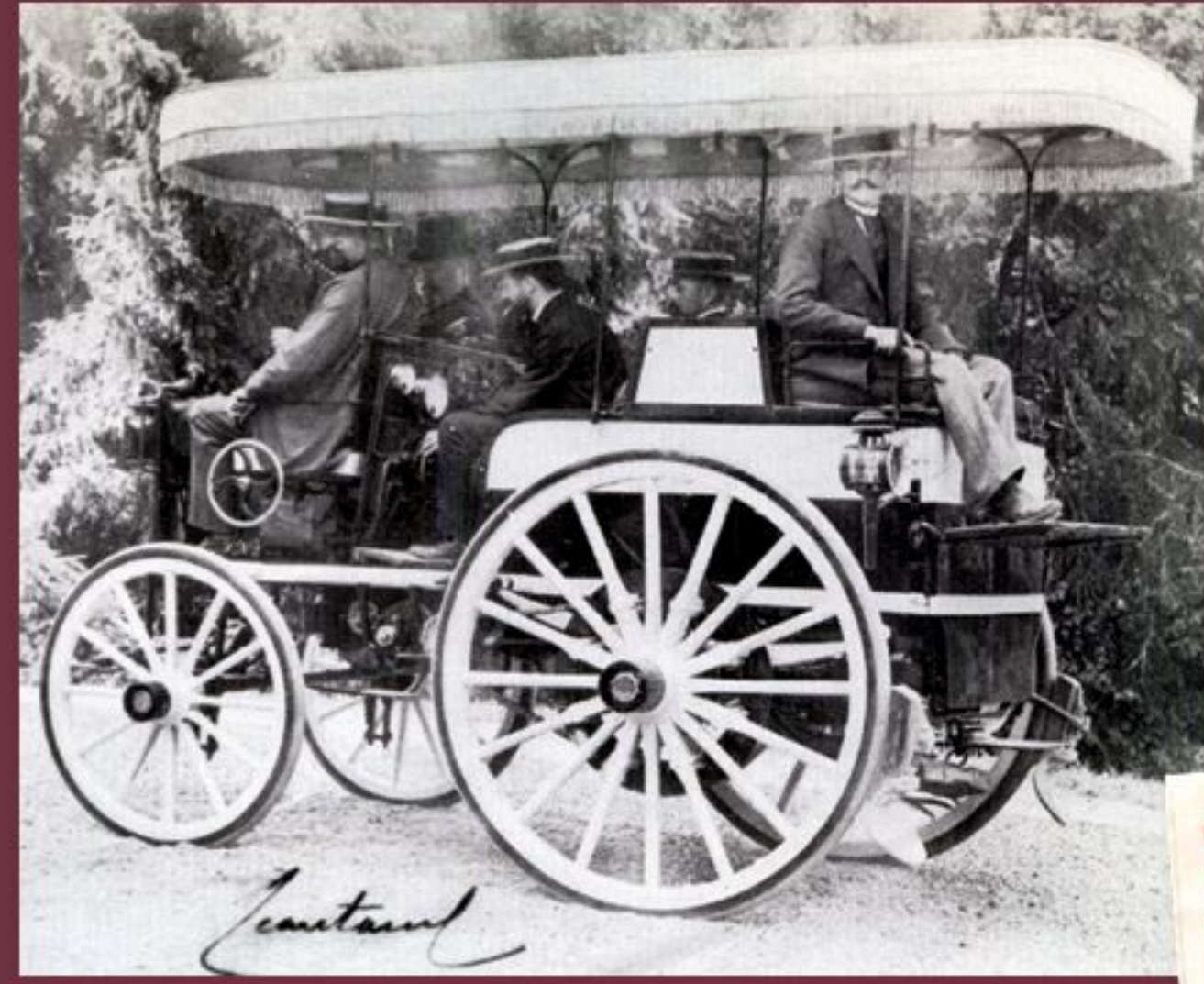
As early as 1894, Charles Jeantaud, the first electric-vehicle mass-production manufacturer, wanted to take part in the Paris-Rouen car race with one of his electric vehicles, but the vehicle was not finished on time. It was equipped with a Swiss Thury motor and 420 kg of Fulmen batteries, and the car only had a range of 30 km and a speed of 20 km/h. This was not enough to participate in the race, so instead Jeantaud decided to enter the Paris-Bordeaux-Paris race a year later, to be held from June 11-13, 1895.

Already at this time, races were specially prepared for petrol cars, and the vehicles had to cover 1200 kilometers in less than 100 hours. There was probably no chance for an electric vehicle under these regulations. However, Jeantaud prepared a special car, a break with six seats and a roof to protect the driver and passengers from the rain. It was propelled by a new 7-hp Rehniewski electric engine that ran at 92 percent efficiency, placed transversely in the middle of the chassis, together with a large set of batteries. It had a range of about 50 to 75 kilometers and promised a speed of up to 30 km/h. Jeantaud set up a group of mechanics at the roadside every 40 to 45 km to replace the batteries for new ones in a few minutes, creating a kind of battery exchange station. The car itself was always occupied by four people: Jeantaud the driver, a mechanic, an electrician, and finally a coachbuilder who had to help change the batteries.

The race was quite eventful. An accident with a careless pedestrian, a burnt rear axle, and the loss of engine power due to the overheating of a fuse did not discourage Jeantaud from saving his honor. In spite of all these problems, and with an almost superhuman effort, he arrived in Bordeaux, as J.A. Grégoire wrote in his book *50 Ans d'Automobile: La Voiture Électrique*, and is confirmed in the book *Voitures*



*Three protagonists of the speed record:
Charles Jeantaud, Count Chasseloup-Laubat,
and Camille Jenatton.*



*Jeantaud participated in the 1895
Paris-Bordeaux race where he
changed batteries every 45 kms.*

*The B.G.S.
achieved 262
kilometers on
a single charge
and proudly
displayed this
record.*



Automobiles: Électriques Volume 4, published in 1899. The burnt rear axle was repaired by Jeantaud himself, helped by his three colleagues in one long day. Jeantaud was not the fastest competitor but certainly the quietest, and reached the finish line without loss of points.

The first American race, organized by the editor of the Chicago Times Herald, H.H. Kohlsaas, took place in November 1895 between Chicago and Evanston, Illinois. Kohlsaas, who had bought the newspaper some months before, planned a race for July. He anticipated it was going to be a spectacular event which could potentially steal customers away from his big competitors, dozens of other daily newspapers. Time was too short, however, so he set the date of the actual contest for November 2. Entries had to be in by September 15, and the regulations drawn up for participation stipulated that the cars should arrive for test drives in the last week of October, with the exception of those that had completed the race in France. Interest was very high in those years, and there were almost 100 entries, as the entry list, published by The Motorcycle in Vol. 1, No. 1, of October 1895, shows, although most were immediately withdrawn. One of the main reasons for this was that the vehicles could not be prepared in such a short time. Kohlsaas therefore moved the date to November 28, Thanksgiving Day, also scheduling a meeting with the participants for November 2, a kind of unofficial trial run to keep the public interested. The trial exhibition run took place in good weather, and the participating Mueller-Benz, an imported vehicle with a single-cylinder petrol engine, completed the journey from Chicago to Waukegan in nine and a half hours.

The electric Morris & Salom Electrobat, since it was not an official race, only ran for a few miles on a trial basis, while the drivers of the other vehicles did not want to go the whole distance and finish the race. They were looking to save the vehicles from unnecessary wear and tear before the official event.

As in France, the first prize of \$2,000 was not intended to crown the fastest model of vehicle but rather that which, in the opinion of the judges, was the most practical from the standpoints of general utility, ease of control, and adaptability to the various forms of work required of an automobile. It was the second prize of \$1,500 that was then awarded to the fastest vehicle, i.e., the winner. Finally, on November 28 the race itself got underway with only six participants. There were four petrol-engined vehicles: an American Duryea and three vehicles under the names of Macy, De la Vergne, and Mueller, the latter three equipped with German Benz engines. Two vehicles were electric: the Morris & Salom Electrobat 2 (the second prototype) and a Sturges Electric Motorcar. The Sturges was sponsored by William Morrison, one of the pioneers of electric vehicles in the United States.

Bad weather hampered the competition. "It was one of the coldest November 28ths on record ... with deep and drifted snow under an icy crust, and it was bitter cold," wrote Pedro G. Salom Jr. in his memoirs, which appeared under the title The First Automobile Race in the United States. The race distance was shortened and only ran to Evanston and back, a journey of 52 miles.

Although the race was won by the petrol-powered Duryea, the electric Morris & Salom Electrobat – which had only covered 18 miles when it decided to turn back – was awarded the gold medal and the first prize. Here is what the editor of the magazine The Motorcycle had to say about the judging: "We cannot see, under the circumstances, how the prizes could have been more wisely distributed. Morris & Salom get the gold medal for the Electrobat, notwithstanding the fact that they did not cover the whole course, but the general excellence of the machine was shown so decidedly in the official test, that this award must meet with the hearty approval of all interested in the perfect development of the motorcycle. This carriage is very economical in power, to

say nothing of the almost complete absence of noise and vibration and the total absence of all heat or odor. In the actual run over the course, the Duryea motor made the best time of those making the run, although through an error it did not follow the exact route.”

A year later, an electric Riker won the Providence circuit race – during three days of bad weather. The Riker endured the race more than the petrol-engined Duryea, which could only manage third place behind the electric Morris & Salom. The Riker finished the race at a surprising average speed of 26.2 miles per hour.

THE QUICKEST MAN IN A CAR

French Count Chasseloup-Laubat worked together with Charles Jeantaud to demonstrate how they were able to increase the efficiency of electric vehicles. Both men were very enthusiastic in this field. In 1898, Chasseloup-Laubat, driving a Jeantaud, attained the first officially approved speed record over the one-kilometer flying start. He reached a speed of 63.5 km/h. However, the Frenchman suddenly had a serious challenger, Camille Jenatzy from Belgium, who challenged him to be the fastest man on four wheels. Jenatzy and Jeantaud were constantly improving their vehicles. When the engine and the battery power reached their limits, both competitors worked on aerodynamic formulas without having any experience in this field, and also on new materials to make the bodies lighter. The result was the cigar shape of the Jenatzy and a wedge shape with abrupt tail and underbody protection on the Jeantaud. A special aluminum alloy was also used for the coachwork. The Jeantaud soon reached 90 km/h, but the Belgian did not give up and arranged a demonstration of his new vehicle for April 1899. He said he would try to pass the 100-km/h mark. Jeantaud and Chasseloup-Laubat remained spectators. Doctors warned that at more than 100 km/h the body fluids could harden. Religious people prayed to heaven, convinced that the good Lord would send thunder and lightning – they had simply gone too far.

On Jenatzy’s first run, on April 1, the inspectors were amazed at the unbelievable speed reached. Unfortunately, this could not be measured. Officially, it was said that timekeepers could not guarantee that the times that Jenatzy had set were accurate, such was his speed, so a new run was organized for four weeks later. Then, on April 29, 1899, a speed of 105.85 km/h was recorded and a new record set. The red-haired Belgian had survived this record attempt unscathed, but both competitors agreed that they would cease further attempts.

It took two years until an automobile approached this high speed again. This time, it was a Serpollet steam car. At that time there were also long-distance records set by electric cars. In July 1899, Chasseloup-Laubat drove 140 kilometers on a Jeantaud without having to recharge the batteries; a year later, a Krieger reached 162 kilometers on

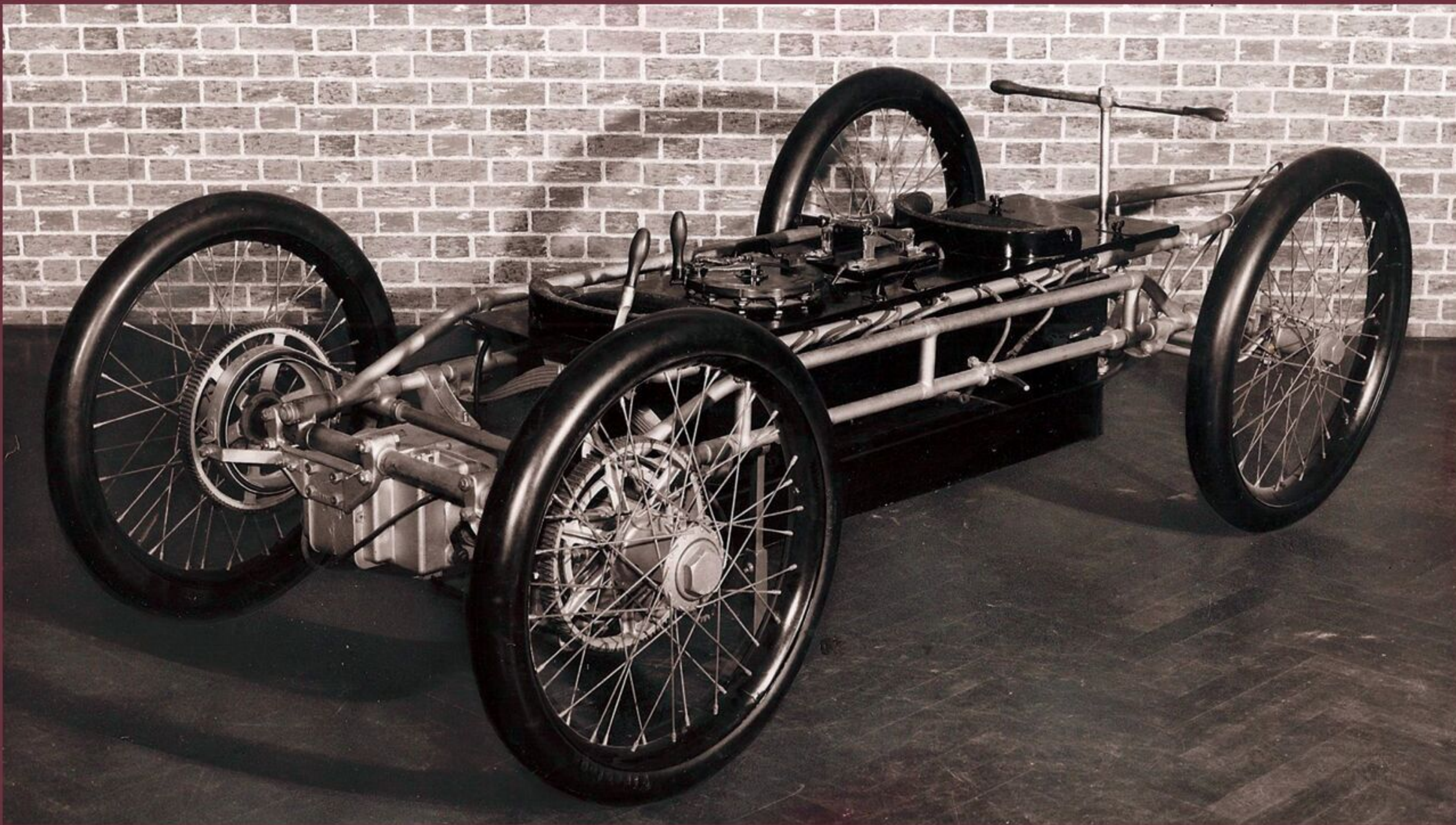
the Vincennes-Laroche-Migennes journey. A short time later, a French B.G.S. achieved 262 kilometers, a fact that was used in their advertising to compare their range of cars with petrol-engined vehicles. In 1901, a Krieger drove from Paris to Châtelleraut, a distance of exactly 307 kilometers without recharging. In August 1905, another Krieger travelled from Paris to Trouville to Paris, a distance of exactly 400 kilometers, at an average speed of 40 km/h, with only an intermediate charge in Trouville. Long journeys were possible even then.

MOUNTAIN DRIVING WITH PORSCHE

In Germany on September 23, 1900, Ferdinand Porsche set a new record on the Semmering hillclimb with one of his electric vehicles built by Lohner in Austria. The Austrian Automobile Club confirmed the 14 minutes and 52 seconds for the 10 kilometers on a 400-meter incline, a new record not only for electric vehicles but for any vehicle at that time, as the fastest petrol car up until then had taken 16.57 minutes. In 1900, Porsche created an all-wheel-drive racing car with a 2.5-hp electric motor in each wheel. This was also how one of the first vehicles with four-wheel brakes was created. The four motors could be switched off by creating a short circuit in them. The curious vehicle was sold to the Englishman E. W. Hart, who wanted to use it in long-distance races. Despite the revolutionary concept, however, it turned out to be much too heavy for this purpose.

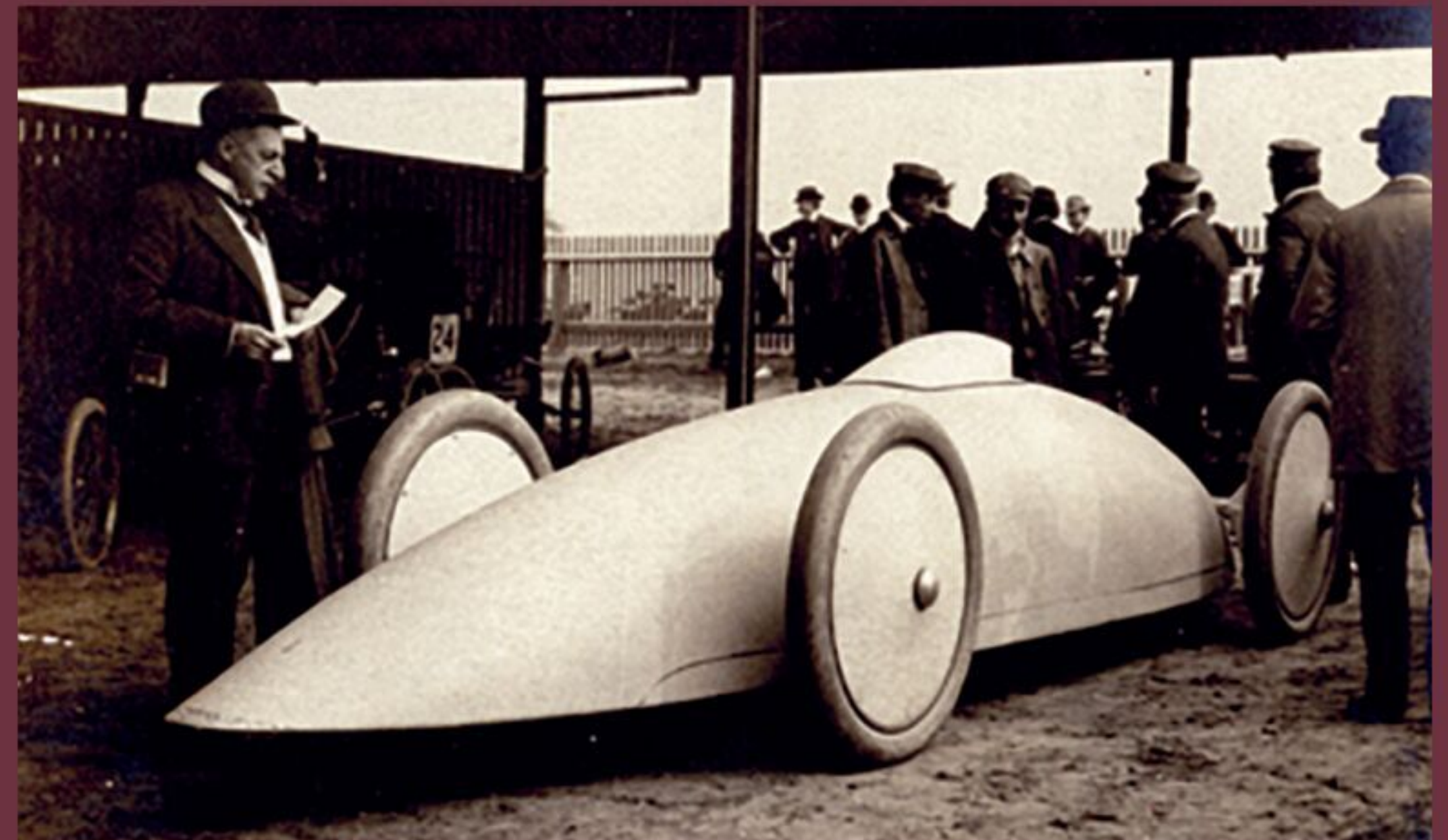
RECORDS FROM RIKER AND BAKER

In 1901, a specially prepared Riker achieved a new endurance speed record, traveling 92 km/h for a whole mile (1.6 kilometers). The record could not be officially recognized because no commissioners were present. The vehicle had no bodywork. It was just a chassis with a wheel at each corner, and an electric motor. The driver, Walter Riker, operated a horizontal bar for steering, while his co-driver, sitting behind him, controlled the brakes and the flow of energy from the batteries. This vehicle still exists and is now in the Owls Head Transport Museum in Maine. Baker not only built numerous electric vehicles, but was also a specialist in modern ball bearings, which he installed in his models as a great innovation in order to reduce the friction of the mechanical parts. In 1902, he wanted to build the fastest electric vehicle in the world that could safely transport two people on the road. A long robust chassis, with batteries in the front and rear, was given a torpedo-shaped body, large wheels, and many ball bearings. The two occupants of the vehicle, Walter Baker and his co-driver, were seated as safely as possible in a tightly enclosed interior, and their protection was increased when each one wore a special helmet made of mica instead of glass. The vehicle could reach at least 150 km/h, and this required good steering, which was also precise but light, to keep the vehicle on the road. While Walter Baker steered the car and operated the brakes, his



The streamlined Baker Torpedo.

This 1901 Riker had no body. It has achieved an endurance speed record. Today the car belongs to the Owls Head Transport Museum in Maine.



Detroit Public Library

co-driver checked the voltmeter, and speedometer. On the day of the race at South Shore Boulevard in Grand City, in Staten Island, the vehicle briefly reached 160 km/h. The spectators could not imagine this high speed with a barely audible vehicle, and their curiosity resulted in the street's becoming increasingly narrower despite the barriers. When some people jumped the barrier, Baker initiated emergency braking by creating a short circuit in the motors and then pressed down hard on the mechanical brakes. The effect was so powerful that it was difficult to keep the vehicle on course, a reaction that hit spectators unexpectedly. Baker kept a cool head and was able to prevent the worst. He avoided most of the spectators, but even so, two people died and a few were injured. Baker and his colleague Denzer got off lightly, as they were strapped into their seats with belts. But the accident was reason enough for charges to be brought against both occupants. They were both arrested but released from custody a little later. The authorities blamed

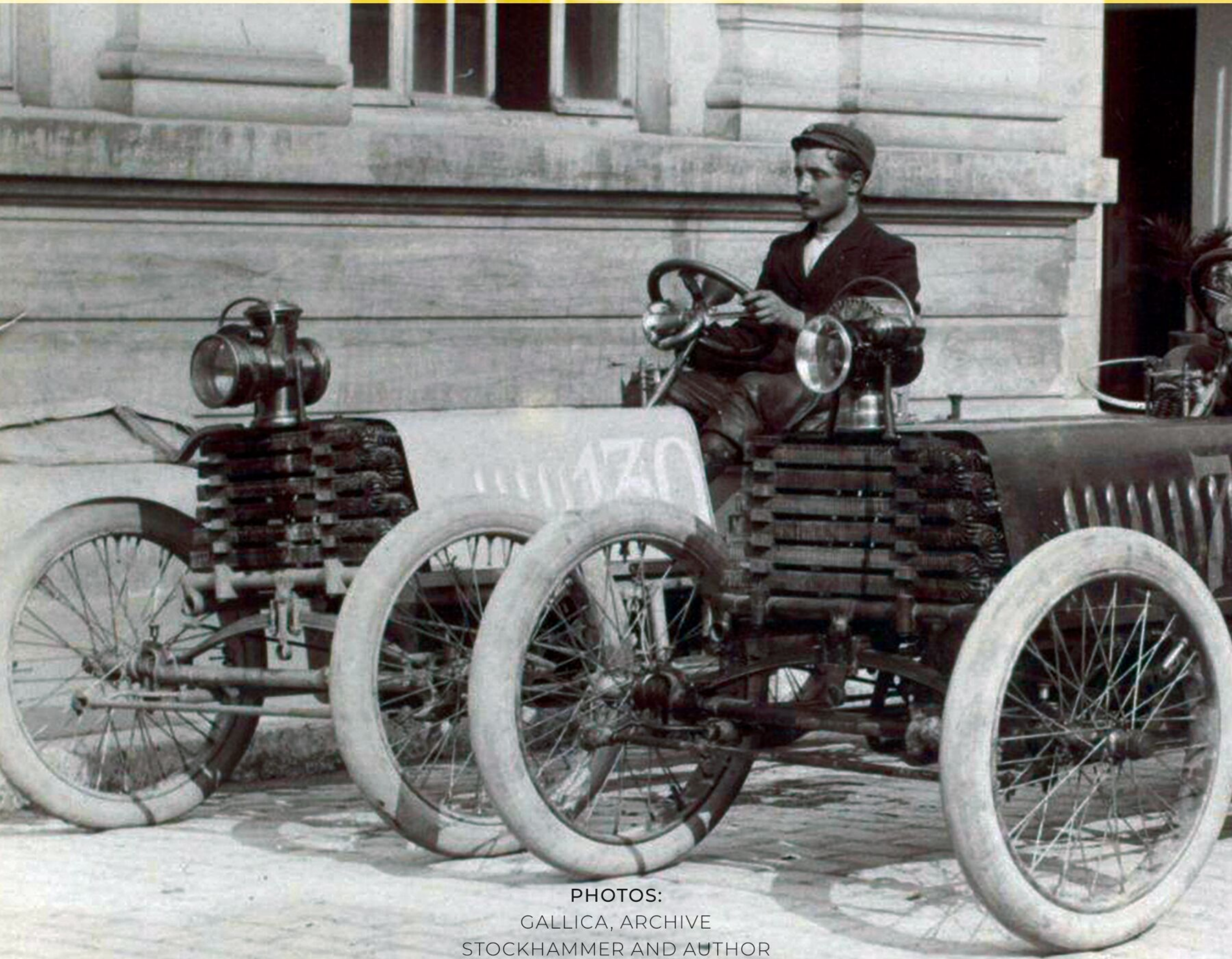
the spectators for crossing the barriers against police orders. Baker was able to prove that his vehicle exceeded all safety precautions and that he had done everything humanly possible to avoid the accident.

The racing car was rebuilt and used again. Between 1902 and 1903, two more Baker racing cars were used, the small lightweight Torpedo Kids.

With their aerodynamic bodywork, the two small racing cars achieved new speed records, but these were never recorded or confirmed. According to Baker, the shape came from looking at a drop of oil, which is not round but rather elliptical. He surmised that a very low-slung vehicle in this shape would offer less resistance to the wind. In 1903 both raced for the last time, one with the driver Chisholm, the other with Baker at the wheel. However, once again there was an accident and several spectators were injured. And once again it was because no one was aware of the high speed with no noise. Baker then gave up racing. ♦

PARIS-MADRID, 1903

FOR THE SAKE OF SPEED

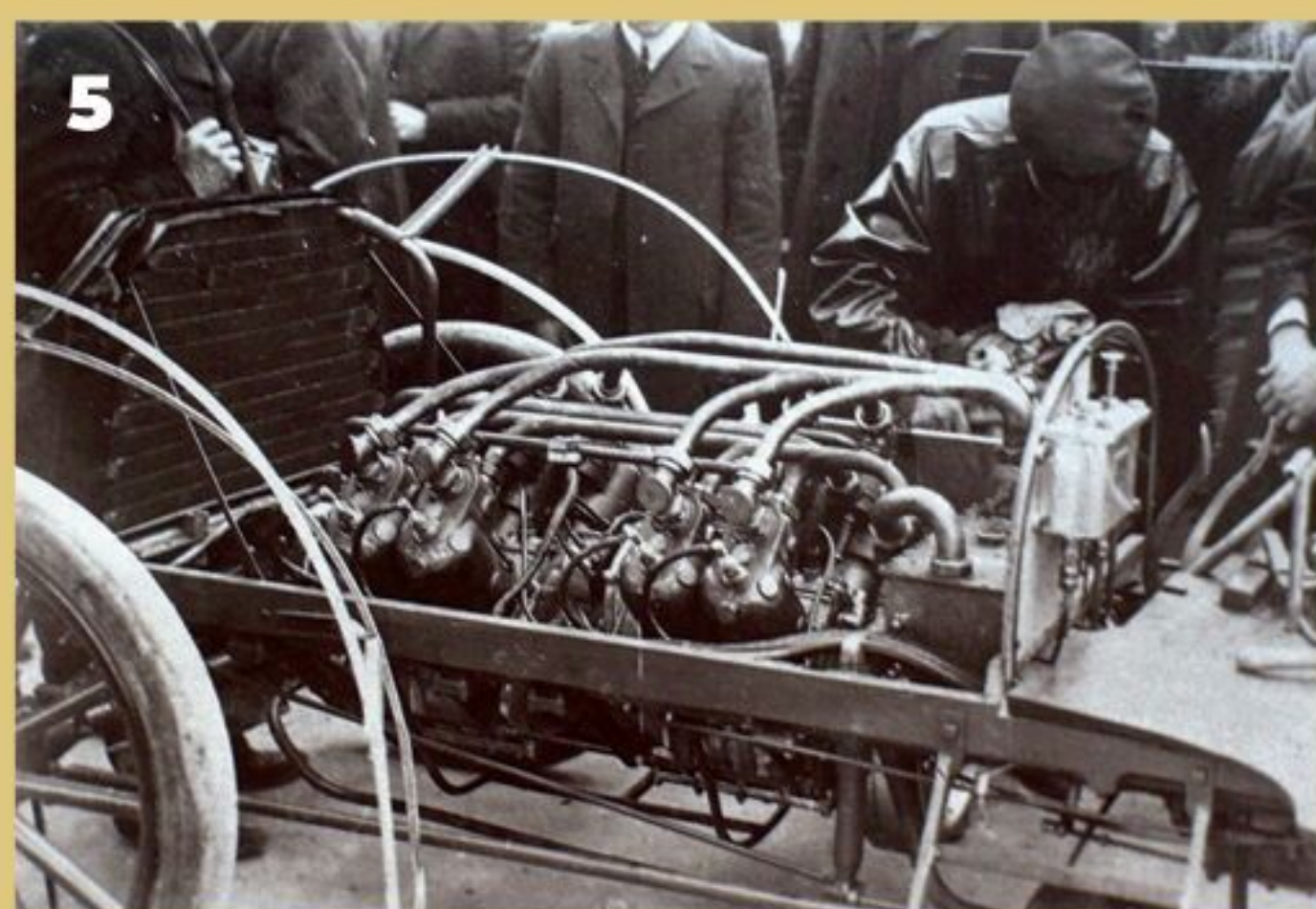
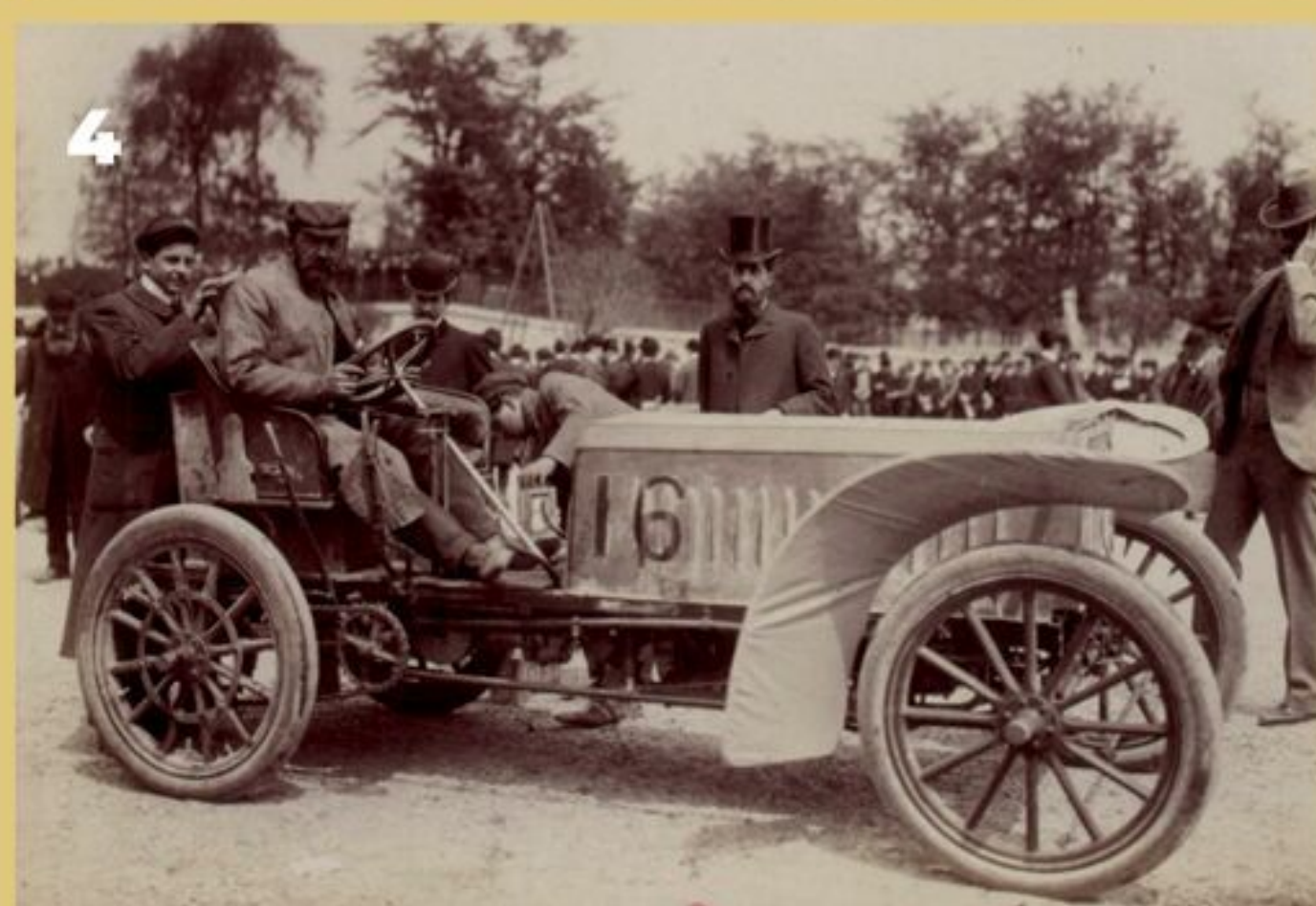
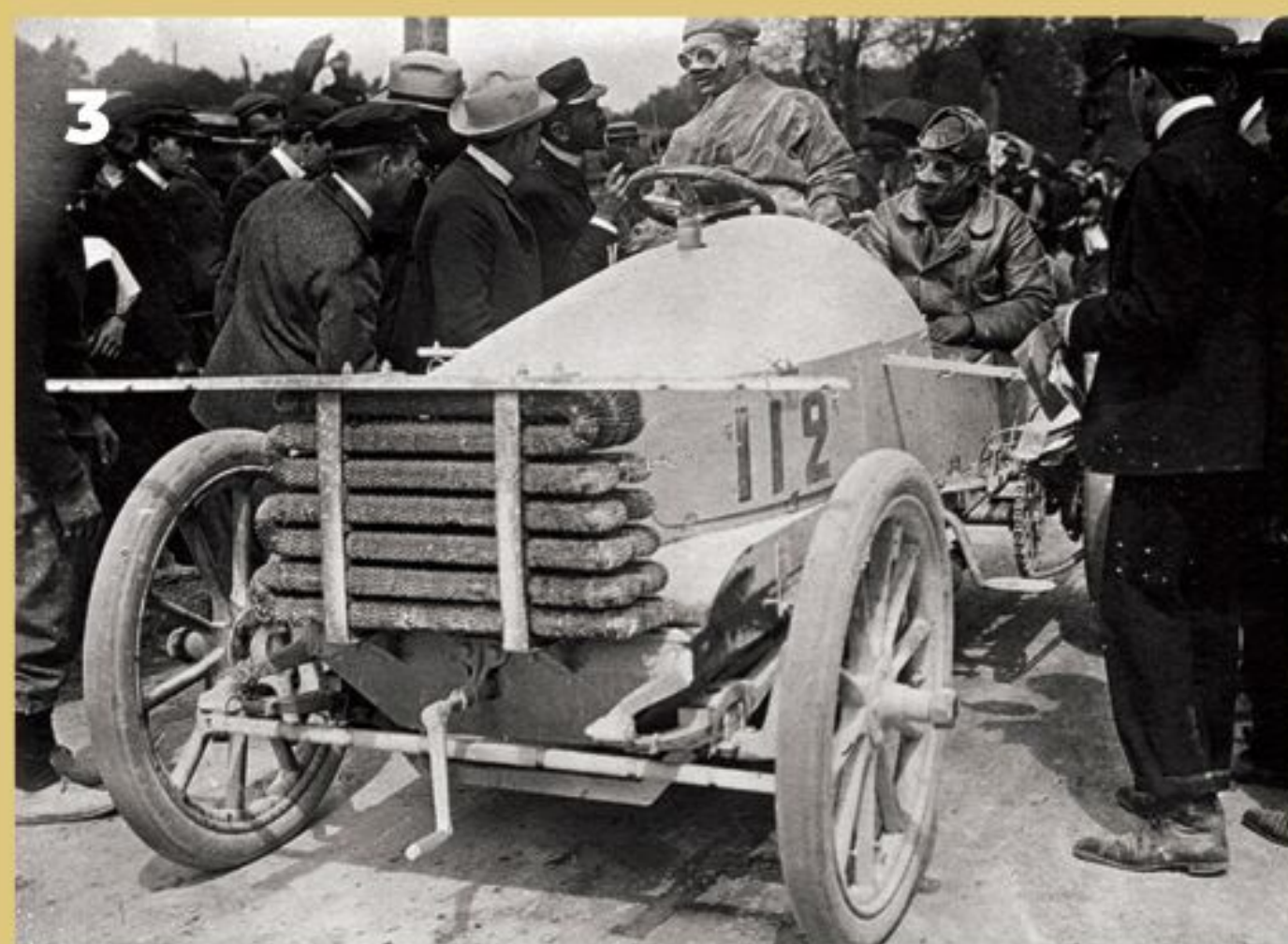


PHOTOS:
GALLICA, ARCHIVE
STOCKHAMMER AND AUTHOR



*The Ader team Valentin,
D Aubignosc, Birnbaum, Gautier.*

While inter-city races were popular at the dawn of motorsport, the disastrous Paris–Madrid race in 1903 almost put an end to automobile racing in general. Thomas Ulrich tells the story.



1: Langlois (Panhard-Levassor) in front of Edgar Braun (60-hp Mercedes).

2: The wreck of Lorraine Barrows's De Dietrich. One can imagine the impact.

3: Mouter who rode on a specially prepared (De Dietrich).

4: Fernand Gabriel won the race with a Mors, which was capable of 140 km/h!

5: The Ader V-8 was the first passenger car with such an engine.



*The 32-hp Ader V-8
with its driver.*



*A Serpollet steamer and a Mors are
shown during a break.*

WHEN the motor vehicle came into existence, it was natural that it be tested for speed on the open road, from point to point, thus proving its utility...those in authority in France had the sense to realize this. (W.F. Bradley, *Motor Racing Memories 1903–21*, MRP, London: 1960).

In 1895, the average speed for the fastest car in the Paris–Bordeaux race was set by Émile Levassor at 25.5 km/h. In 1898 René de Knyff was 37.6 km/h in one direction. In 1899 it was 48.2 km/h, and in 1901 it was Henri Fournier who drove an average of 85.3 km/h. So it was expected that the next race would be the fastest race to date.

After the great and successful town-to-town races — Paris – Berlin in 1901 and Paris – Vienna in 1902 — organizers searched for a new course. Paris to Madrid via Bordeaux was chosen as the next race by the Automobile Club de France (ACF). Permission from the Spanish side was easily obtained, as Alfonso XIII, the future king of Spain, was very interested in motor cars and racing. Once the Spanish authorities allowed the race, the French government reluctantly permitted it, too, despite the fact that they had decided in 1902,

after Paris–Berlin, that there would be no more races on French public roads.

The French roads were renowned for their good condition, whereas the Spanish roads had a bad reputation; many of them were no more than cart tracks.

In February 1903, the route was finally approved by the officials and some of the drivers tested the route. Among them were René de Knyff, Fernand Gabriel, Heath, Lorraine Barrow, and Phil Stead. Opinions on the Spanish roads ranged from “not exactly brilliant, but usable” to “horrible.”

The route was divided into three legs. The first, from Paris to Bordeaux, was 552 kilometers; the second, from Bordeaux to Vitoria (Spain), was 335 km. The last leg, from Vitoria to Madrid, was 420 km.

While the cars went through scrutineering and weighing in the Jardin des Tuileries in Paris from May 19–22, the actual start of the race was very early on Sunday, May 24, from Versailles, as racing on the Parisian streets was not allowed.

There were 314 entries, and 219 of them showed up at the start in Versailles. The competitors were divided into four classes: Motocyclettes, voiturettes (cars up to 400 kg), voitures légères (cars from 400 to 650 kg), and grosses voitures (cars from 650 to 1000 kg). Most of the

grosses voitures were among the first 100 starters, but between them were some motorcycles and voiturettes. Among the competitors who had entered before February 15, the starting numbers were drawn by lots. Cars were started every minute beginning at 3:45 a.m., with Charles Jarrott in a 4-hp De Dietrich, followed by René de Knyff on a 70-hp Panhard. Third was Louis Renault in a 30-hp voiturette. The sixth starter was the first motorbike: Haustgen on a 3.5-hp Haustgen. Fernand Gabriel on a 70-hp Mors started 1.5 hours after Charles Jarrott, but he proved in the end to be fastest of them all. The last competitor, Marius Barbarou on a Benz, left at 6:45 in the morning. The difference in speed between the classes and competitors was of course immense. Fastest, as in most of the town-to-town races in the years before, were the Mors racers.

Thirty-eight kilometers from the first leg were neutralized sections. In 13 towns and villages, the drivers had to stop, and the time of arrival was recorded. Then they drove behind a bicycle rider to the other side of the town or village, the time was recorded again, and then they resumed racing. Still, 514 km of the 552 km was pure racing on the first day. And race they did. The first leg, from Paris to Bordeaux, was well known to many of



Paul Baras in a Darracq. He later held the World Land Speed Record.



Leonce Girardot, founder of the C.G.V. race car company, drove his own car.

the drivers. The roads were mostly the same as today along the Route Nationale #10 and were and are very straight roads, on which it was easy to reach high speeds. This was especially true with the GV cars that were set up for high speeds. Panhard and Mors had 70-hp engines. De Dietrich, Napier, and Wolseley had less. The Gobron-Brillié had nominally 100 hp and the Mercedes 90 hp. Some of the Gobron-Brillié and Mors cars had streamlined bodies, though, in the case of the Gobron, the streamlined shape blocked engine cooling and caused many problems during the race.

On race day, the weather was fine. However, as it had not rained for a long time, the roads were extremely dusty. Spectators clamored on the roads to see the cars and only stepped back at the last moment to allow cars to pass when they emerged from the dust clouds. They were, of course, not used to the high speeds. Charles Jarrott worried about the crowds: “I asked what would happen to the swaying mass of people blocking the road when I started, and the only answer I received was a shrug of the shoulders and a reply that they would clear soon enough when once I got going. The soldiers intended for keeping the course clear were swallowed up in the huge concourse

of spectators, and disorder reigned supreme.” [“1903 Paris to Madrid – The Race to Death,” in *10 Years of Motoring and Motor Racing* by Charles Jarrott.] It was a recipe for disaster.

Nevertheless, all the drivers gave full throttle. De Knyff passed Jarrott for an early lead, but two tires burst and he zigzagged wildly before he could bring the car under control. Jarrott regained the lead, but let Louis Renault on his 30-hp racing voiturette pass, assuming he could retake the lead when the road was less crowded.

Between Rambouillet and Chartres, Louis Renault drove an average speed of 120 km/h and was therefore declared the fastest on this stage, because the Mors drivers Gabriel and Salleron were still way back and the timekeepers from the German magazine *Allgemeine Automobil Zeitung* (AAZ) timed only the first 60 racers. Still, they were probably faster than Renault on this stage. His top speed in the race was around 145 km/h. Fernand Gabriel, on a 70-hp Mors, passed 78 competitors who started before him. In Châtellerault, roughly half the distance to Bordeaux, he arrived in 25th. At Bordeaux, he was already third, arriving only 42 minutes after Jarrott. On the long straights, Gabriel reached a speed of

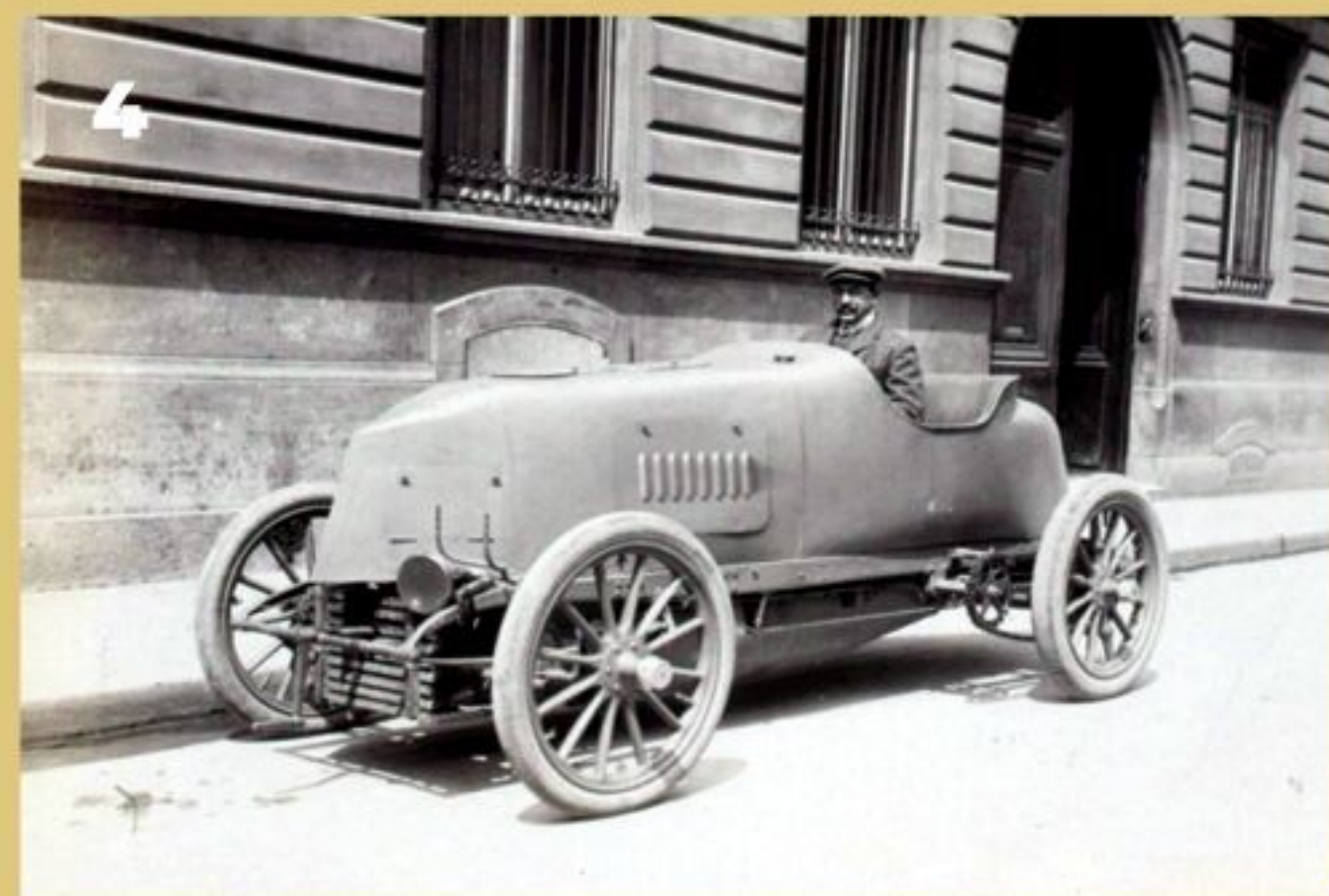
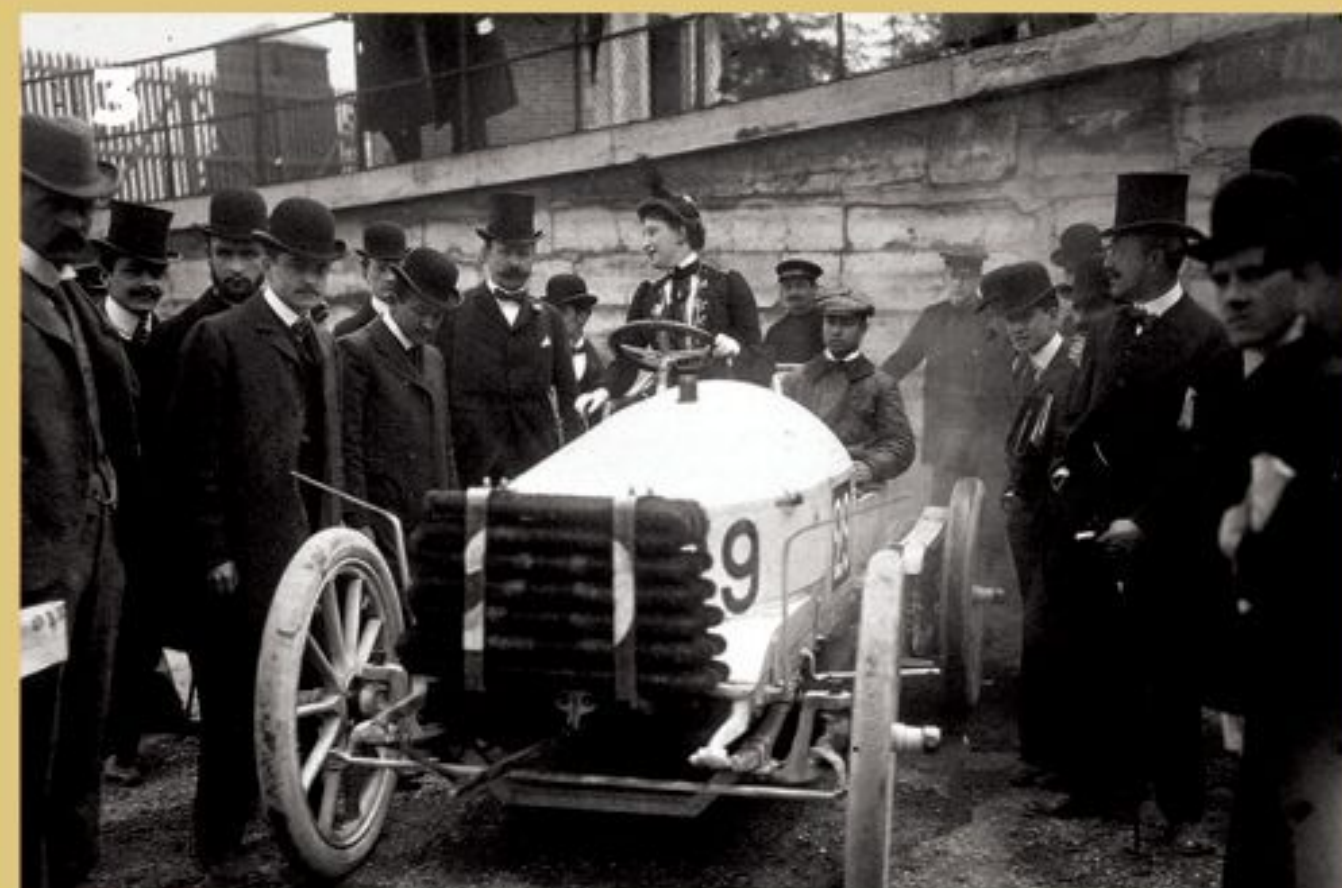
more than 160 km/h. That was way above the official world record for automobiles at that time, which had been set by Maurice Augières at 124.13 km/h on a Mors Type Z Paris–Vienne Type on November 17, 1902, in Dourdan, France. Gasteaux on a 60-hp Mercedes had to overtake 116 drivers to finish in eighth place. But most astonishing was the drive by Louis Renault. With only 30 hp, he finished only 26 minutes slower than Gabriel, but six minutes faster than Salleron, who came third overall on a Mors.

Ultimately, of the 219 starters, 114 arrived at Bordeaux. Of these 17 were involved in accidents. Baron de Caters on a 90-hp Mercedes, trying to overtake Jarrott and Renault, hit a tree. He was able to repair the car and continue. Leslie Porter in a Wolseley was not warned of a sharp corner and crashed sideways against a wall, crushing his riding mechanic and friend Willie Dixon to death. The car then burst into flames. An American, Terry, on a Mercedes, swerved while attempting to pass Porter’s Wolseley and skidded onto a footpath, puncturing the tire and petrol tank. This car also burst into flames, but fortunately spectators dragged both men unhurt from the wreckage. Lorraine Barrow driving a De Dietrich hit a tree head on

DEADLY RACE

Speed

Even motorcycles participated, such as this two-cylinder Clément.



1: One of the Sterpollet steamers being prepared.

2: Camille du Gast checking her De Dietrich at the eve of the start.

3: Du Gast was the second woman to compete in an international motor race.

4: The Mors featured a streamlined bonnet.

5: Sydney Girling was the first to start the race at 3:45 AM in his Wolseley.

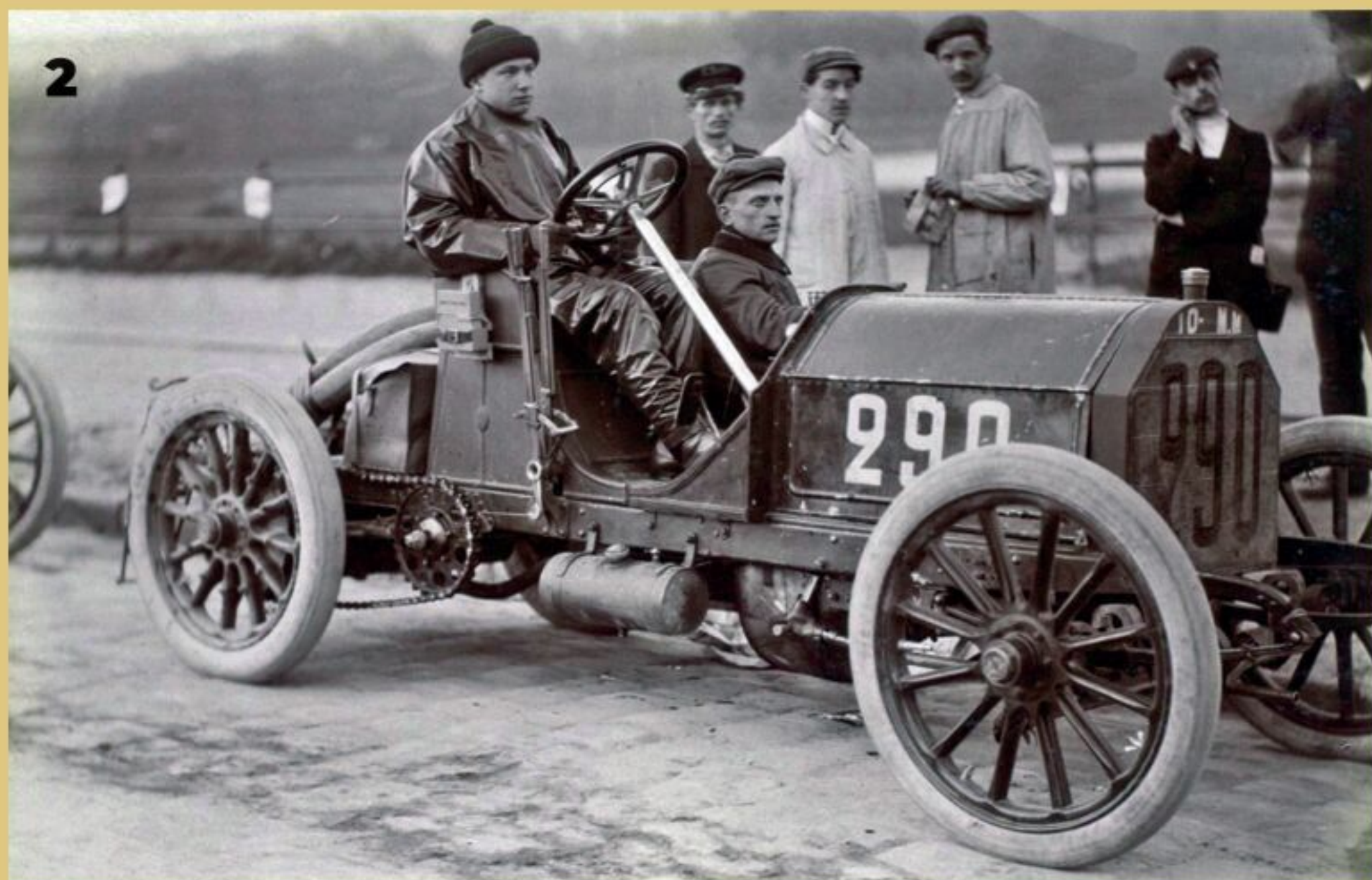


Gobron-Brillié also went the streamlined route.



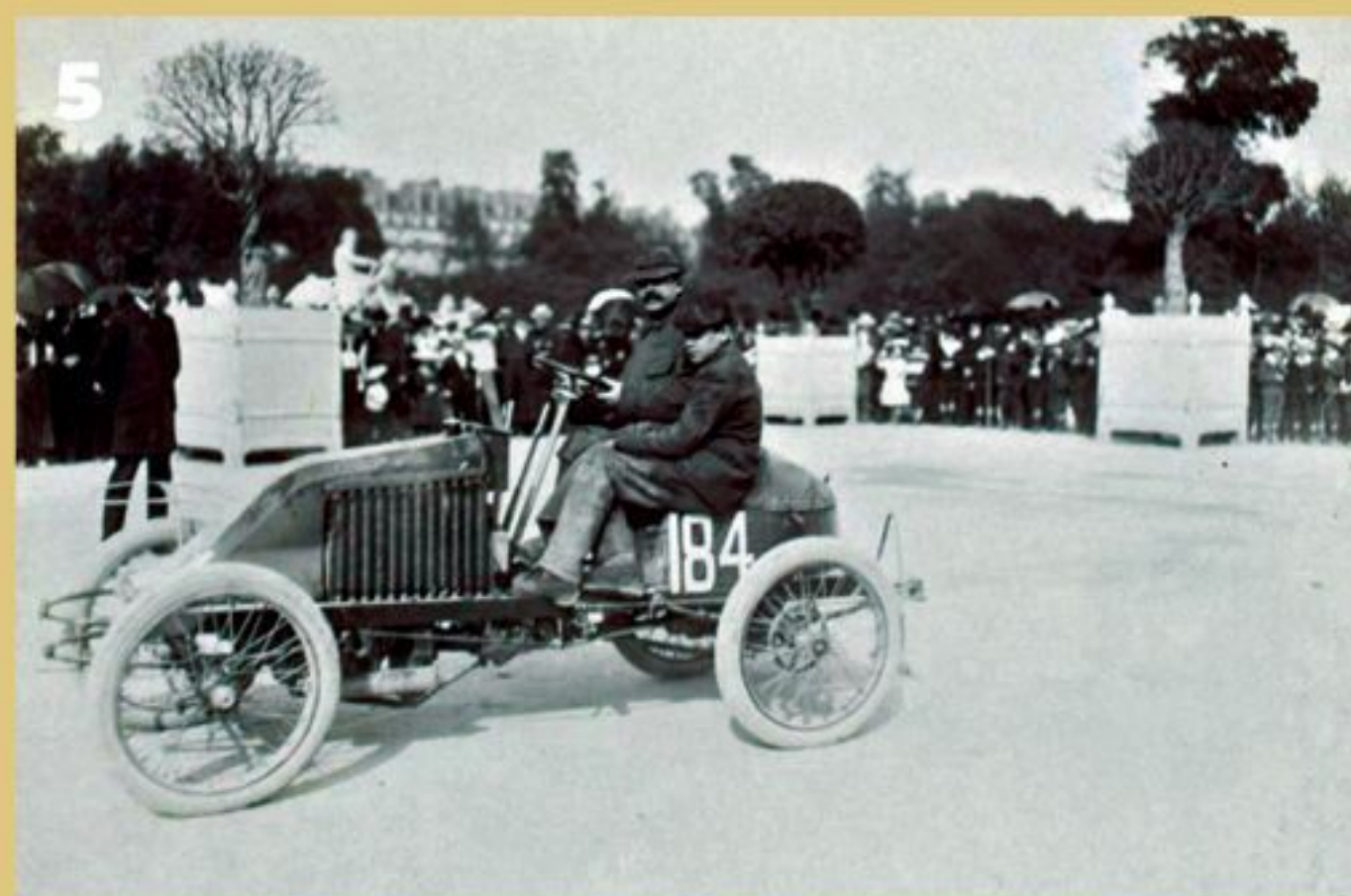
1: Otto Hieronimus arrived from Germany with his Mercedes.

2: Another Mercedes, driven by an American, Francis Terry.

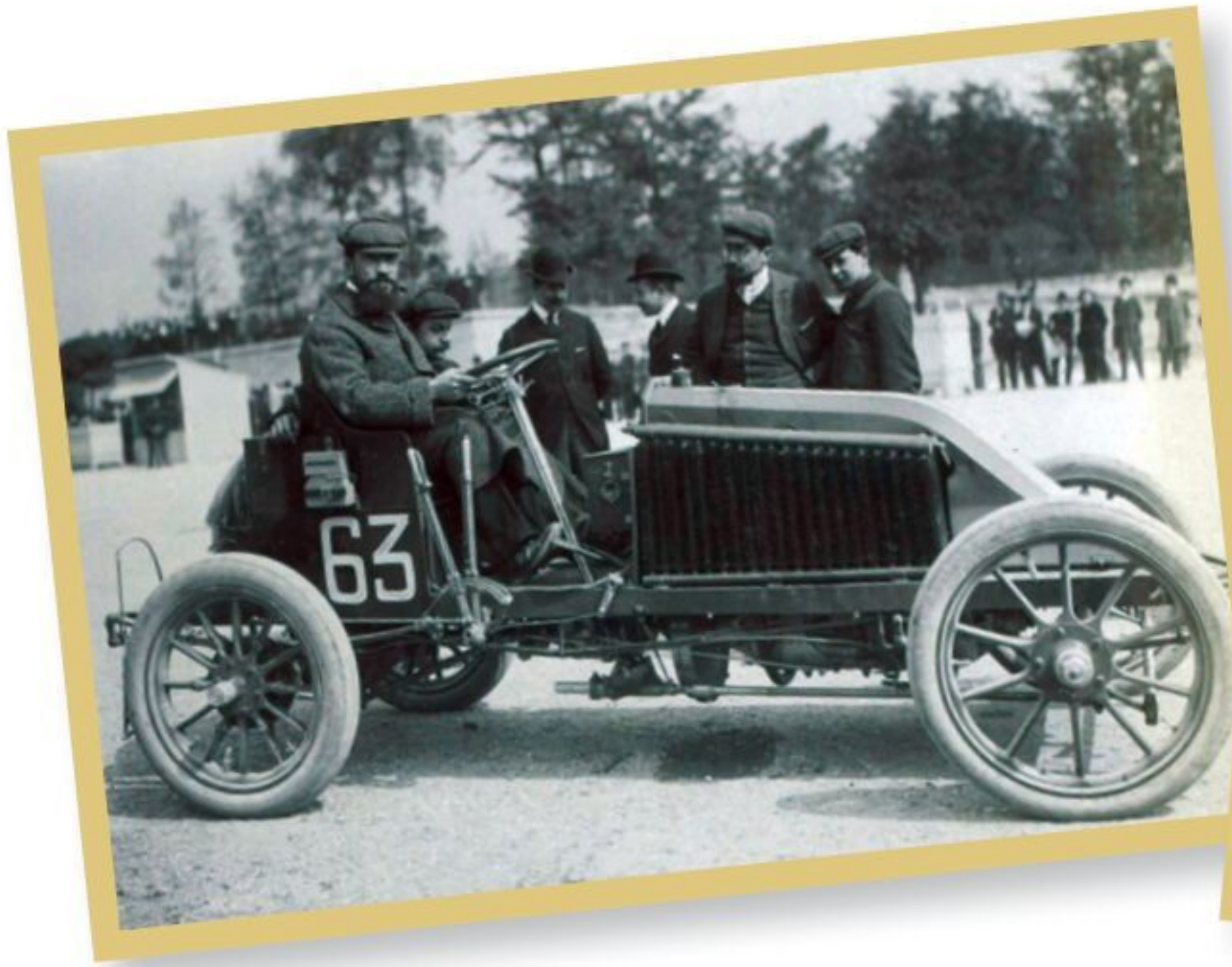


3: The Mors during a stop in Augères.

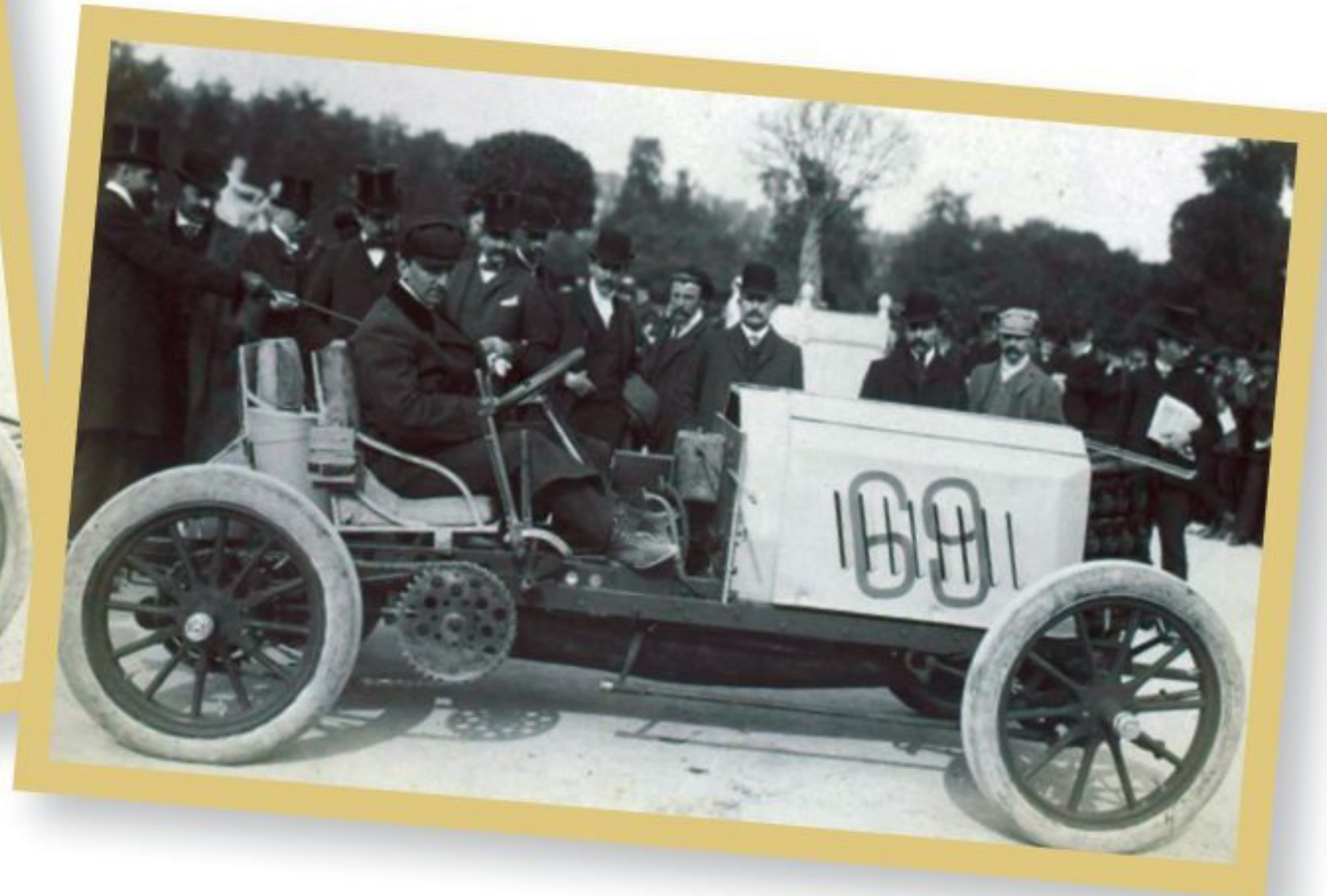
4: Another British entrant was Mark Mayhew with a Napier.



5: One of the four Renault voiturettes – none of those reached the finish line.



Marcel Renault died during the race in an accident.



Henry Rougier, who finished at 11th place with his Turcat-Méry.

at 130 km/h and died within a fortnight. His mechanic was killed instantly. One part of the chassis penetrated a tree and could not be removed afterward. The totally disintegrated engine was scattered around up to 30 meters away.

In the race, six racers died immediately and two more some days later. The most prominent was Marcel Renault who, because of the dust thrown up by Léon Théry's Decauville, didn't see a left-hand corner and missed the street at a speed of around 130 km/h. He and his mechanic were thrown out of the Renault, and Marcel hit a tree. Marcel died two days later; the mechanic Vauthier survived. In some other accidents, the drivers and mechanics survived, but spectators lost their lives. How many lost their lives is not known, but they were far too many.

Because of the fatal accidents, the Paris–Madrid race is not only known for the success of Fernand Gabriel and Louis Renault. Sadly, it is also known as the race of death. Until 1903, motorsport had not claimed many casualties, but in spring 1903 Count Elliott Zborowski had a bad accident at the “La Turbie” speed event in his 60-hp Mercedes and was killed. The Paris–Madrid race was far more deadly.

Because of all the accidents, the race

was halted by the authorities at Bordeaux. The finish line was at a place called Quatre Pavillons. The drivers were not allowed to drive further, and the cars were drawn by horses to the garage where they stayed the night.

Fernand Gabriel was declared to be the overall winner with five hours, 13 minutes, and 31 seconds. Second was Louis Renault in five hours, 39 minutes, and 59 seconds. Third was Salleron on a Mors, six minutes behind Renault. Charles Jarrott, who struggled with a slipping clutch, ignition problems, and fuel blockages, never passed Louis Renault and finished fourth.

Gabriel and Renault were the only ones with an average faster than 90 km/h. Gabriel's was 98.05, Renault's 92.3. On the other hand, Rulot on a Serpollet steam car was last in Bordeaux with an average 24.5 km/h.

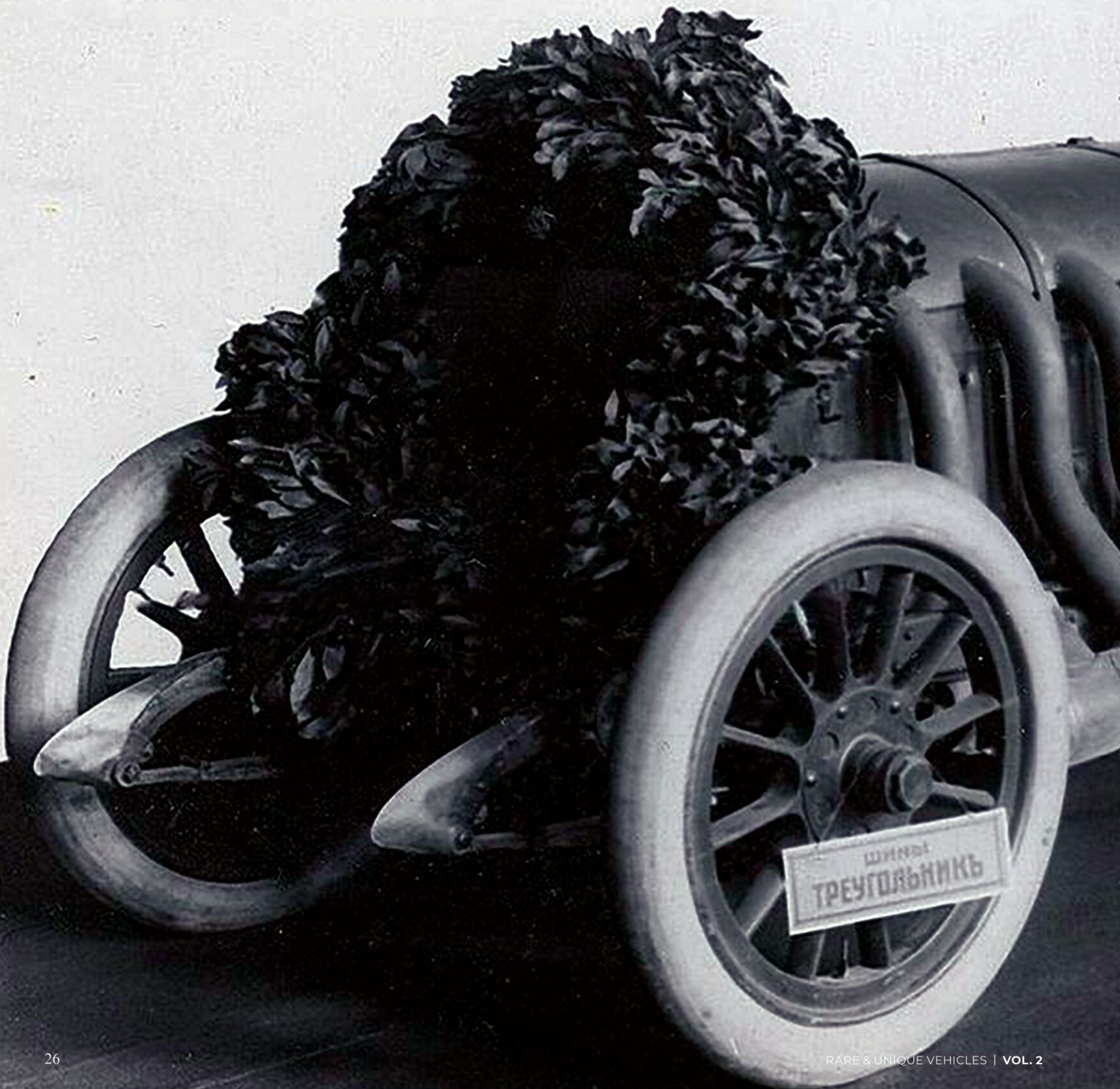
With all the unfavorable coverage by a histrionic press, it seemed that auto racing was done forever and not only in France. But that was not the case. Just a few weeks later, the Circuit des Ardennes and the Gordon Bennett race in Ireland were run, but both were raced on a closed circuit, although the circuits were much longer than typical circuits today.

Paris–Madrid was the last of a series of great town-to-town races run on public roads. Fortunately racing recovered from the bad press, with a little more emphasis on safety, especially in keeping the public off the race course. The Peking to Paris race of 1907 and the New York to Paris race of 1908 kept these long and challenging city-to-city races alive, even though they were more reliability trials than all-out races. ♦

FURTHER READING

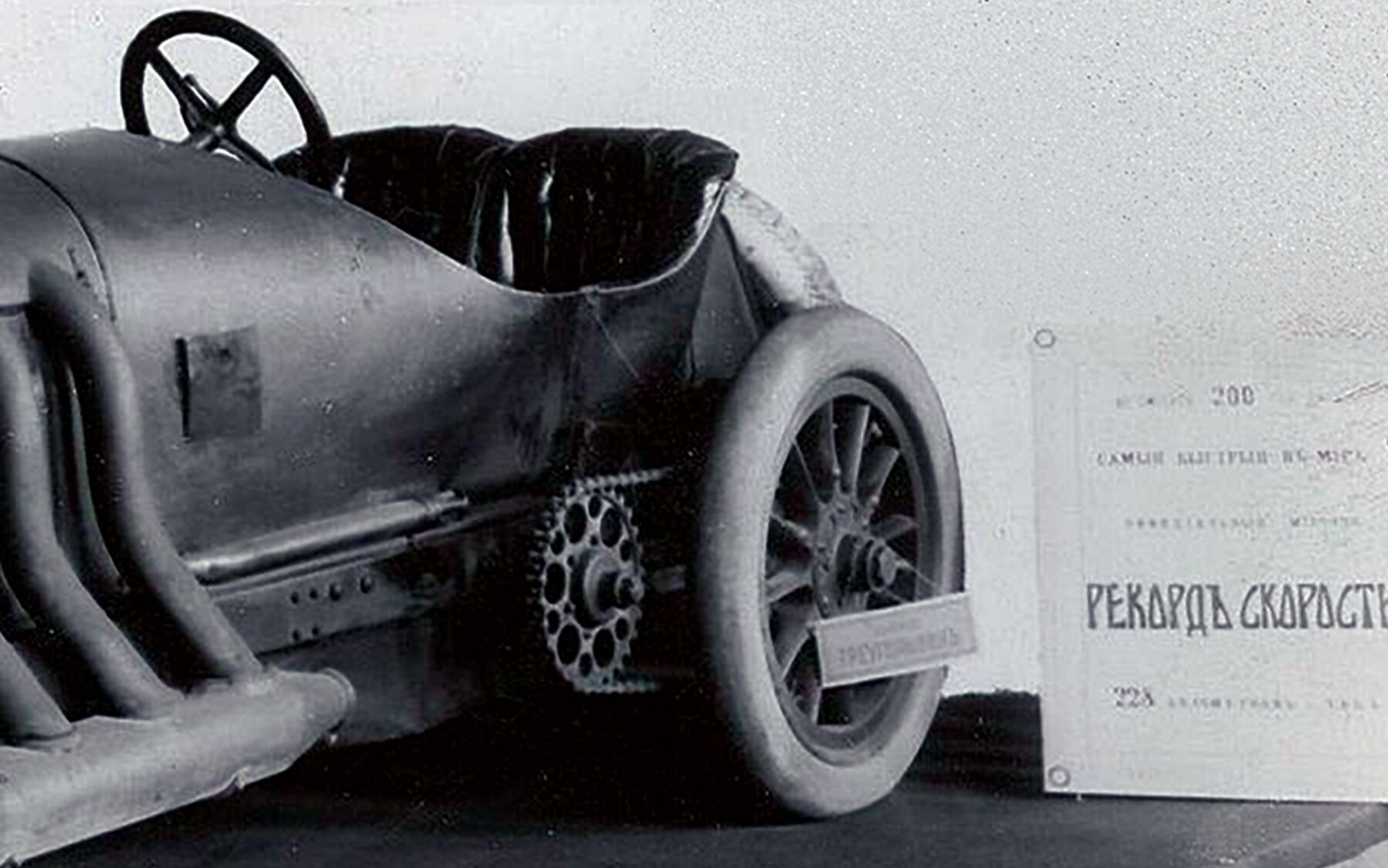
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- Motor Racing Memories 1903-21, W.F. Bradley, Motor Racing Publications Ltd. 1960

40 YEARS UNBROKEN



BENZ AND RUSSIAN RECORDS

While early Russian motor races saw French brands achieving success, it was up to Opel and Benz to come up with long-standing records. Stanislav Kiriletz looks back at the first 200-km/h result achieved by Benz and the story of early motorsport in the Russian Empire.



The 200-hp Benz of Franz Hörner which set a new Russian record was exhibited at the 1913 St. Petersburg International Automobile Exhibition with a wreath and a banner from Treugolnik, which provided the special tires.

FIRST RACES AND RECORDS IN RUSSIA

Russian motorsport has deep roots going back to the 19th century. On October 23, 1898, the Club of Velociped Ride in St. Petersburg organized the first Race of the Motors, in which six French Clément tricycles with De Dion-Bouton engines raced against each other with a sole Benz Phaeton accompanying them. The first to cross the finish line was Pawel Beliaieff on a Clément tricycle, who covered a distance of 39 versts* (41.6 km) on a snow-covered slippery road in 1 hour, 33 minutes, 36 seconds. It meant an average speed of about 27.3 km/h, which was a very high speed for that time. Benz averaged 19.5 km/h and arrived last to the finish line, with a time of 2 hours 11 minutes. "With a weight of more than 50 pounds (851.8 kg) and thin solid tires, this is a respectable time," said one press report.

Soon, competitions in the vicinity of St. Petersburg, and later in the vicinity of Moscow, began to be held regularly. Between 1899 and 1901, three races were held at a distance of 693.4 km along the Moscow to St. Petersburg route. In 1901, a Volkonhosky road race near St. Petersburg introduced a new formula: it

was more about speed, as racers had to cover one verst from the starting point. Louis Masi from Switzerland became the first record holder with a Psycho light car, powered by a DeDion-Bouton assembled by the St. Petersburg-based Starley factory, of which Masi was a director. His speed was 42.5 versts per hour (45.3 km/h).

Subsequent races were organised by the St. Petersburg Automobile Club locally. In 1905, Wassili "Basil" Soldatenkoff became the first Russian to pass the 100-km/h mark with a speed of 99.477 versta per hour (106.112 km/h) in a Richard-Brasier. Soldatenkoff was the only Russian during those years who was also successful in western Europe. This was the last victory for French brands; later, Opel and Benz cars were used for record attempts by Russian, French, and German drivers.

RACES BETWEEN CAPITALS

In 1907 the economy started to recover in Russia, which resulted in the number of cars increasing, and so motorsports reached a new level. In May and June, the 1st International Automobile Exhibition was held in St. Petersburg. On this occasion,



*Victor Hémerly
(1876-1950) at
the finish line
of the 1908 St.
Petersburg-
Moscow race.*



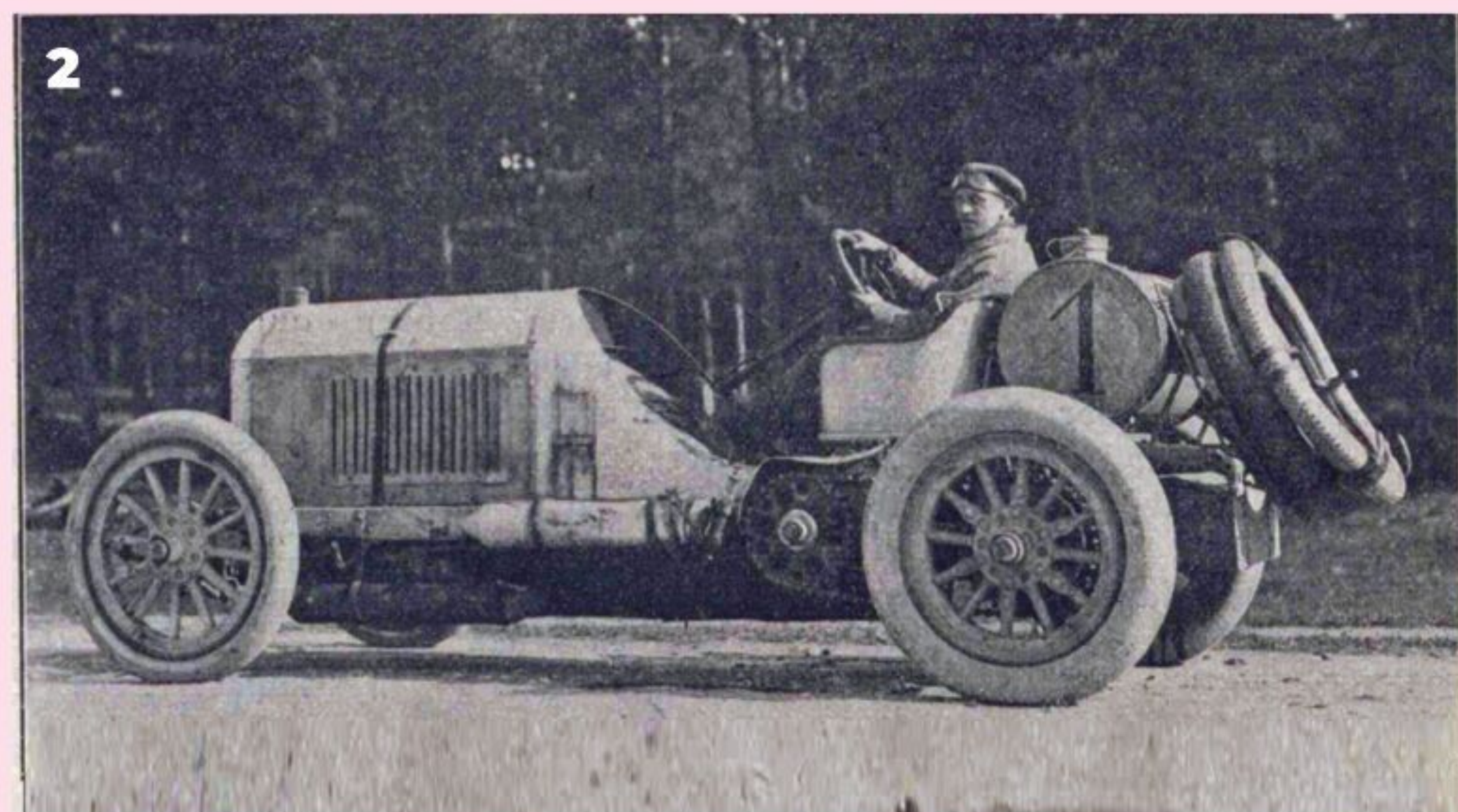
the Automobil Club of Russia decided to revive inter-city races, which had been banned in Europe following the tragedy during the 1903 Paris–Madrid race (see p. 18). Russians on the other hand decided to take a chance, and on June 6, 1907, a grandiose race took place between Moscow and St. Petersburg, attracting many participants from Europe. The accident-free race saw Arthur Duray winning in a Lorraine-Dietrich car. He covered 696 km in 9 hours, 22 minutes – meaning an average speed of 73.5 km/h. So a tradition began to organize such races during car shows and exhibit the winner’s car.

The second international automobile exhibition was held in May and June 1908 in Moscow. This time the drivers started in St. Petersburg on the night of June 1, and finished in Moscow. After a long hiatus, Benz returned to Russian motorsport. Victor Hémery, a renowned French racer, won in a Benz. He covered the route in 8 hours, 33 minutes, 48 seconds with an average speed of 80.2 km/h. This achievement was not considered to be an official record, but no one had achieved such a result at such a distance on the highway before. In October 1909, a delegation of the Automobil Club of Russia took part in a conference

on the development of an International Convention, which included general requirements for road traffic, regulations for international car races, rules for organizing motor exhibitions, and other pressing issues of motoring. On the initiative of the Automobile Club de France, races between cities were banned in Russia as well.

ST. PETERSBURG LOSES GROUND

Meanwhile, motorsport in Russia reached a new level. Emperor Nicholas II approved the activities of automobile clubs and took the Russian Automobile Club of Russia under his supreme patronage, granting the organization the right to be called the Imperial Automobile Club of Russia on November 2, 1909. New public motoring organizations emerged in many large cities of the vast country, and they are all actively involved in touring races and speed runs. Many interesting events happened in the 1909 season. On June 6, at the Verst Race, organized by the popular *Avtomobil* magazine in cooperation with the St. Petersburg Automobile Club, a Speed Cup was announced. It was awarded to the driver who showed the best time on the move and on the spot. Count Alexander Alexandrowitch



1 Victor Hémery's 120-hp Benz at the 1908 St. Petersburg-Moscow race

2 Fritz Erle with a 150-Benz at a race near Riga in 1909.

3 Fritz Erle (1875-1957), who became head of the Benz racing department in 1907.

4 Alexander Nikolajewitsch Konschin (1880-1912) at the wheel of an Opel.

Mordwinoff in a 120-hp Opel car covered one verst in 29.2 seconds, reaching 123.294 versts per hour (131.53 km/h). But his record did not last long. On August 16, at the Rodenpois races near Riga, Fritz Erle, a German racer in a 150-hp Benz, raced a mile in 25 seconds. His speed at the finish line was 144 versts per hour (153.619 km/h). This was a new record, the first official record for Benz and a record reached outside the capital of the Russian Empire for the first time.

On November 8 of the same year, on a special track in Brooklands in England, Victor Hémery set a world record of 202.691 km/h (various sources claim various times). He also used a Benz car, but one with a 200-hp engine and an aerodynamic body: the car that is now known as the Blitzen Benz. The high speeds shown in St. Petersburg and Riga haunted Moscovites. Every year they organized verst races, and finally luck smiled on them. On July 15, 1912, the First Russian Automobile Club organized a touring race on the Moscow-Yaroslavl highway. Alexander Nikolajewitsch Konschin, a famous Moscow sportsman, won in a 120-hp Opel car. He “brilliantly flew past the finish line and set a new All-Russian Record,” declared a press report. He covered a verst from the start in 24 seconds. His speed

at the finish line was 150 versts per hour (160.02 km/h). Unfortunately Konschin was tragically killed in an accident at a 100-kilometer race near Moscow on September 22 of the same year.

THE REVENGE OF BENZ

In December 1910, the International Sports Commission of the Automobile Club de France decided to calculate speed records based on two runs on a track in both directions. This was done to exclude the influence of wind and possible slope of the route. In Russia and North America, this rule was ignored for a long time. The Americans were not interested in the opinion of Europeans. And as Russians did not pretend to be world leaders; they just recorded all results, such as Barney Oldfield’s 211.9 km/h and Bob Burman’s 228.1 km/h, set on the sandy track of Daytona Beach in 1910–1911 with a 200-hp Benz, both of which were unconfirmed by international standards.

In May 1913, the grandiose 4th International Automobile Exhibition opened its doors in St. Petersburg. According to already established tradition, automobile races were announced, such as a circuit and a verst run. Benz & Cie decided to pull out all stops and bring its 200-hp model,

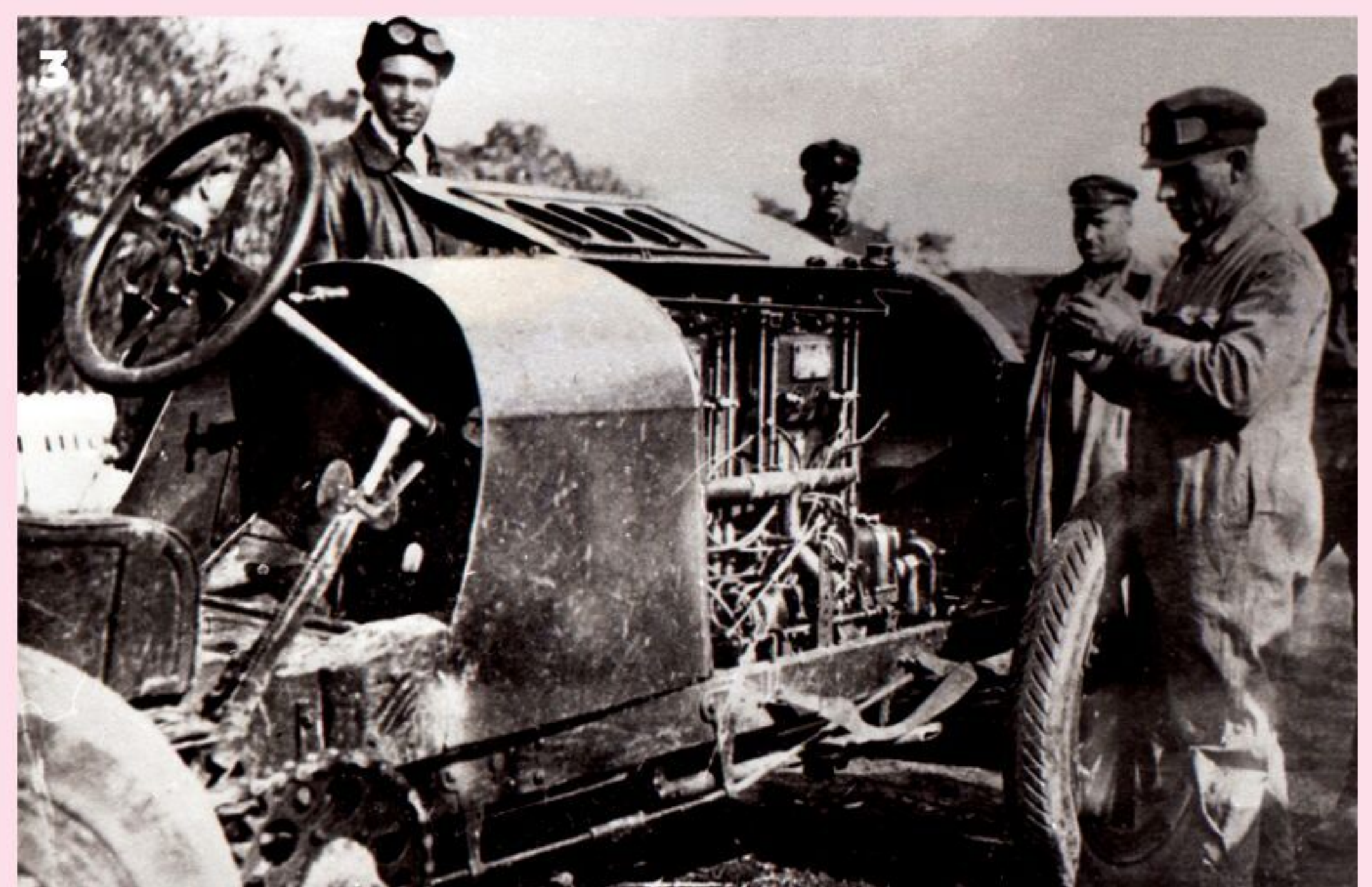


1: Franz Hörner at the 1914 Copa Tibidabo race with a 200-Benz, which was equipped with Russian Prowodnik-Columb tires.



2: Willy Scholl, winner of the St. Petersburg Automobile Club's 1914 Grand Prix with a 150-hp Benz.

3: Boris Udolsky near a Benz racing car in 1931. It was either a 150-hp or a 200-hp model.



with Franz Hörner at the wheel. Russian-American India Rubber Co. Treugolnik equipped the racing Benz with new specially designed tires for racing. On May 27, 1913, at a one-verst high-speed race organized by the St. Petersburg Automobile Club on Volkhonsky Road, Franz Hörner set an absolute record in Russia. He covered the distance in 19 seconds. His speed at the finish line was 189.5 versts per hour (202.159 km/h). Hörner fell short of the world record recognized in Europe by Victor Hémery, set in Brooklands in 1909 (202.691 km/h), but his result can be considered a continental European record.

After this event, the Russian division of the company Benz & Cie. included the 82/200-hp model in its price list. A chassis without a body was offered for 17,000 rubles; for that kind of money you could buy seven Ford cars! So there were no takers for the extra-strong Benz.

THAT WAS THE END

The last verst races of the Russian Empire were held on May 24, 1914, in St. Petersburg. Willy Scholl, a German driver, was the fastest with a 150-hp Benz; however, his speed at the finish line was only 138.45 versts per hour (147.7 km/h). Also in May, Franz Hörner won the Copa

Tibidabo race in Catalonia, Spain. His 200-hp Benz came equipped with Russian tires – but not Treugolnik; rather the world-famous Columb produced by the Prowodnik factory in Riga.

After the political events of 1917, the change of government, and the Civil War, motorsports in Russia fell into decay. In 1922, Ivan Ivanoff in a 100-hp Benz car covered a mile in 28 seconds, a speed of 128.3 versts per hour (138.87 km/h). Five years later, Boris Udolsky tried to set a new country record with the old 200-hp Benz, but in one-kilometer races on the move, he managed only 133.3 km/h, and in 1931 his result was 187 km/h. There were no other cars capable of developing such a speed in the USSR at that time. Franz Hörner's 1913 record lasted almost 40 years in Russia. It was in 1951 that Vladimir Nikitin achieved a similar result, 202.18 km/h with a special Kharkov-3 record car (see Rare & Unique Vehicles Number 1). A year later, Alexey Ambrosenkov finally surpassed Hörner's record: he reached 203.05 km/h with a Zvezda-3M. These achievements were considered absolute speed records in the USSR. The long-standing successes in the races in Tsarist Russia were not kept secret in the Soviet Union, but it was often not considered acceptable to bring them up. ♦

*Verst is the Russian unit of distance measurement, equal to 1066.8 meters.



4: Franz Hörner (1882–1944), who set an absolute Russian speed
6: A Spanish advert with Prowodnik tires.

5: A Spanish advert with Prowodnik tires



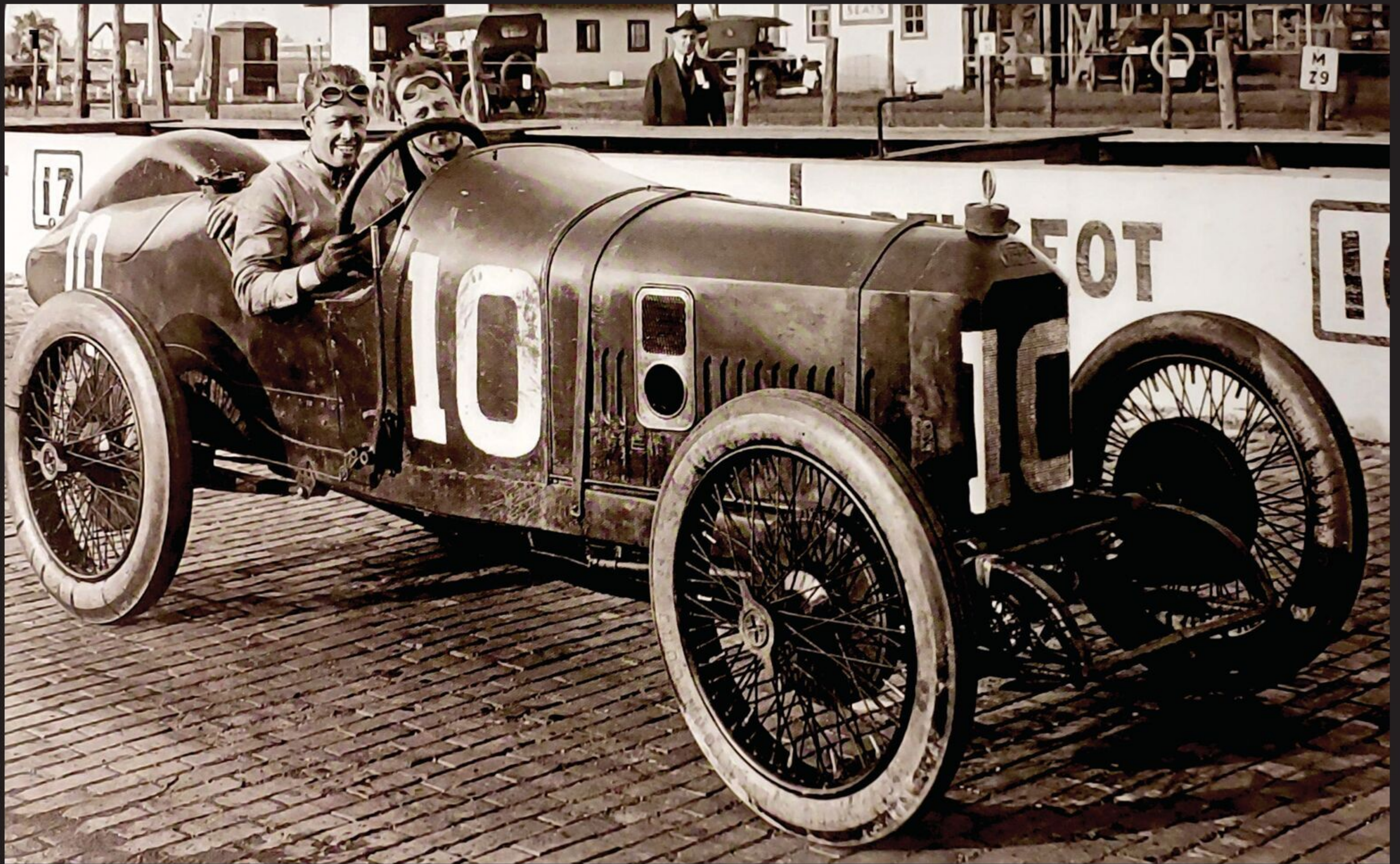
Between 1912 and 1914, Peugeot built a group of race car with the world's first dual overhead camshaft engines - the ancestors of all high-performance engines to follow. Of those early Peugeots, only two remain. Sarah Morgan-Wu, Jim O'Keefe, & David Cooper tell the story of one extraordinary car.



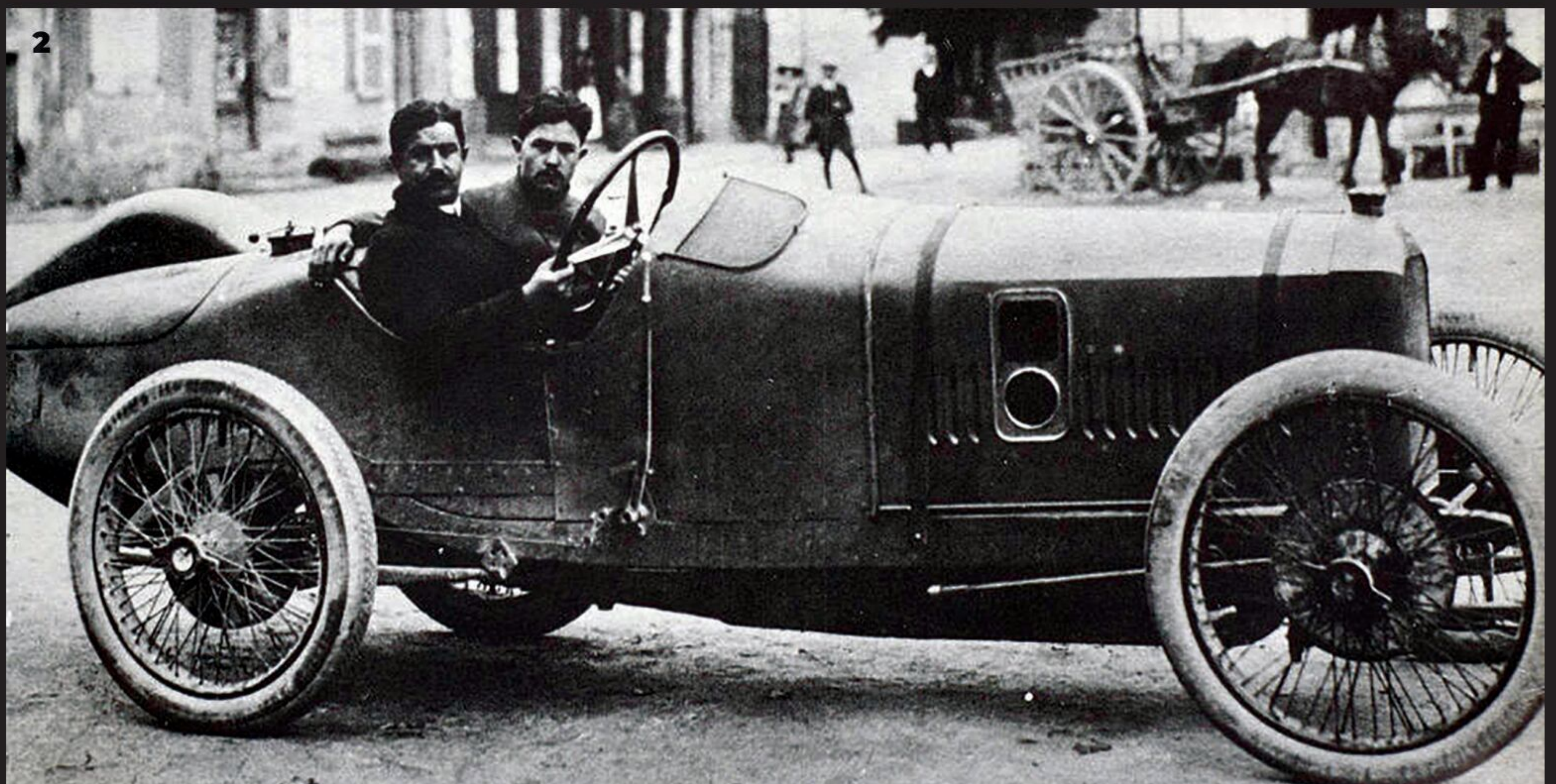
**THE STORY OF
PEUGEOT L45-01**

THE FIRST TWIN-CAM RACE CARS





SOURCE: JIM O'KEEFE



SOURCE: JIM O'KEEFE

1: Ralph Mulford and Fred McCarthy are seated in Peugeot L45-01 #10 at the 1916 Indianapolis 500.

2: A publicity photo of Peugeot L45-01 taken in 1914. Victor Rigal is seated behind the wheel

with an unknown mechanic.



SOURCE: JIM O'KEEFE

The four Peugeot L45 cars lined up in Lyon on the day of the French Grand Prix, July 4, 1914. Georges Boillot is in #5; Jules Goux is in #19; Victor Rigal is in #32 and André Boillot is in the unmarked spare car.

THE Peugeot team that designed and built the 1912 Peugeot Grand Prix and its successive cars were nicknamed “Les Charlatans” by their skeptical detractors because their ideas were so revolutionary.

With their years of racing and design experience, this group of men conceived what became the standard in modern race engines by stepping outside the bounds of what was understood at the time and defying company hierarchy and procedures. Robert Peugeot, the head of Société des Automobiles Peugeot, supported and funded the efforts of this innovative and diverse group of men, giving them a separate workshop outside Peugeot’s engineering headquarters.

Driver-mechanics Georges Boillot, Jules Goux, Paolo Zuccarelli, and draftsman-engineer Ernest Henry did not specifically invent each of the mechanical advances that came to characterize their thoughts on race car design. However, their utilization of these innovations in one package; their driving ability, particularly that of the greatest racer of his day, Georges Boillot; and the contribu-

tions the team made as a group were all factors that led to their success, both in design and on the race course.

Their innovations included an inline four-cylinder engine with the cylinder block and head cast as a whole to promote strength. It also used “pent roof” combustion chambers with a centrally located spark plug to enhance even burning of the fuel-air mixture. There were four inclined valves per cylinder operated by double overhead camshafts for improved engine breathing. This combination was their idea, and since then, most of the world’s racing engines have continued to follow this pattern, perpetuating their legacy.

The Peugeot team designed and utilized a subframe to mount the engine within the frame, which isolated the engine from chassis flex, improving the cars’ roadholding. They incorporated a dry-sump lubrication system, which allowed them to set the engine lower in the chassis, improving the center of gravity. They also saw the advantage of using front brakes along with the existing rears to deal with the hilly road conditions at the 1914 French Grand Prix (GP) course at Lyon.

The twin-cam Peugeots were outrageously successful, winning the 1912 and 1913 French Grand Prix races as well as the 1913 Indianapolis 500. They were copied by other manufacturers and builders worldwide. The 1914 L45 Peugeot race cars, which won many races particularly in the hands of American race teams, served to earn Peugeot a central place in the genealogy of race-car engine design.

ONE OF THE 1914 MACHINES SURVIVES TO THIS DAY. HERE IS ITS STORY.

1914

The remaining Peugeot Charlatans, sadly now without Paolo Zuccarelli, who had suffered a fatal accident in 1913, designed a new 4.5-liter model for the 1914 French Grand Prix. The engine size was reduced to meet the new race formula, and front-wheel brakes were added. The first L45, numbered 01, was finished by the end of January and was driven extensively on the Lyon circuit to test the various components. After testing, they increased the height of the louvers on the

engine covers of the subsequent cars to allow more heat to escape from the engine bay. Boillot, Goux, and Victor Rigal drove three of the four cars constructed, on July 4. L45-01, the subject of this article, was kept as a spare. André Boillot, Georges's brother, was photographed in the car at Lyon, presumably as an alternate member of the team.

The 1914 French Grand Prix was not the all-out success that the Peugeot team and their French fans had anticipated. While there were 39 starters, the real contest was between Peugeot and Mercedes. As this was a fast course with tight S turns, the Peugeot team had streamlined the body, unusually fitting the two spare tires longitudinally behind the driver in the streamlined tail. This extra weight in the rear made handling more difficult and consequently, the Peugeot was harder on tires than its Mercedes rivals. Boillot drove full out until his rear axle broke on his last lap. After Boillot was out the Mercedes team finished 1-2-3, much to the disappointment of the French spectators. Goux, a more planned and conservative

driver, finished fourth, and Rigal ended in seventh.

With a full Grand Prix season ahead of them, the Peugeot team anticipated a rematch with their nemesis, the Mercedes team. In late July, Georges Boillot took L45-01 to Boulogne and ran it in a series of hillclimbs, setting several speed records. Unfortunately, the heaviness of politics and national alliances superseded the joy of racing, and with the onset of World War I, on August 3, all four of the Peugeot L45 cars were boxed and placed under wraps in Paris.

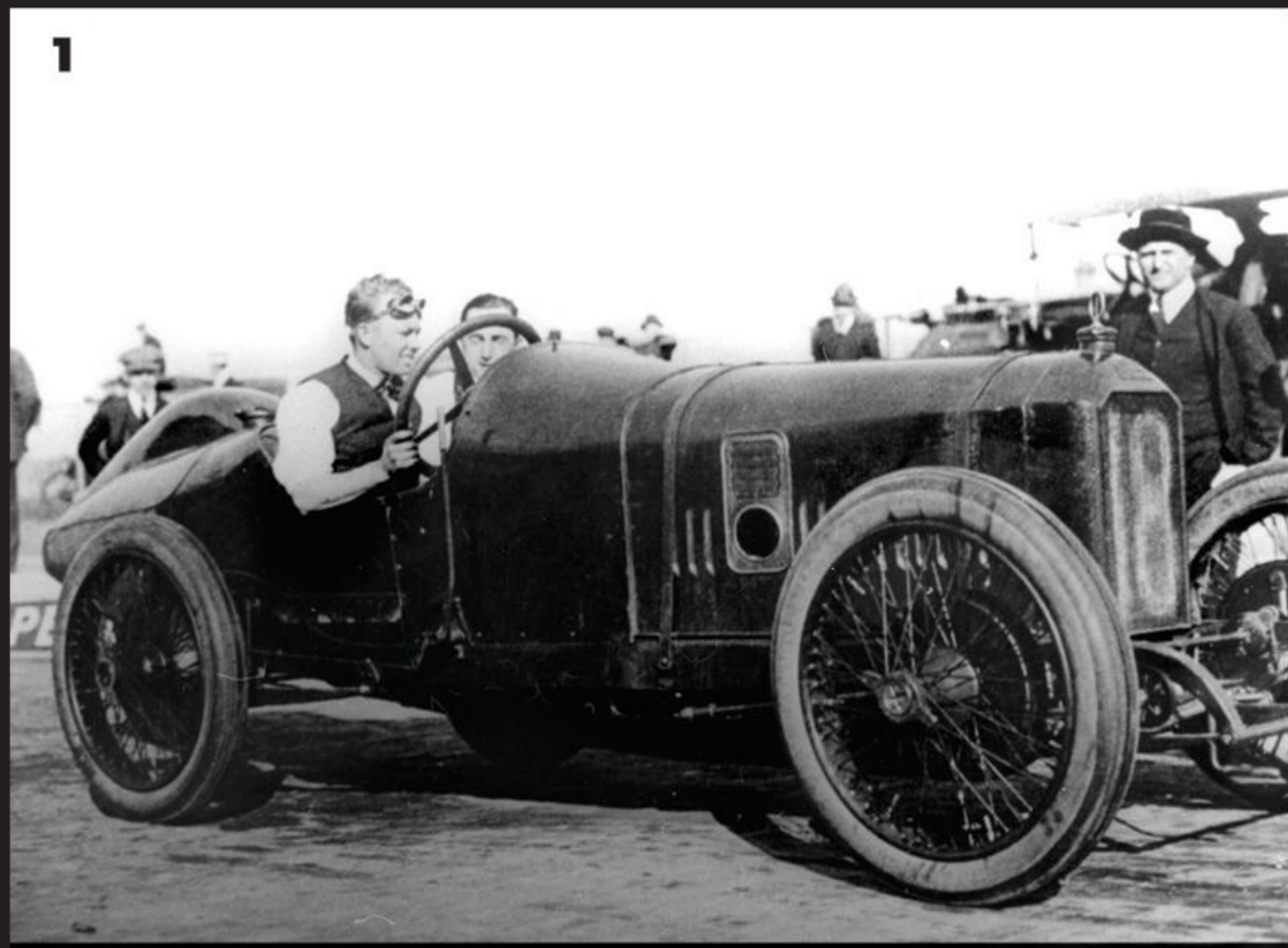
1915

To recover his costs, Robert Peugeot typically sold each year's previous model to private interests. By early 1915 it became apparent the war in Europe would not end anytime soon, and that, coupled with the successes of the 1912 and 1913 Peugeots, ensured a strong market among American racing enthusiasts for the 1914 cars. Alphonse Kaufman's New York-based Peugeot import company acquired Victor Rigal's

L45-04, which had arrived in America in time for Dario Resta to drive it in the 1915 Indianapolis 500. The newly incorporated Indianapolis Speedway Racing Team Company eventually acquired the Goux and Boillot L45 race cars through Kaufman in the summer of 1915.

The final L45 Peugeot to leave France did so under the auspices of 19-year-old Henry Lucher Brown, the youngest son of a wealthy landowner and lumber baron from Orange, Texas. Brown was the patron of the well-known, well-liked, and experienced American driver Ralph Mulford. Brown had secured Peugeot L45-01 from the company in France at great expense, circumventing Kaufman's Peugeot import company and, according to rumors, stealing a march on James Allison and the Speedway Racing team.

Although shipments from Europe to the United States had continued under American neutrality, German U-boat attacks on official ships and private merchants also continued. The uncertainty contributed to the mystery arrival date of Peugeot L45-01, which dragged into



1: *Ralph Mulford with Paul Stevens ready to race Peugeot L45-01 #18 at Sheepshead Bay, New York, October 9, 1915.*

2: *Smiling Ralph Mulford shows the unique spare tire compartment.*

3: *Art Klein in Peugeot L45-01 #29 broke a wheel at the Los Angeles Speedway board track in Beverly Hills, February 28, 1920.*

Source: Jim O'Keefe

Source: Jim O'Keefe

Source: Jim O'Keefe

September 1915. Mulford and Brown missed several races they had entered, at Minneapolis, Chicago, and Providence. Peugeot L45-01 was now several weeks overdue.

On October 2, the Astor Cup Trophy 350-mile race was scheduled to be held at the new two-mile board speedway in Brooklyn, New York. The track was one of the most beautiful board circuits ever constructed, and this race was expected to be the apogee of all Peugeot car appearances in America in 1915. Six Peugeot race cars and drivers initially entered: Ralph Mulford in the Brown Peugeot L45-01, Bob Burman in his 1913 GP Peugeot with a Miller-massaged engine, Resta with the 1914 L45-04 GP car, and the Speedway team of Johnny Aitken and Howard Wilcox had the newly arrived 1914 L45-02 and L45-03 GP cars. The sixth Peugeot was a 1913 three-liter car, now assigned to Earl DeVore.

When it appeared that L45-01 would still not arrive in time for the race, Ralph Mulford picked up a ride on the Maxwell team. However, when sheeting rain

caused the race to be postponed until October 9, Brown and Mulford must have been ecstatic as the delay meant they might have a chance to race the Peugeot. On October 7, the New York Tribune ran an article stating the “Mulford car” was aboard a tramp steamer anchored down in the bay. After the boat docked, Mulford and Brown managed to rush the car through customs in record time and drove directly to the track on Friday, October 8. Pouring rain delayed the qualification attempt until late that evening. When Mulford finally climbed behind the wheel of L45-01, he set the fastest qualifying time for the race at 1:05.35, breaking the track record, and that while running on only three cylinders. Qualification positions were determined by the day the time was set, so, although Mulford had the fastest qualification time, he started on row five in 17th position. Along with him was his mechanic, F. Paul Stevens. Stevens was a good friend whom Mulford had met while on vacation at Stevens’s family hotel in Lake Placid, New York.

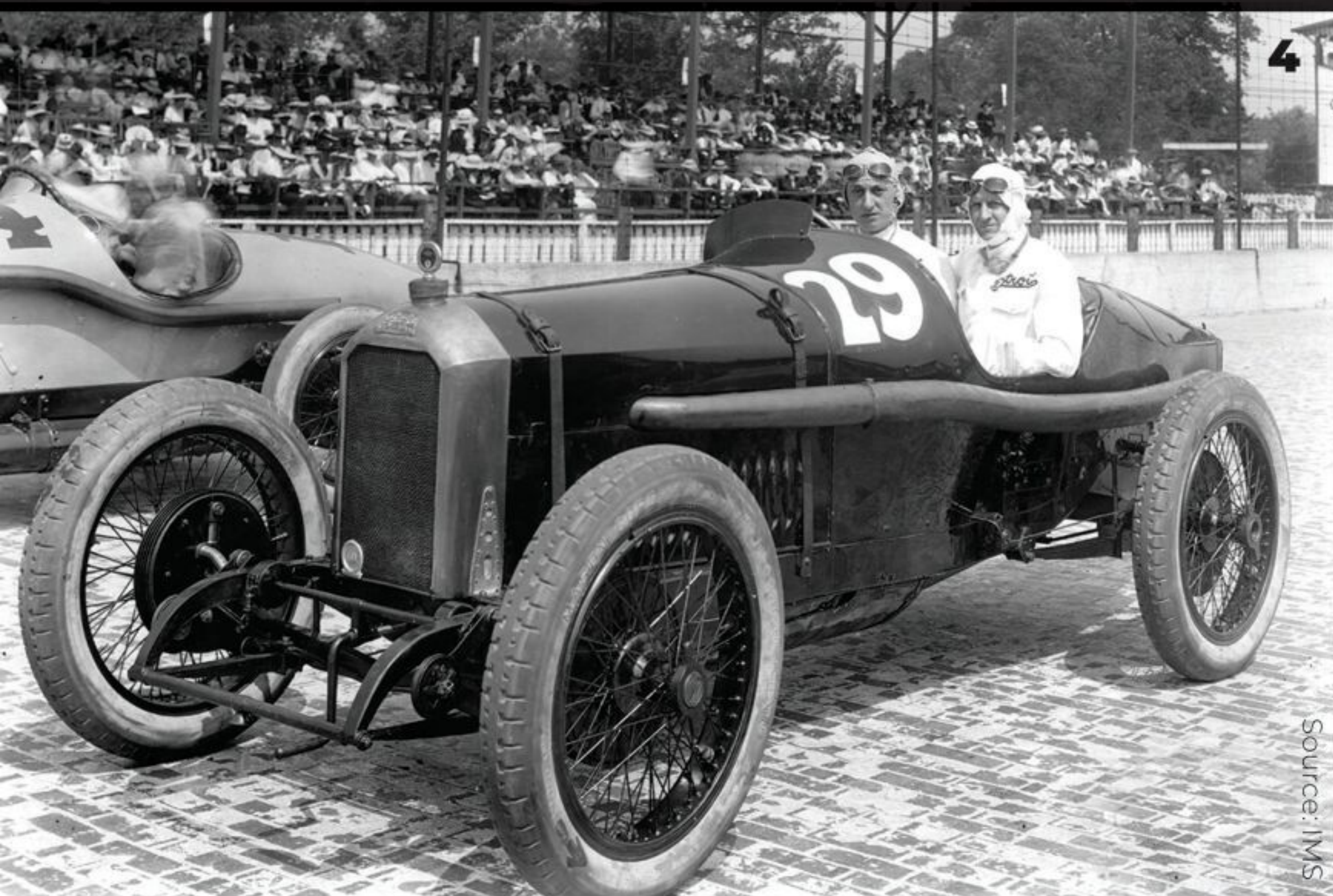
Mulford’s fast driving style proved to

be his downfall in the race, as he retired after lap seven with a connecting-rod problem brought on by his rush for the lead. It must have been small comfort that two of his fellow Peugeot drivers also went out while leading: first Resta, with connecting-rod problems, and then Aitken, with a valve problem.

The only other race in which Peugeot L45-01 competed in 1915 was the final race of the season, also at Sheepshead Bay, and it was another retirement for Mulford with a broken connecting rod. It is worthwhile to note the other L45s had modified the heavy humped tail, while Mulford retained this design feature, and that, combined with Mulford’s driving style on the boards, may have been a factor in his retirement.

1916

On May 13, 1916, Ralph Mulford and his mechanic Jimmy Stakes reappeared with Lutch Brown’s Peugeot L45-01 at Sheepshead Bay, ready for race competition. There were three events on the program: two preliminary races of 20 and 50



4

Source: IMS



5

Source: Detroit Public Library



6

Source: Jim O'Keefe

4: Art Klein and Jim McAlister are in Peugeot L45-01 #29 on the grid at the 1919 Indianapolis 500.

5: Joe Boyer seated in Peugeot L45-01 #29 at his home in Detroit, Michigan, in 1924.

6: Eddie Rickenbacker driving Peugeot L45-01 #7 passes Dario Resta at the Chicago Speedway board track on 11 June 1916.

1: Right side view of L45-01 engine. Lindley Bothwell changed the original steering box and added a Miller carburetor.



Photo: Bonhams

miles and a 150-mile feature race called the Metropolitan Trophy.

Although Mulford retired with a flat tire and a carburetor issue in the first race, the Peugeot roared back in the second event, leading most of the laps. “Mulford’s smiling countenance was grimy but triumphant as he flashed over the tape driving in shirt sleeves with his hair blowing in the breeze” in his only win in Peugeot L45-01. The third event saw Mulford in a hard-fought race with Dario Resta in the L45-04 and Carl Limberg in a 1914 GP Delage. Unfortunately, the Mulford Peugeot could not sustain the intensity and retired while in the lead on lap nine with a broken piston.

The most important race of the 1916 championship season was Indianapolis in May. During practice on the last day of the qualification period, Peugeot L45-01 had an engine issue when a piston seized. Officials made a special arrangement for the car to qualify late. On May 29, late in the afternoon, Mulford in the Peugeot set a decent time. However, he was required to start from the second to last row, as

his attempt was after the qualifications had closed. The 1916 Indianapolis 500 race was dominated by Dario Resta in the Peugeot L45-04. Resta led all laps from 18 to the end, making only one stop, and won the race by almost two minutes.

Mulford’s race also was exciting. From his starting position at the back of the pack, he piloted Peugeot L45-01 into second place by the 200-mile mark. He held that for 10 laps before being passed by Wilbur D’Alene in a Duesenberg. D’Alene held on to his second-place position with a very narrow edge and “a relentless consistency like Resta’s style,” which allowed him to outdrive Mulford. Mulford was aided in his race by making only a single pit stop for a tire and gas, but D’Alene crossed the finish line in second and Mulford in third.

After Indianapolis, Mulford and Peugeot L45-01 hit the championship circuit and concluded their time together in the fall of 1916. The car was competitive, achieving second at Omaha and pushing hard in the other events. At Chicago in June, Mulford lent the car to Eddie Rickenbacker to drive, but he retired with a broken valve. In Sep-

tember, Mulford turned the Peugeot over again to another driver, this time the great Ralph De Palma. De Palma continued in the car and transitioned with it under new ownership in 1917 when Lutch Brown sold the Peugeot to Frank Book of Detroit and his brothers.

1917-1919

America’s entry into World War I disrupted the American race scene, and with the Peugeot in need of repair, it was mothballed by the Book brothers and did not see competition during 1917 or 1918. As soon as the war was over, on Armistice Day, November 11, 1918, the AAA put together a plan for the 1919 race season. The Speedway owners announced the return of the Indianapolis 500. The Book brothers brought L45-01 out of storage. All four of the Peugeot L45s would compete in their final full season in major American racing, beginning with the Indianapolis 500 on May 31.

Frank P. Book was determined to hire a driver who had served in the war to pilot Peugeot L45-01. Initially, he had hoped

2: The rear view of L45-01 shows the streamlined tail. In the 1914 French Grand Prix, the raised area housed two spare tires.



Photo: Peter Harholdt

Eddie Rickenbacker would accept the ride, but after Rickenbacker announced he would not be competing in automobile racing for the season, Book chose Art Klein. Klein had aspired to enter the aero service like Rickenbacker, but he was not accepted even as a regular soldier due to a slight physical issue. With perseverance, he finally joined the aviation section of the Signal Corps in early 1918. He served meritoriously and returned home, ready to re-enter the American race scene.

Art Klein had previous driving experience in the AAA during 1914 and part of 1915 until he left to drive on IMCA dirt tracks for the rest of the year. In 1916 he returned to the AAA for a short time but returned to the dirt scene in 1917 until he left for the war. He was a successful driver as well as a competent engineer, and the Peugeot would be a step up in machinery from his previous rides. A new paint job, new valves, and a fix to the crankshaft problem were necessary to have the car ready for Indianapolis. Art Klein arrived with the car at Indianapolis, had his first practice on May 16, and as he practiced

got better and better. On the first day of qualifying, Klein landed in the seventh position on the starting grid.

Frank Book listed himself as the relief driver for the car, and on race day, James McAlister accompanied Klein as his mechanic. From the start, Klein steadily decreased his position – from seventh to 12th on lap 10, and 24th on lap 20. Then the exhaust pipe broke loose from the frame, which necessitated an unscheduled pit stop for emergency repairs. He crawled back up to 14th position on lap 60, but an oiling issue, which would eventually eliminate him from the race, began to trouble him. Over the next 10 laps, he dropped from 14th to 19th as the oiling problem worsened. On lap 72, Klein and McAlister were forced to stop on the northwest turn and push the car three-quarters of a mile into the pits. Peugeot L45-01 was out of the race.

The car sat out the 1919 summer race dates and came back at Elgin to lead that race until the oil problem returned, and the car retired. At the following races in Uniontown, Sheepshead Bay, and

Cincinnati, Klein climbed in his finish positions. At Cincinnati he took a solid second to the unstoppable Joe Boyer in a state-of-the-art Frontenac.

Klein and L45-01 then went west for the California winter racing. While on the Ascot track, Klein found the car had numerous issues that required extensive tinkering. He prepared the car well for its next venture on the boards of the great Beverly Hills speedway. In February 1920, during the 250-mile race, Klein led at several points in the race, but when the right wheel spokes sheared off on lap 146, he masterfully guided the car to an upright stop in the infield, without injury, out of the race. In March, Klein won his only first-place finish in the Peugeot in the first 50-mile race. In the feature race, he took home the purse for second place.

1919-1924

In the fall of 1919, Klein placed an ad in the New York Times attempting to sell the car on behalf of the Book brothers; he ran another ad in the Los Angeles Times in February 1920 before appear-

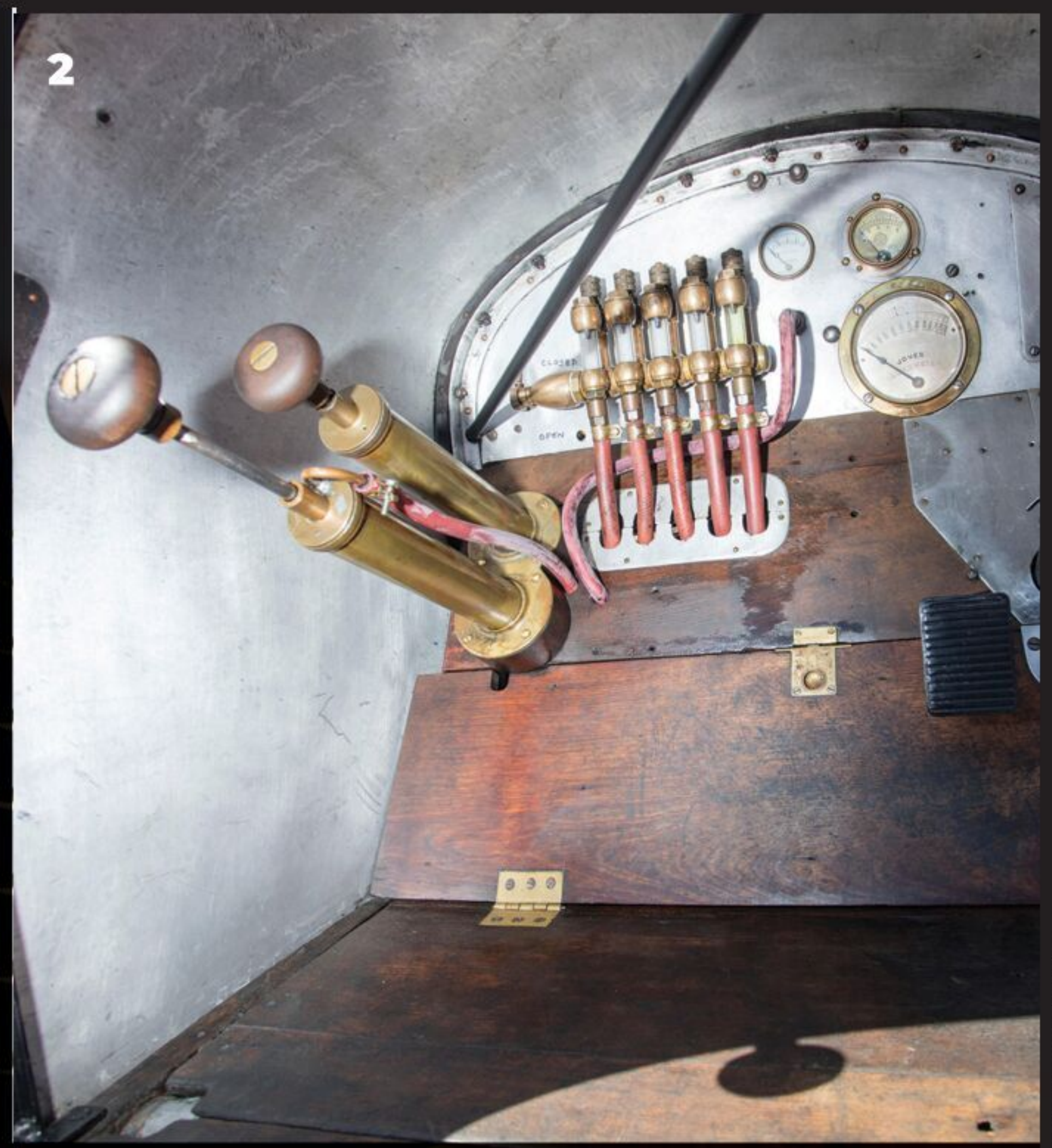


Photo: Bonhams

Photo: Bonhams

Photo: Bonhams

1: Detail of the suspension on L45-01. Note the brakes on front and rear wheels.

2: The inside of the cockpit has oil pumps for the riding mechanic, and separate oil

tubes for different parts of the engine.

3: Lindley Bothwell had the Peugeot badge stripped and highlighted with

red paint. When the car raced, the badge was painted body color.

ing at Beverly Hills. The specifications for American championship races were about to change as of May, and the Peugeot L45's engine was too large. The car did not sell and apparently returned to the Midwest, where it was next seen in July 1923 in the hands of Joe Boyer, heir to the Burroughs adding machine fortune. Boyer raced L45-01 during the summer of 1923 in the AAA dirt track series, finishing second overall.

As of May 1924, Joe Boyer still had physical possession of Peugeot L45-01. A photograph from his scrapbook depicts him in the car at his home with his two young sons in pint-size replica race cars. However, Boyer died on September 2,

1924, following a horrific accident while driving a Duesenberg team 122-cubic-inch car at the Altoona board speedway.

1925-PRESENT DAY

Art Klein became the head of the Department of Transportation for the Warner Brothers movie studio, and either he or the studio acquired L45-01. Its next appearance was in Hollywood in 1932. The car was on display in the lobby of the Hollywood Theater during the screening of Jimmy Cagney's movie "The Crowd Roars." At this time, newspapers assigned ownership to Klein.

In 1935, Peugeot L45-01 was used in First National Films' production "Red

Hot Tires." In that film, Mary Astor is the daughter of a race-car designer. The "new car with the latest features" they design under strict movie-made intrigue and secrecy is Peugeot L45-01, in reality a car that was 21 years old. For its starring role, the car was painted white. In typical Hollywood fashion, there are scenes taken in the car, scenes of the car driving, and scenes of another car or two during the race that audiences are supposed to take for the Peugeot. In 1939, L45-01 appeared in its final film, "Indianapolis Speedway," which was a remake of "The Crowd Roars." To save money, Warner Brothers reused race footage from the earlier film.

Art Klein owned L45-01 until 1949.

A California collector named Lindley Bothwell had pestered Klein for years to sell him the Peugeot. Klein demurred until a major fire destroyed most of Bothwell's car collection. Seeking to help him rebuild, Klein sold him L45-01.

Bothwell wasted no time in trying to get the car to qualify again for the Indianapolis 500. He made some mechanical repairs, changed the steering box and linkage, and set a new record for Peugeot race cars at Indy at 103.255 mph. But it was not fast enough to qualify for the race. Bothwell continued to show the car at events, and it was featured in a Sports Illustrated article about his car collection in December 1957. The car was shown twice at the Pebble Beach Concours d'Elegance and made an appearance at the Goodwood Festival of Speed in the U.K., the first time it had been back to Europe since 1915. Today, the car is part of the Brumos Collection in Jacksonville, Florida, wearing its No. 10 livery from the 1916 Indianapolis 500.

CONCLUSION

Peugeot L45-01 may not have been the winningest or the most mechanically reliable of the L45 race cars, but it was consistently under the ownership of men who cared deeply about the car. It was driven by highly skilled professionals, and the car was passed along with a nearly perfect provenance by well-respected and conscientious owners to its current home. Peugeot L45-01 exists today for the simple purpose of engaging us, whether we are scholars, mechanics, historians, vintage aficionados, or the uninitiated.

N.B.

In writing a history of each of the Peugeot race cars that came to America, O'Keefe and Morgan-Wu designated a unique identifier for each vehicle. The basis for the O'Keefe-Morgan Peugeot numbering system is the engine capacity, something that has been utilized by previous historians. However, each car was assigned an additional number based on its first chronological appear-

ance in a known race. The exception to this rule is when the factory stamped a specific number on the engine or chassis. This information is rarely known for the prewar Peugeot race cars. The subject of this monograph is the exception to the naming system. Four Peugeot L45 models were constructed. The subject of this article carries the number "1" stamped on both its engine and chassis, yet it did not appear in a race before the other L45s. This car is designated Peugeot L45-01. ♦

SOURCES

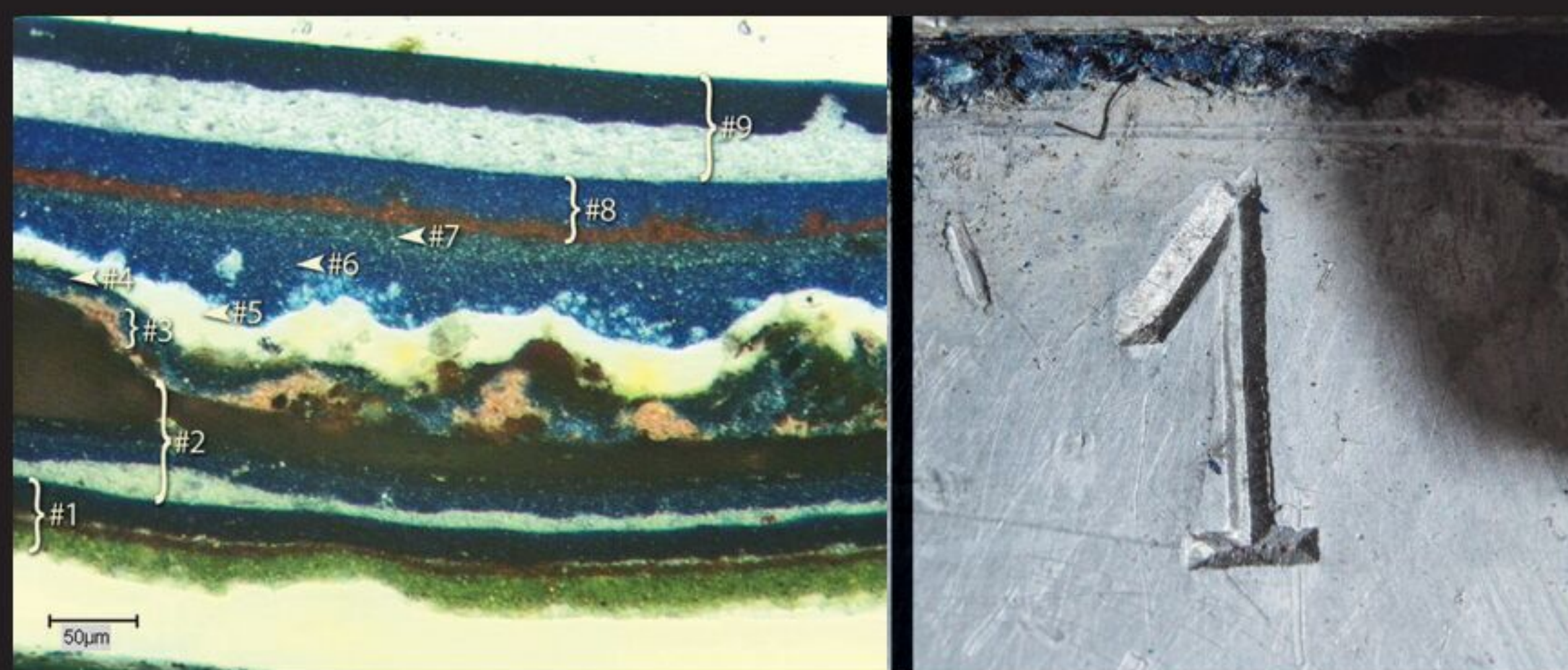
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A DETAILED PAINT ANALYSIS ADDED FURTHER DEPTH TO THE UNDERSTANDING OF THIS CAR'S HISTORY

In 2019, at the request of the current owner, David Cooper and Dr. Gundula Tutt did a detailed analysis of all the paint layers applied to L45-01 since 1914. Though the car had been repainted at least nine times, there were still traces of the original paint as well as all other eight layers. A total of 30 paint samples were taken from various areas of the car. After meticulous microscopic examination and a full laboratory analysis, they were able to determine the original paint type and color from 1914. This was a surprise as many believed that, in 1914, the car had been painted a light French Racing Blue. Instead, the investigation proved the car was first painted a dark Prussian Blue coach paint, applied by brush. This work allowed for a true restoration. As a side note, white paint from the Hollywood years was obvious in the cross-section of the paint layers.



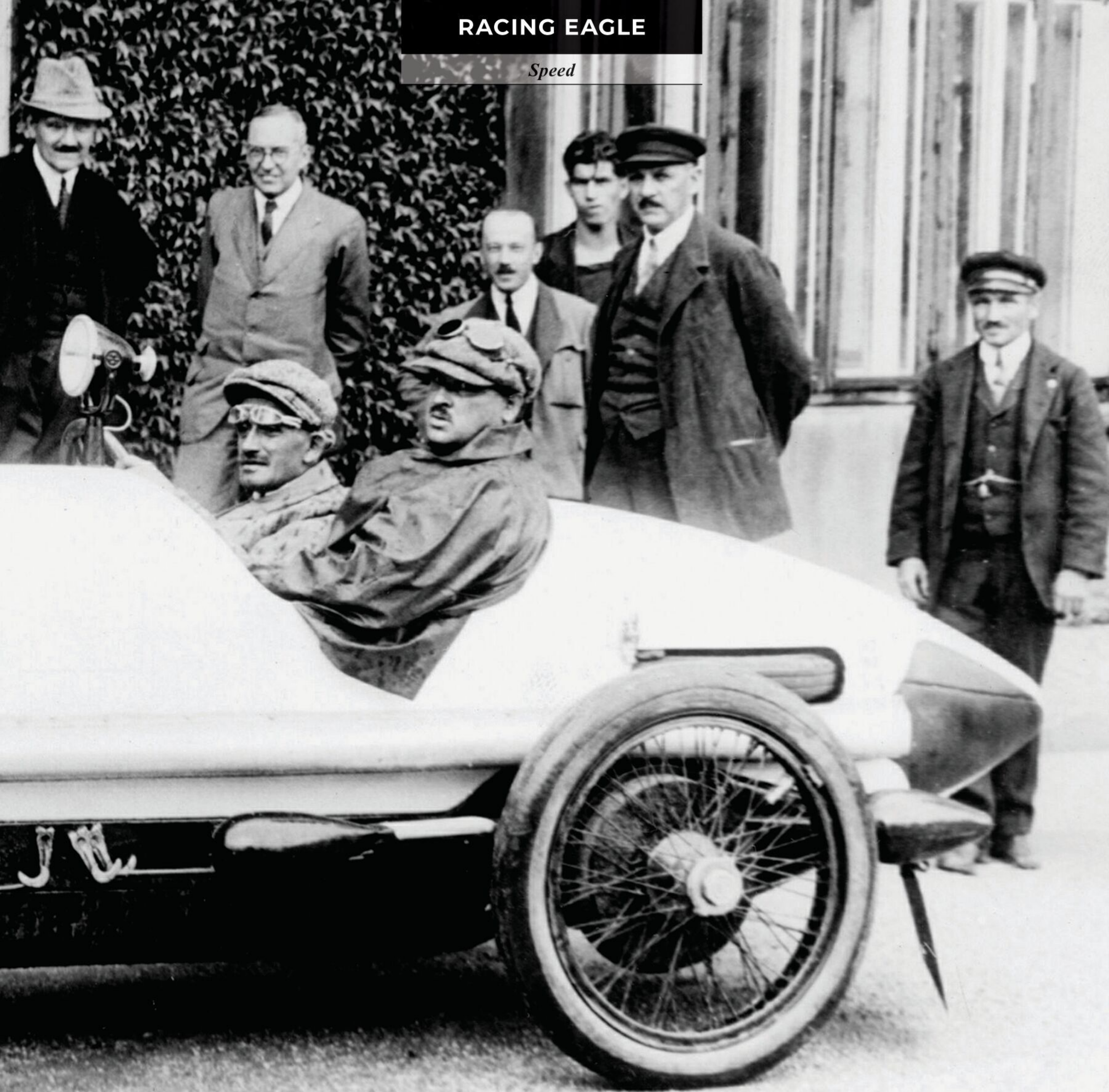


In front of the Austro-Daimler headquarters in the autumn of 1922, Ferdinand Porsche showed his latest creation to company staff before setting off for the Italian Grand Prix at Monza. The 2.0-liter Grand Prix ADS II-R carried a driver-controlled searchlight for night driving.

PORSCHE'S

GRAND PRIX

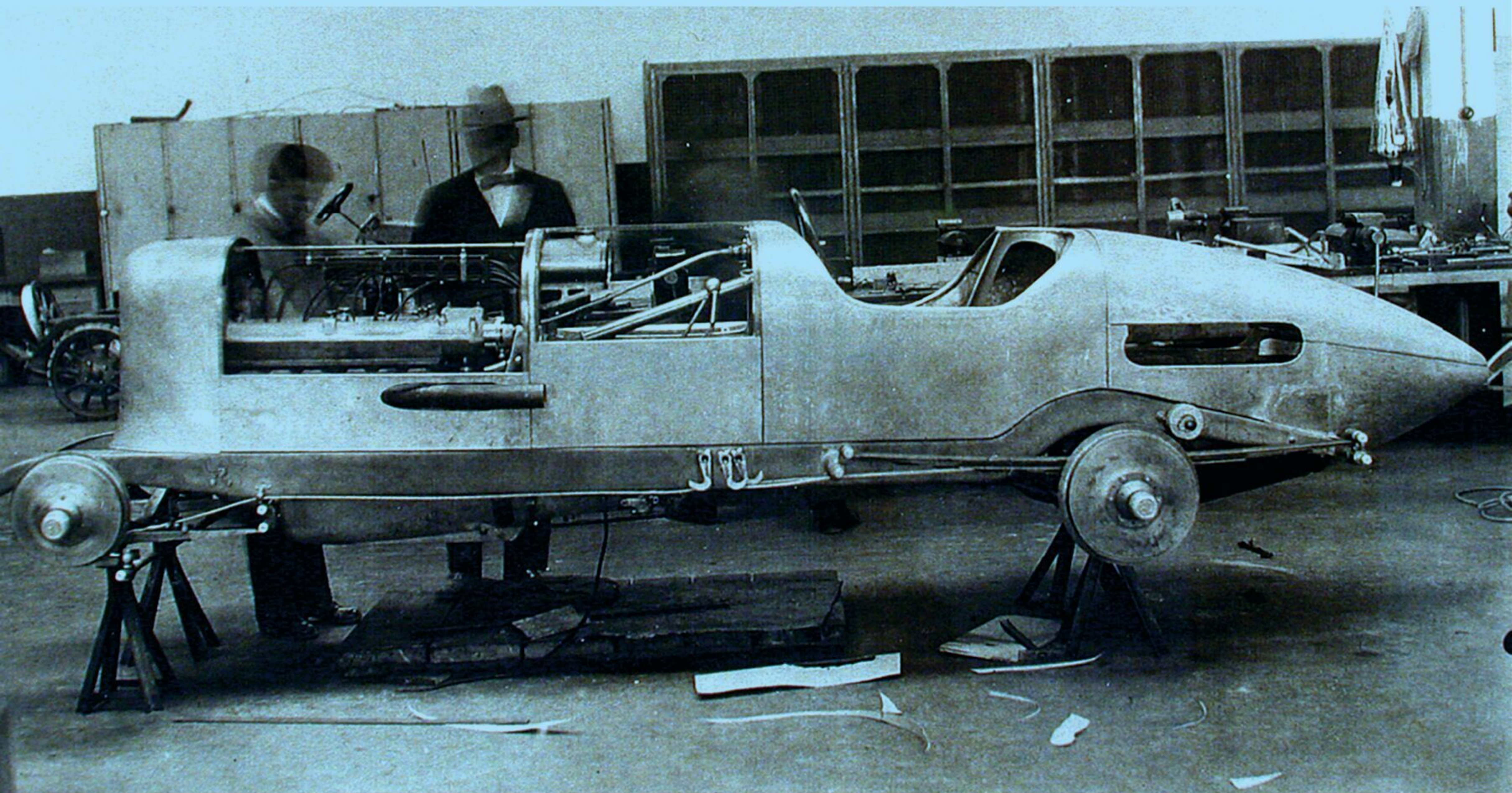
AUSTRO-DAIMLERS



AUSTRO-DAIMLER ADM-R, ADS II-R

Ferdinand Porsche designed and built his first Grand Prix racing cars when he was managing director of Austria's Austro-Daimler in the early 1920s. They were advanced machines that had few chances in period to flaunt their capabilities, says [Karl Ludvigsen](#).

Exhaust piping of the ADM-R emerged from the hood side to extend to the rear. Rear semi-elliptic springs were much longer than those at the front.



COMING out of World War I, Ferdinand Porsche was in complete charge of Austro-Daimler, one of the greatest and most versatile manufacturing companies of the former Austro-Hungarian Empire. Now his factory at Wiener Neustadt, south of Vienna, had to reach out to world markets from an Austria shrunken to a tenth of its former size. A great believer in the merits of motorsports for both technology and publicity, Porsche started right away on the design and construction of racing cars.

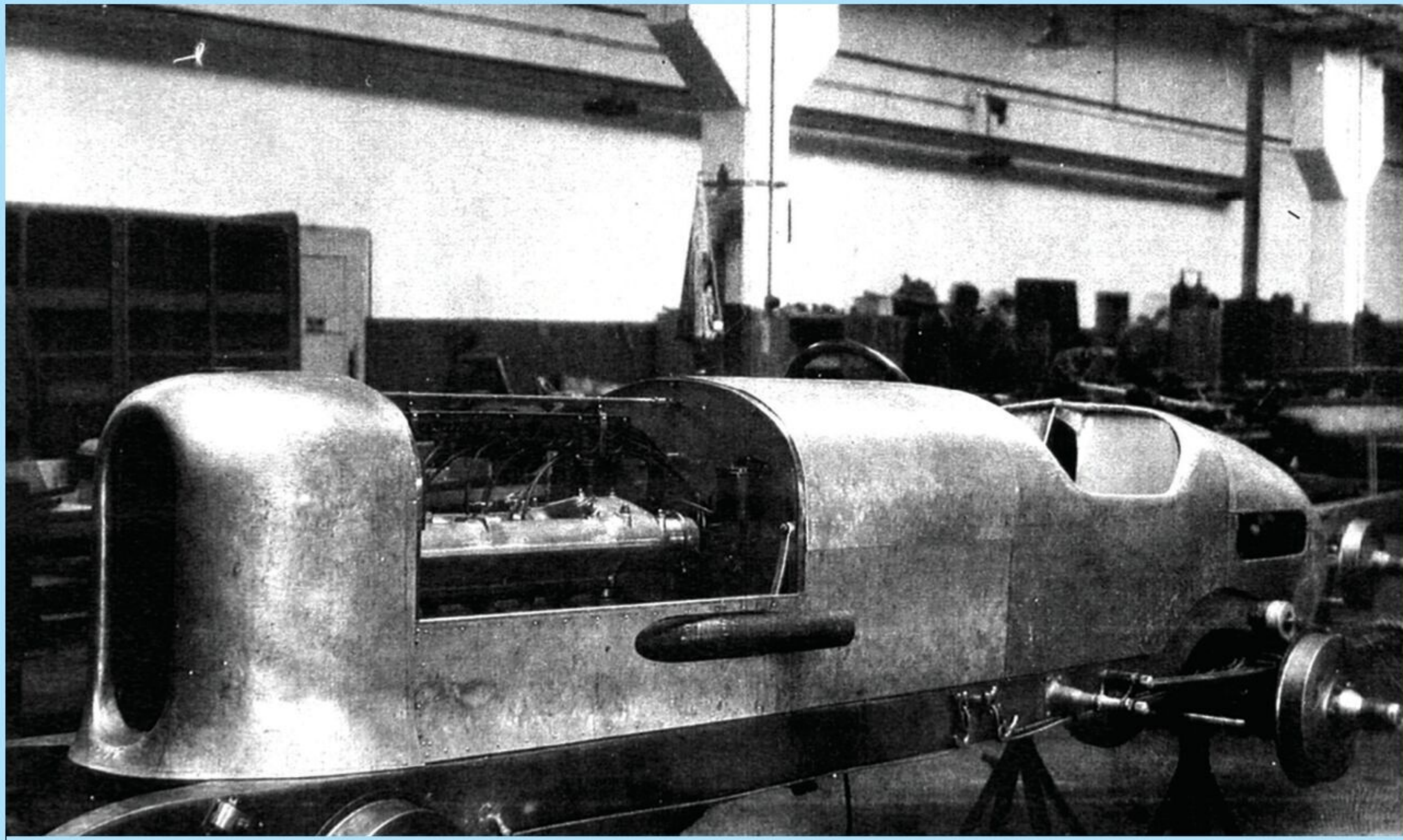
The pinnacle of the sport, best known for its competitiveness and demonstration of high technology, was Grand Prix racing. First contested in 1906

as the French Grand Prix, Grand Prix racing continued to 1914, the first time that engine displacement was used to create a common technical format for competitors. As a result the 1914 race among 4½-liter cars was “notable for a constant and fierce international and inter-company duel,” wrote Laurence Pomeroy, Jr. The world waited eagerly for the sport’s postwar resumption.

New postwar rules set a 3.0-liter engine-size limit for 1920, but G.P. racing did not resume until 1921, when both France and Italy hosted Grands Prix. To create a G.P. competitor for Austro-Daimler, Ferdinand Porsche built a six-cylinder engine of 2,993 cc, measuring 74 x 116 mm. Its single-ignition twin-overhead-cam engine had a king-shaft

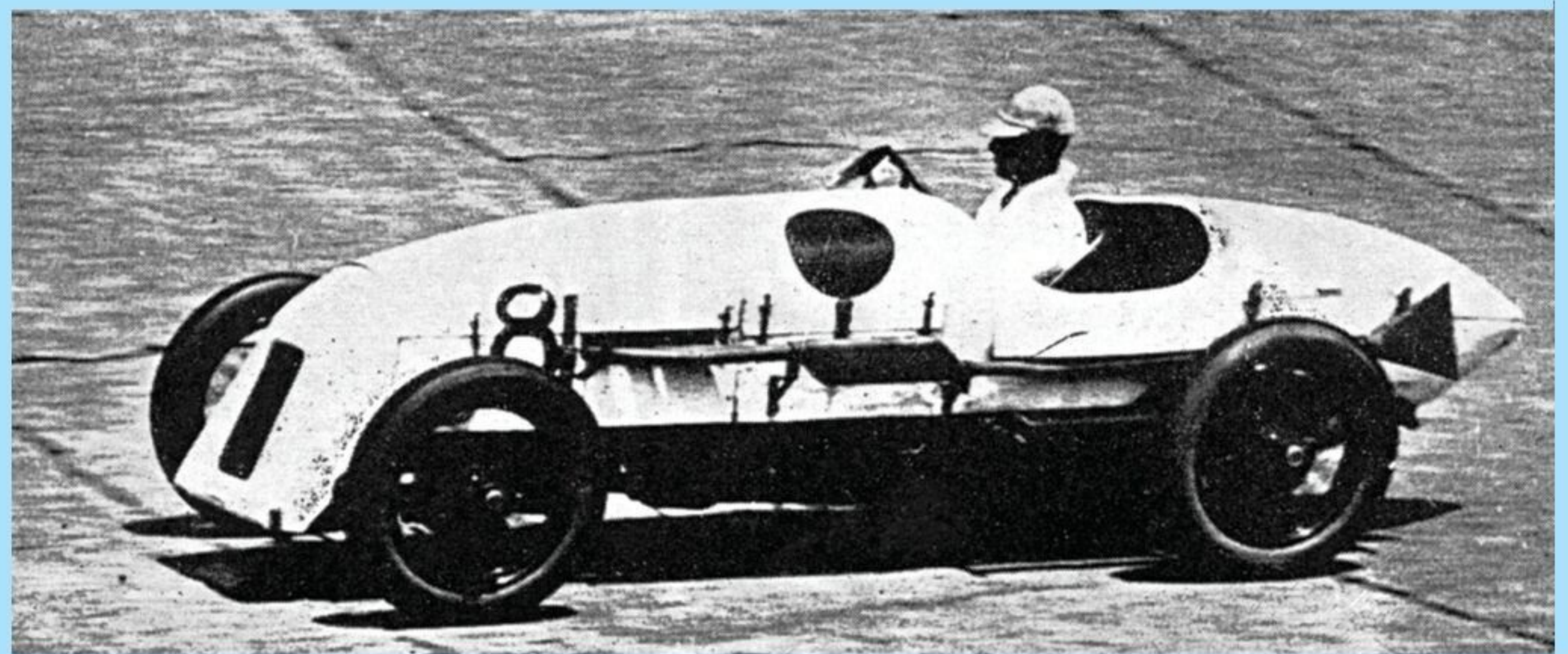
drive to its camshafts at the rear of the block, next to the clutch. Twin side-draft 48-mm Zenith carburetors had dual float chambers to assure consistent flow of alcohol-based racing fuel.

Although wide enough to carry the mandatory riding mechanic, the new racer’s frame and body were kept as narrow as possible to reduce drag. Its cooling-air inlet was a narrow vertical oval. Porsche’s aerodynamic advisor was Igo Etrich, the airplane designer whose tips helped Austro-Daimler dominate the 1910 Prince Heinrich competition. Slots in the sides of the tail allowed a spare wheel to be stowed horizontally. This took up space usually used for a fuel tank, which Porsche placed low under the car’s cockpit and tail to reduce its center



Under construction at Wiener Neustadt, the ADM-R revealed its twin-cam six-cylinder engine and slender bodywork with seating for two.

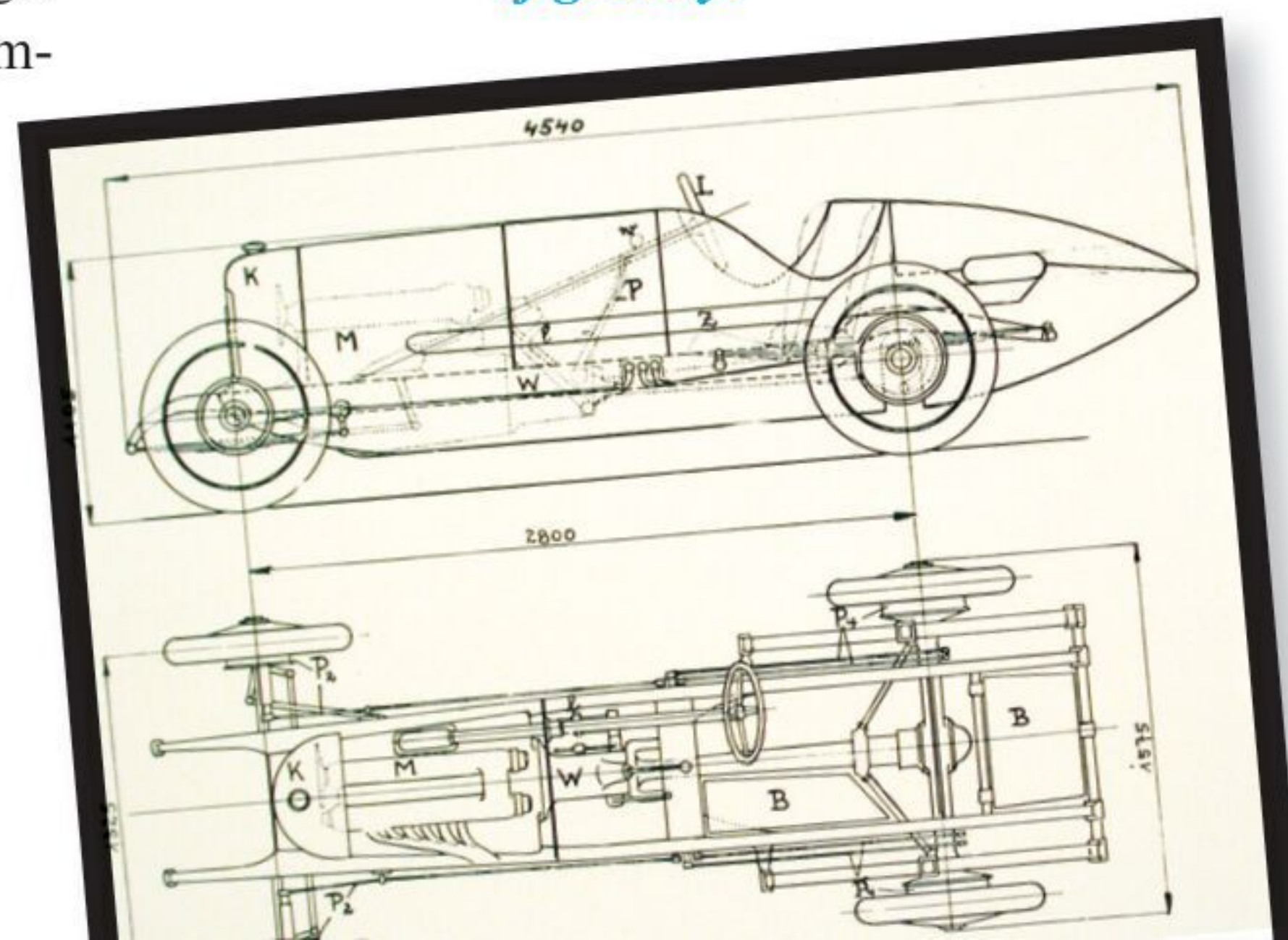
One of the 2.0-liter Austro-Daimlers raced at Brooklands from 1928, wearing a more sloping nose, the track's mandatory silencer, and an engine rebuilt by London's Laystall Engineering.



of gravity. This handsome racing car received the ADM-R designation, which suggested that the racer had something in common with Austro-Daimler's production six-cylinder ADM, although in fact it was a unique design. Said to produce 120 bhp at the high crank speed of 5,500 rpm, the ADM-R was giving power comparable to that of such 3.0-liter Grand Prix rivals as the Fiats and Duesenbergs. However, the lateness of the car's completion and the paucity of events for it meant that the ADM-R wasn't raced in anger by Austro-Daimler.

One such ADM-R – probably only one was completed – was imported to England by George Newman in 1926. From then to 1930 it competed successfully on the banked oval at

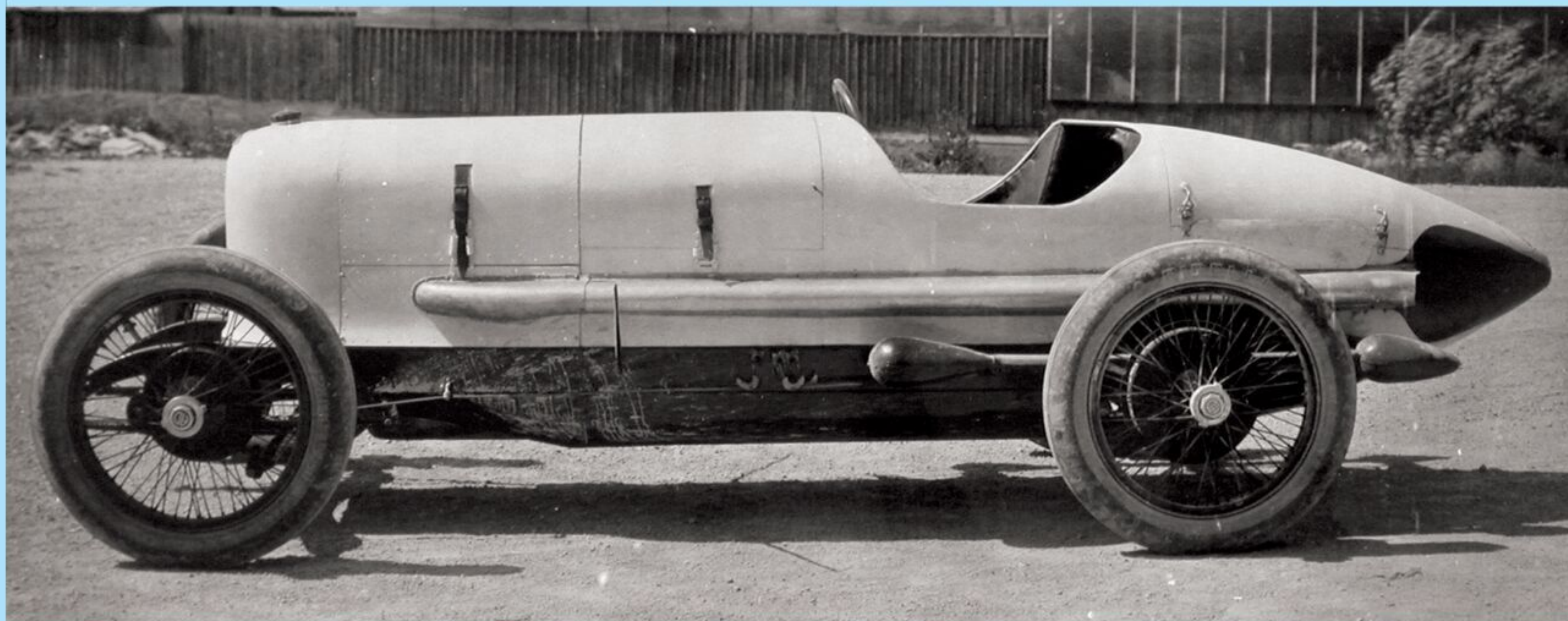
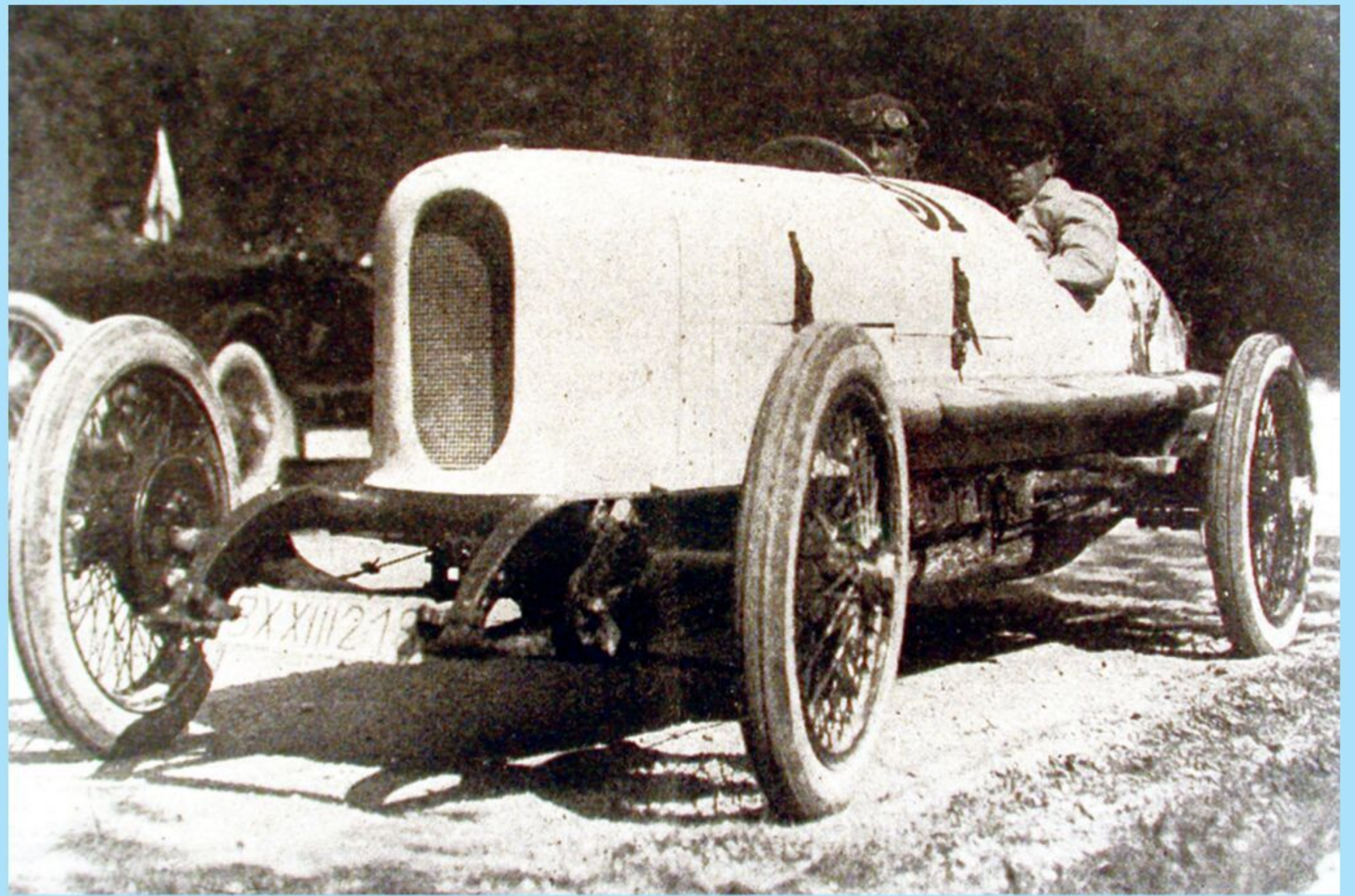
A layout drawing showed the advanced features of the 1921 3.0-liter ADM-R. Its widely spaced rear springs gave stability. Marked "B" are the two compartments of its fuel tank, placed low to reduce the racer's center of gravity.



Brooklands, where its maximum lap speed was urged upward from 110 to 118 mph. "I used to think this A-D was one of the best-looking cars at the track," wrote Brooklands historian William Boddy, "with its handsomely cowled radiator, slightly staggered seats, long tail, and the [mandatory] silencer beneath a tunnel on the [left] side of the body, with the compulsory fish-tail protruding."

New Grand Prix rules for 1922 cut allowable engine capacity to 2.0 liters. Fortuitously the ADM-R provided an ideal basis for a new Grand Prix Austro-Daimler, the ADS II-R. Using the same dimensions of 74 x 116 mm for four cylinders gave 1,996 cc, perfect for the 1922 rules. Also mandated

Austro-Daimler's finances curtailed home appearances for the ADS II-R, here lining up for the Semmering Hill Climb. Although at least one of the three team cars competed well at Brooklands, none has been known to survive.



Rear shackle fairings were most visible from the side of the ADS II-R. A deflector kept exhaust byproducts away from the bodywork, which was liveried in Austria's white and red.

were a minimum weight of 1,433 pounds and bodies able to carry two passengers.

The bigger-engined car's chassis was carried over to the 1922 2.0-liter. With two fewer cylinders to carry, Ferdinand Porsche shortened the ADS II-R's wheelbase from 110.2 to 108.3 inches while keeping its track of 51.2 inches. In plan view the frame rails were straight from cowl to rear and gently tapering toward the front. Semi-elliptic leaf springs were under the frame at the front but outrigged at the rear, well away from the frame, as close to the rear hubs as possible to give a stable platform and maximum resistance to the axle's torque reactions. Laterally braced, a torque tube extended forward to its pivot on the back of the

In unofficial practice for the Italian GP on September 10, 1922 Fritz Kuhn suffered a collapsed left rear wheel on his ADS II-R in private trials and left the track, suffering fatal injuries. Porsche withdrew his other two entries and returned home.



four-speed transmission. The ADS II-R's engine had an aluminum cylinder block and iron head.

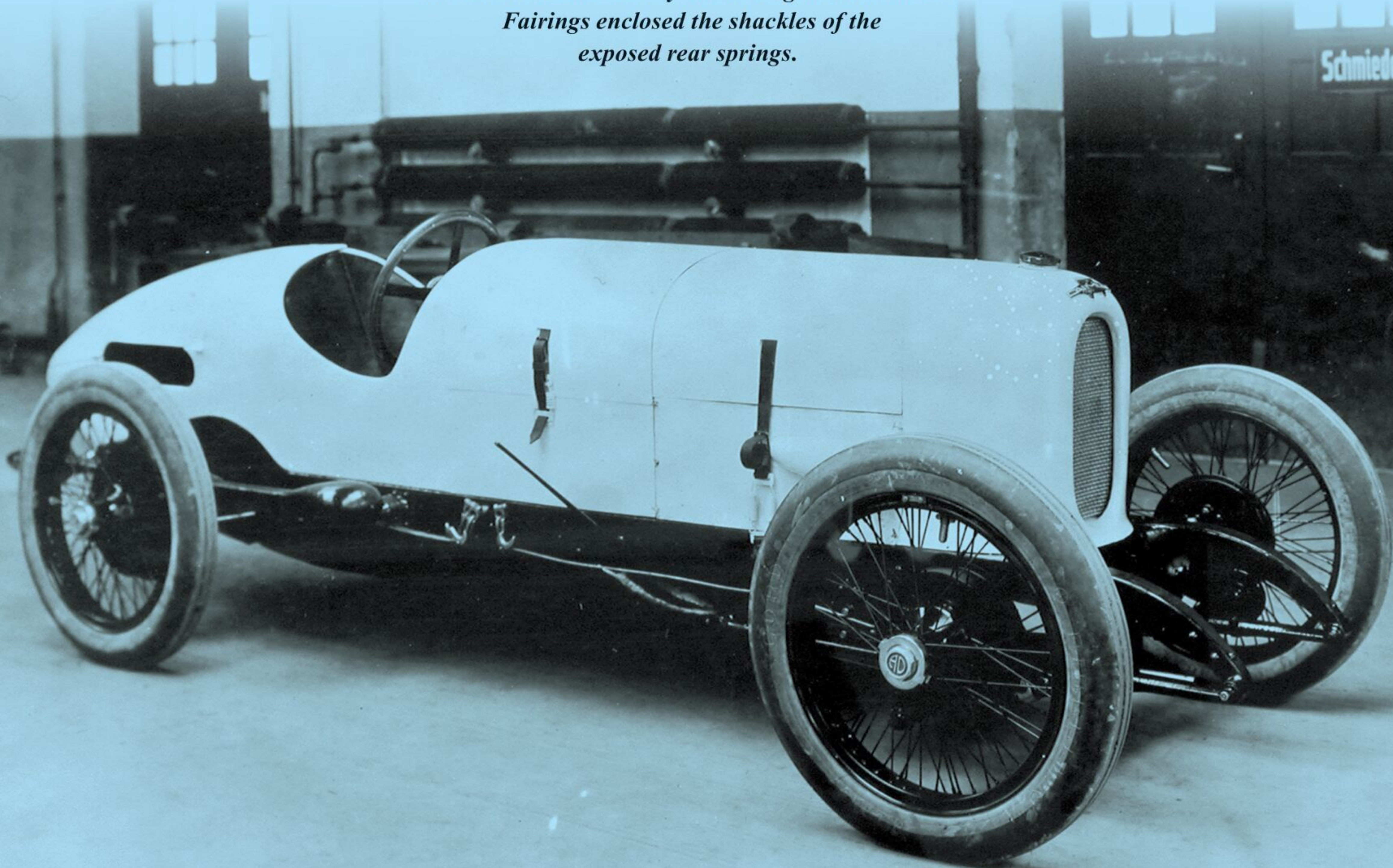
Twin distributors, at the rear, sparked dual ignition, with the front of the right-hand inlet camshaft able to drive a cooling fan if required for the drive to the race. A pump provided forced water flow. A single side-draft Zenith carburetor delivered racing fuel. Tankage was a combination of one under the floor, a novel technique Porsche had introduced with his smaller racers, and another placed low behind the axle.

To make the most of its engine's 109 bhp at 4,500 rpm, the ADS II-R's bodywork was sublimely sleek. On the Neunkirchner Allee, the fast straight road near the factory

RACING EAGLE

Speed

Unlike many racing cars of the time, the ADS II-R had its shift and handbrake controls inboard to reduce aerodynamic drag to a minimum. Fairings enclosed the shackles of the exposed rear springs.



that he used for aerodynamic tests, Ferdinand Porsche exploited his aerodynamic expertise.

From its characteristic oval radiator opening to its tapered tail, the body was completely devoid of louvers and excrescences. Separate strapped-down covers gave access to the engine and the machinery under the cowl. Having exposed the rear springs to the flow of air, Porsche gave their shackles aerodynamic fairings. As in the three-liter car, slots at the sides of the tail allowed a spare wheel to be carried horizontally during drives to and from races.

Driving on the road was the means Austro-Daimler employed to get its three team cars to Monza for the Italian Grand Prix on September 3, 1922. With jury-

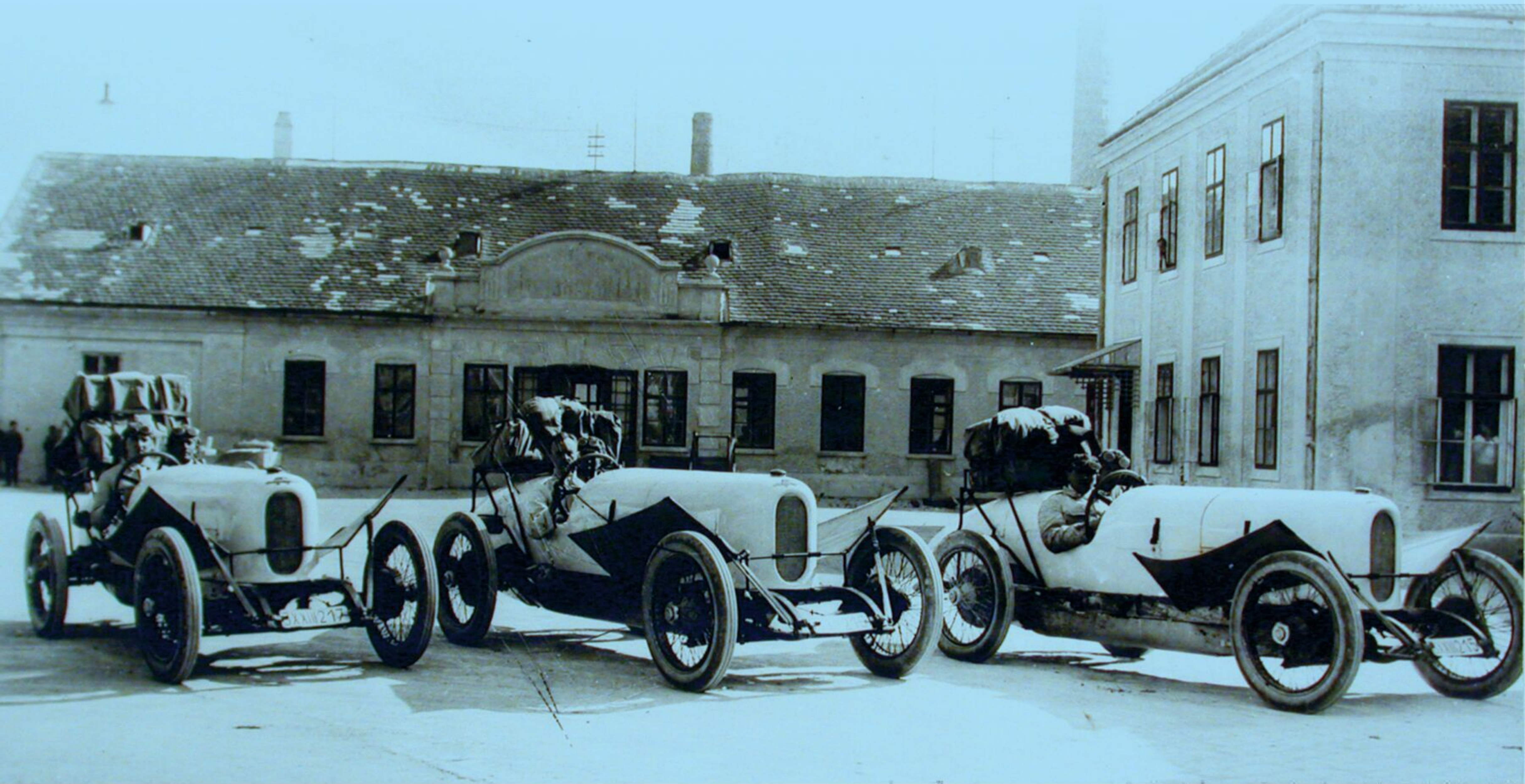
rigged front fenders and tails piled high with luggage, parts, and tools, the racing cars set out with Ferdinand and Ferry Porsche leading the way. During the wet journey, a swig of vermouth revived a freezing 13-year-old Ferry. Early pleasure over the ADS II-R's fast pace on the fast Monza track gave way to alarm when piston crowns started failing. Although the team arrived a fortnight early, this was a fundamental flaw that would take some fixing. To Porsche's rescue came the winner of the Targa Florio earlier in the year, Count Giulio Masetti. The well-connected Italian nobleman found a factory that was able to cast and machine new pistons of an improved alloy to Porsche's specifications. Problems with the gearbox of one of the cars were solved

when Ferry extracted broken pieces with his slender hands.

Drivers for the Grand Prix were Alfred Neubauer, Fritz Kuhn, and Lambert Pöcher. The 497-mile race posed a huge challenge to the cars as well as to the Austrians, who had never competed at this level of the sport. With official practice about to begin, they were just getting to grips with the track's challenges when Fritz Kuhn came to grief on the fast right-hand bend approaching the pits, the Curva Grande. The car's tail swung out, triggering a series of slides – Kuhn fighting for control – that ended with the white car lurching off the track and crashing to a stop. Thrown out, Kuhn died on the spot.

This was a tragedy beyond Ferdinand

In time-honored fashion, an Austro-Daimler team posed for the birdie before leaving Wiener Neustadt for the 480-mile drive to Monza for the 1922 Italian Grand Prix, where the new ADS II-R would make its bow.



Porsche's imaginings. Of course they knew racing was dangerous. In June's French Grand Prix, Biagio Nazzaro was killed when his car's rear axle failed. Closer to home, in May the skilled and respected Otto Hieronimus died in a crash of his Steyr at the Ries hillclimb. As a leading Austrian driver, engineer, and innovator, Hieronimus had a career that had paralleled Porsche's. Now, while trying to step its racing up a gear, Austro-Daimler suffered a mortal setback. Porsche withdrew his remaining cars, and the team drove back to Austria in a state of profound remorse.

Kuhn's death was the result of a loss of control. Was it the driver's fault? Or had something in the car caused such a violent swerve? Young Ferry was an eye-

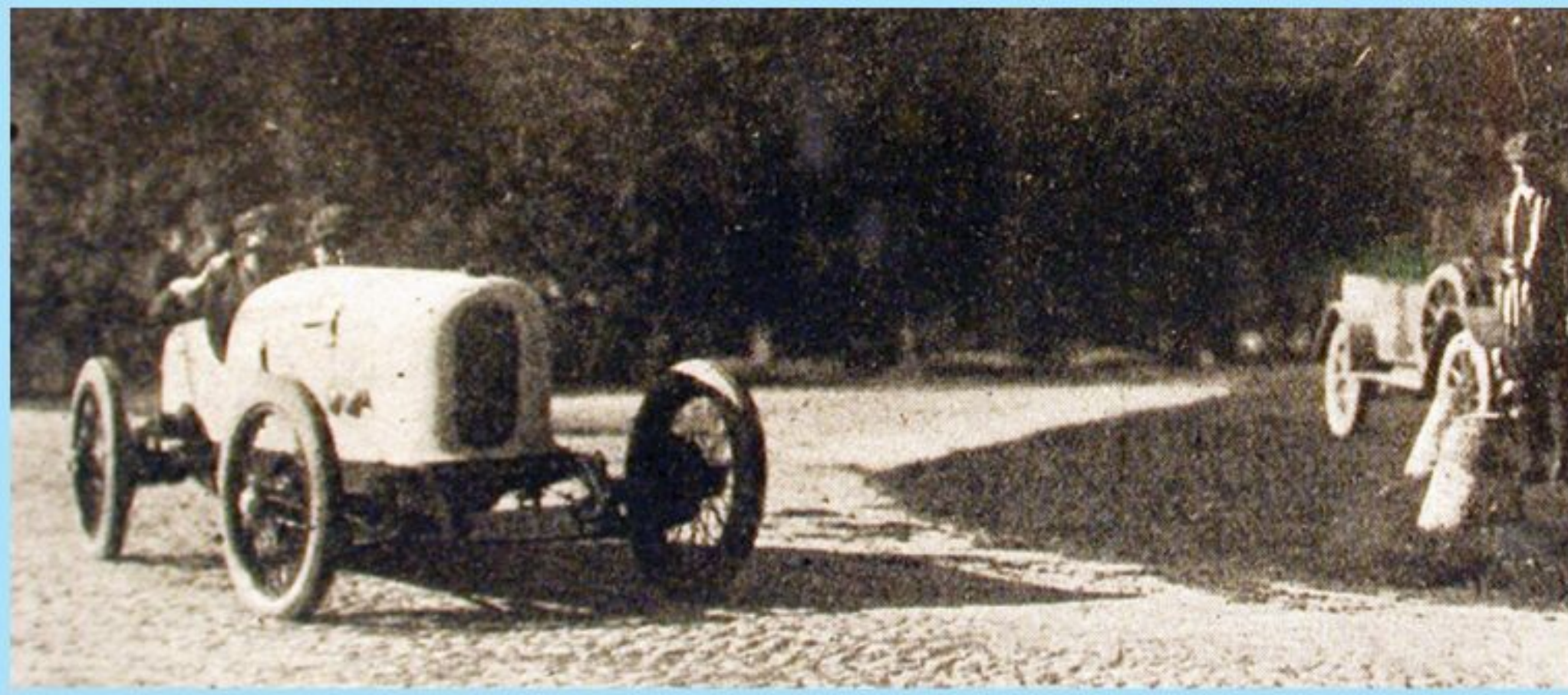
witness: "It seemed as though the very instant he entered the Curva Grande, the rear portion of the car gave a sudden lurch to the left." Inspection of the wreckage drew suspicion to the left rear wheel.

For more than a decade Porsche had enjoyed an excellent relationship with England's Rudge-Whitworth, maker of his quick-detachable racing wire wheels. He cabled the firm to ask what their tests had shown on the wheels he'd been sent for his ADS II-Rs. Reading their reply, the blood drained from the engineer's face. Because the workforce had been on strike, said Rudge, the wheels hadn't been given their usual checks. Fritz Kuhn's death had been avoidable.

Although Fritz Kuhn would not have wished it so, his mortal crash at Monza

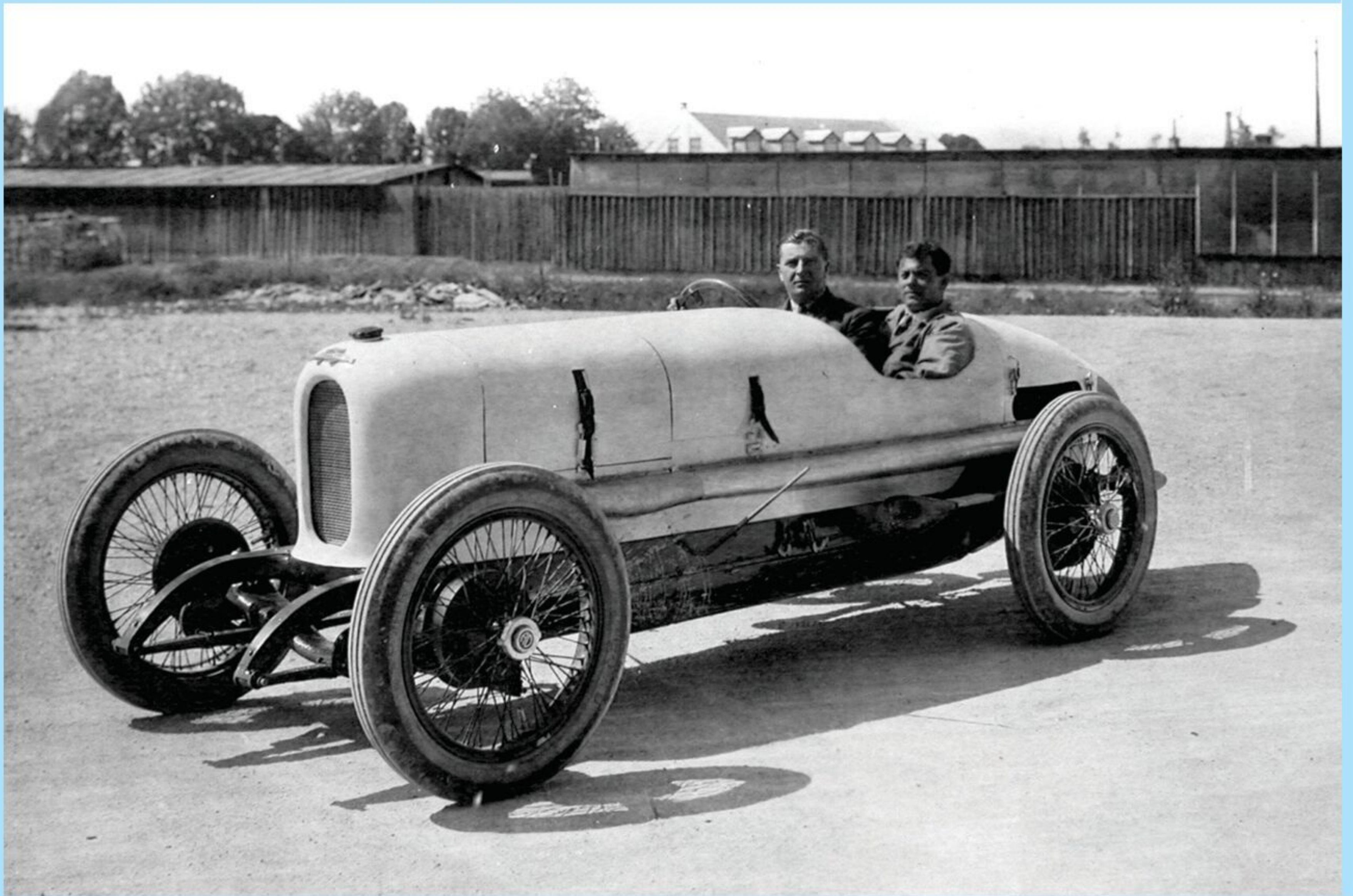
foreshadowed the end of Porsche's racing initiatives at Austro-Daimler. Coupled with rampant inflation, Austro-Daimler's troubled finances ruled out further works entries of the promising ADS II-R.

Although a sound basis for future development, it would have needed supercharging – a costly further investment – to keep pace with its rivals at a time when this technology was being introduced by Mercedes and Fiat. Francis Luther of Britain's Beardmore, which had made Porsche's airplane engines under license early in the war, found a home in Britain for at least one of the 1922 2.0-liter team cars. It first appeared at Brooklands in the spring of 1923, rounding the banked track at a 92.2-mph average. The ADS II-R competed successfully



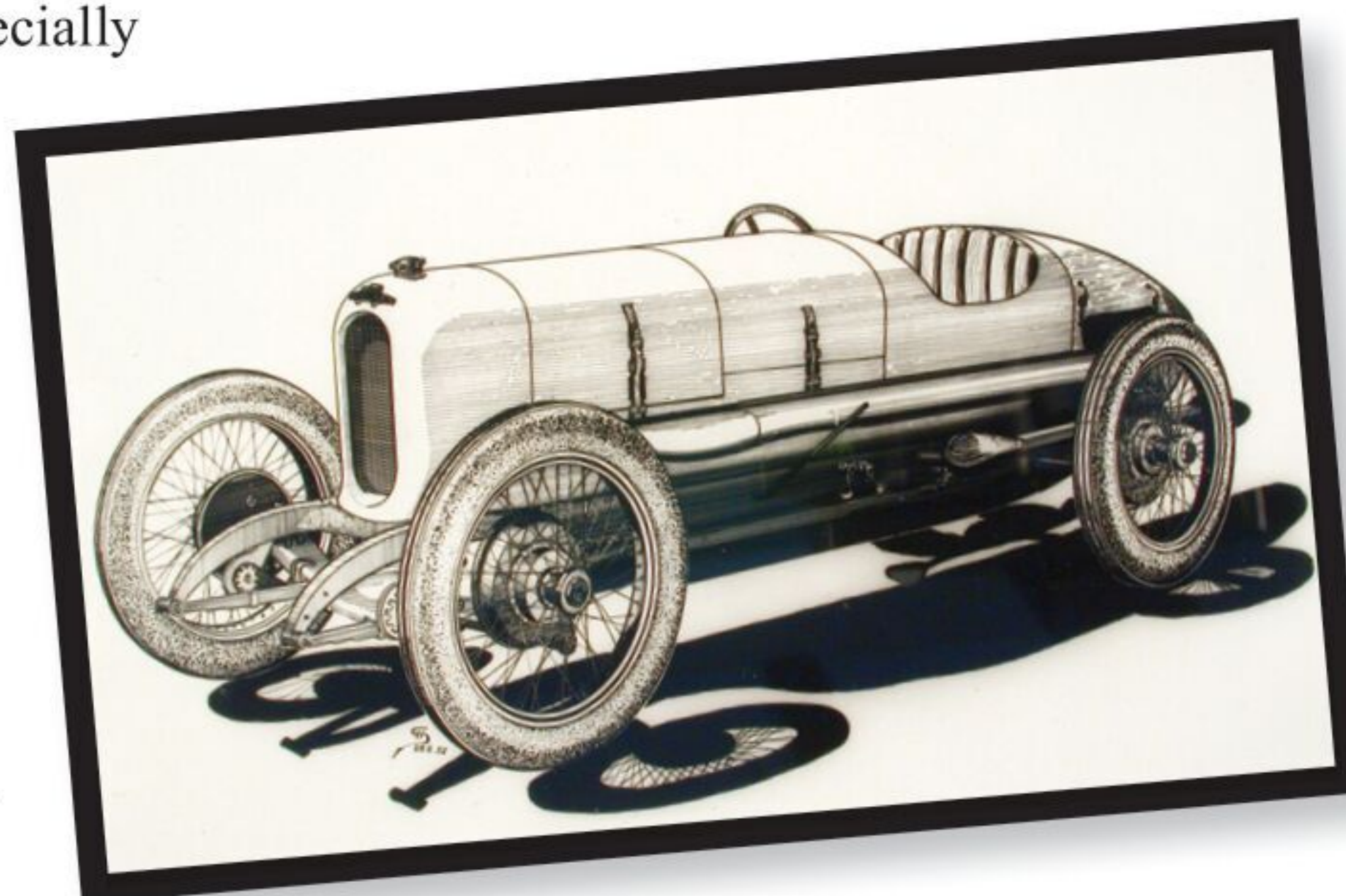
Though it would race in minor events, the ADS II-R would never compete in a Grand Prix. Here, it was taking part in a hillclimb in Austria.

Accompanied by engineer Pitzmaus, Alfred Neubauer shook down the new ADS II-R on the company's test track in 1922. Here was a car designed to raise the Austro-Daimler profile on the world stage in search of vital exports.



through the next several seasons, ultimately lapping at almost 100 mph in 1926. This 1922 Monza Austro-Daimler appeared in a new guise in 1928. It was visibly the same car, with its long tail and twin hood panels, but now with a more downsloping nose. Porsche's engine was gone and in its place was a supercharged 1½-liter engine specially built by Laystall Engineering. This was a sensationally exotic four with positive valve closing, variable valve timing, four oil pumps, roller connecting-rod bearings, and a Cozette vane-type supercharger. Developing 120 bhp at 6,000 rpm, it propelled the Laystall Special to Brooklands lap speeds approaching 110 mph.

A crisp line drawing depicted the 1922 Austro-Daimler G.P. car, with its separate hood openings for the engine forward and accessories at the rear. Dampers were Hartford friction type.

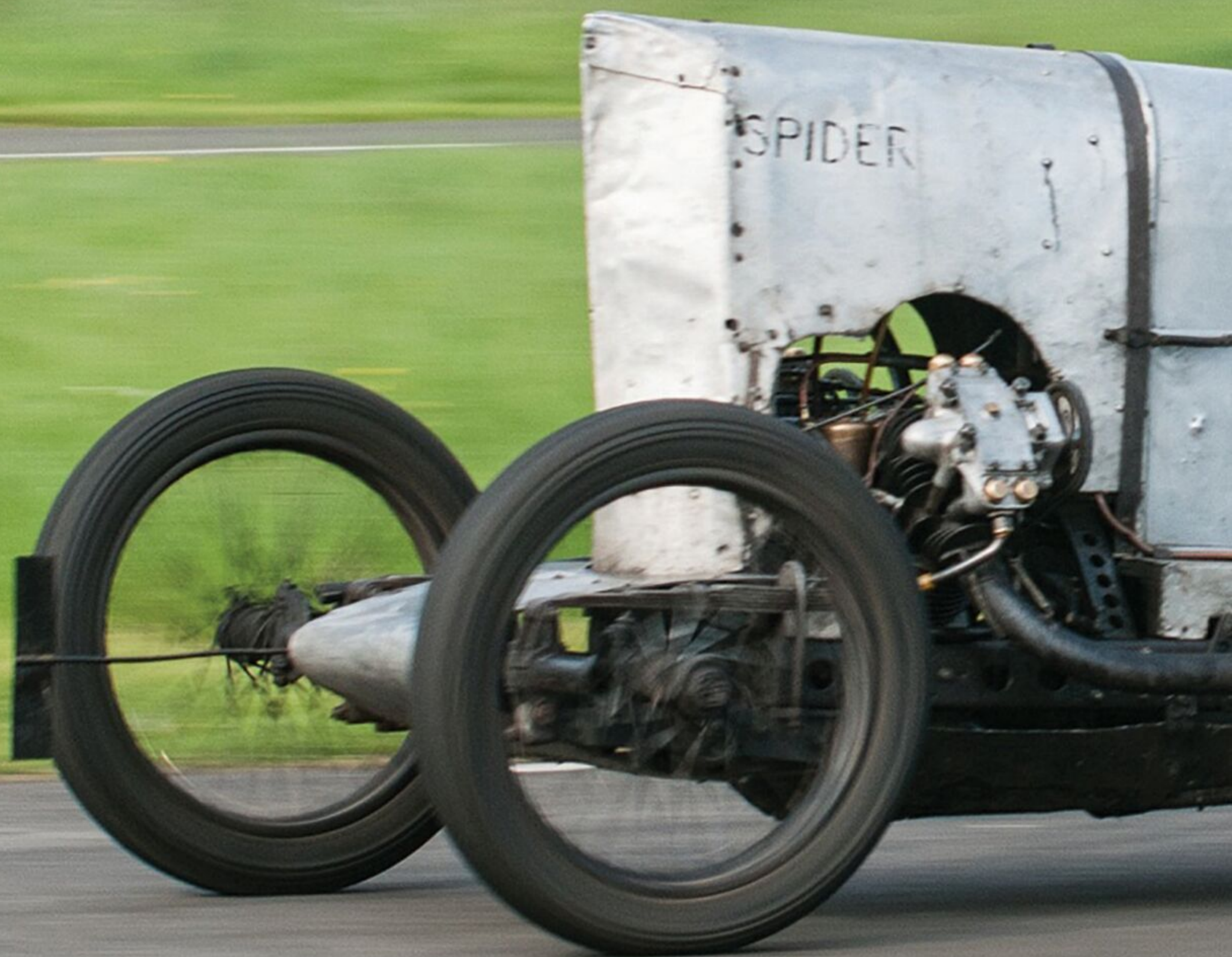


Porsche's chassis was more than able to cope. Controversy over Fritz Kuhn's crash contributed to boardroom clashes at Wiener Neustadt that led to Ferdinand Porsche's departure from Austro-Daimler in 1923. At Mercedes, his next employer, he designed successful 2.0-liter Grand Prix cars before creating the great Auto Unions of the 1930s as an independent engineer.

The end of the 1930s found him consulting again with Mercedes-Benz on the design of its Grand Prix cars, conducting the tests that led to its adoption of two-stage supercharging in 1939. Throughout his long career, Porsche was never far from the racing cars that were his great passion. ♦

THE G.N. 'SPIDER'

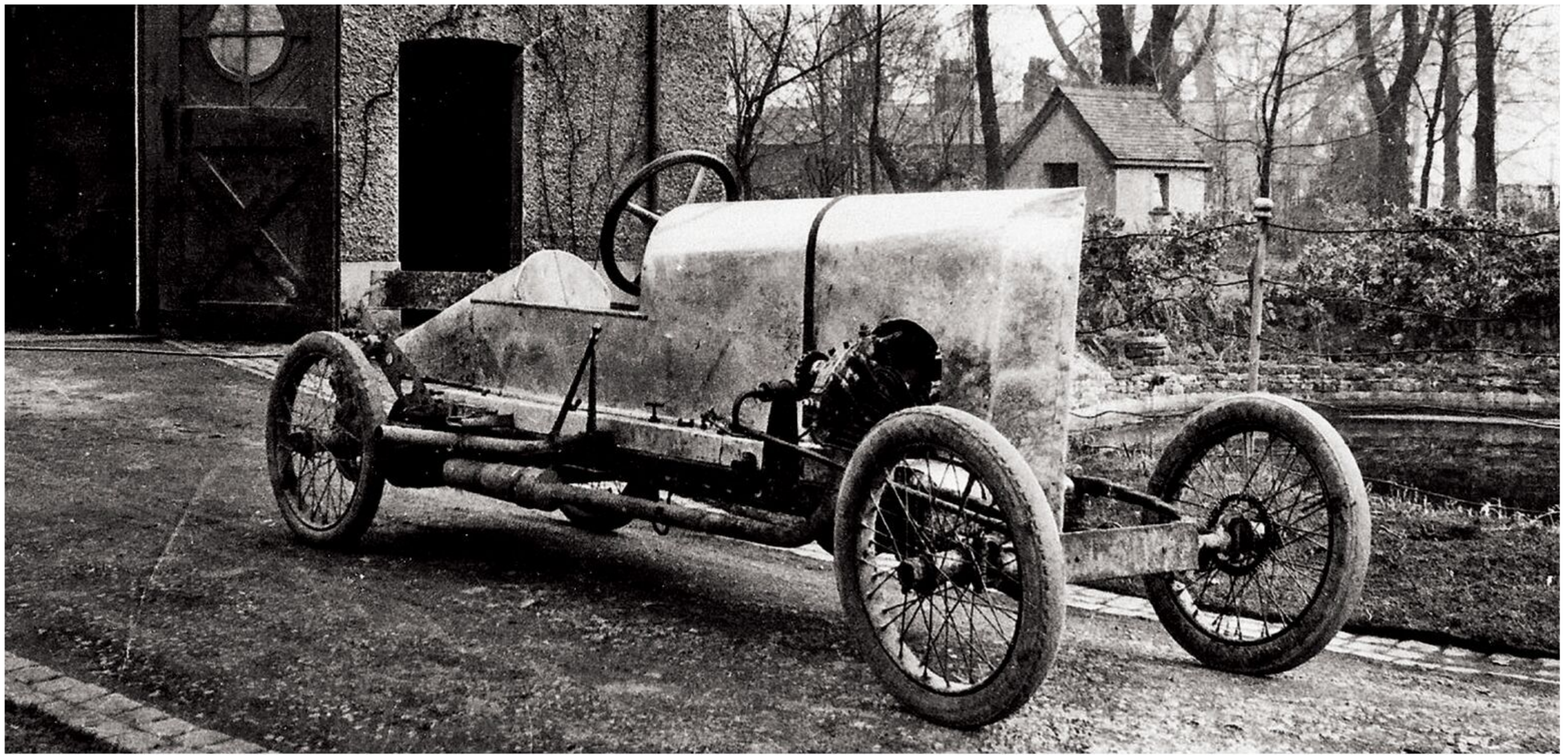
RUNNING UP A HILL...



Basil Davenport was bitten early by the racing bug (pun intended). His G.N. Spiders have been tearing up the hillclimb racing tracks for almost a century now. John Bradshaw recounts the story of a very unique hillclimb special that became two cars – and the full story can be found in his new book: *The Spiders' Web*



Spider I, the re-assembled first G.N. Spider, at the Curborough Twisty Sprint nearly 100 years after it was first built.



The first appearance of Basil Davenport's G.N. Special at the family home in Macclesfield, whereupon his brother said: "It looks like a bloody spider!"

MANY if not all of those interested in British motoring history will know of Frazer Nash cars, being somewhat eccentric and yet very successful in their own field throughout the late 1920s, the 1930s, and briefly post World War II. Fewer, however, will have heard of its predecessor, the G.N.

THE G.N. CYCLECAR

Two creative designers, Capt. Archibald "Archie" Frazer Nash (later with



Possibly the first car to be seen in Macclesfield a Daimler in 1906.

a hyphenated surname), together with Henry Ronald "Ron" Godfrey, designed a very simple chain-driven cycle car with an air-cooled V-twin engine, which they called the G.N.

The success of this design encouraged them to move on to greater things, and Archie F-N started a new firm, Frazer Nash Ltd. producing the Frazer Nash cars, still with chain drive. These did very well in motorsport until the firm was reconstituted as AFN Ltd. in 1927. By then, Archie had become more concerned with the design and production of, among other things, the very effective F-N hydraulic machine-gun turret, which was used in many British aircraft, including the Wellington and Lancaster bombers. AFN Ltd. then indulged in badge engineering and imported BMW sports cars, marketing them as "Frazer Nash BMW." This continued for a short time after the war, with the BMW 328 in particular, which they then developed into a modern streamlined car using the BMW engine made under license by Bristol.

That continued until 1957. After that, AFN Ltd. merely became an importer of Porsche cars.

Ron Godfrey continued servicing G.N. cars before eventually forming the HRG Engineering Company in 1935. Ron designed the H.R.G. sports car with a Meadows 4ED engine and



G.N. Tourers at the 1922 Motor Show, White City, London.

a Moss four-speed "crash" gearbox, while eschewing chains and using a conventional differential and rear axle. The H.R.G. went on to become known as "the sportsman's ideal," being very

effective in racing, rallying, and trials, both at home and abroad.

BASIL DAVENPORT

However, to go back to the early 1920s, a young man by the name of Basil Hope Davenport had been born in 1903 to a wealthy family that owned mills in Macclesfield producing silk cord, ribbons, and braids. At an early age he was to be seen in the back of his father's 1906 Daimler, a four-wheeled chain-driven car, which may have set his predilections for transport.

After having an unfortunately poor experience with a three-wheeler – a gentle V-twin side-valve Morgan four-seater – in 1922 he bought a new G.N. This was a four-wheeler, also with chain drive and a V-twin engine, but 1,100 cc and with inlet-over-exhaust heads. It was called the Tourer, but he saw more potential in it for him than the Morgan.

The G.N. transmission boasted three forward speeds and a reverse, but the reverse layshaft could be removed and the drive connected directly, producing four speeds – in 1922!

Basil Davenport entered his new car in trials and sprints and soon began modifying it for more speed. This process was to continue for the rest of his life.

THE BIRTH OF SPIDER

In 1923, he bought a special, center-steering G.N. chassis from Archie Frazer-Nash, and then an equally special G.N. Vitesse engine: a tuned 1,087-cc overhead-camshaft 90-degree V-twin. On this very promising basis, he built himself a vestigial aluminum body inspired by Archie Frazer-Nash's own competition car called Kim.

Davenport's brother, when he saw the new car for the first time, blurted out, "It looks like a bloody spider!" and, to Basil's dismay, the name stuck forever.

From the spring of 1924, he frequently entered hillclimbs, sprints, and occasional races with Spider and regularly did very well indeed.

And thereafter, every winter, he tuned it for more power, more traction, and

better handling. And he began winning more and more events.

SERIOUS COMPETITION

Davenport's competitive and tuning skills progressed to the point where he was winning just about every competition that he entered. Spider's engine had been enlarged to 1.5 litres, and events at Saltersford, Shelsley Walsh, and other hills, together with sprints along Colwyn Bay, Southport, and other locations gained him no fewer than 34 firsts and 14 awards in 1925 alone.

Tuned and well fettled as Spider certainly was, polishing was not on Basil Davenport's agenda. In 1926, the officer at the gate to the paddock at Shelsley Walsh saw what appeared to be a "rough-looking chap" in an old brown smock tied up with a piece of string, pushing a scruffy, oily, and really odd-looking car. This was certainly not the sort to be mixing it with the very best cars and drivers, and he tried to refuse Basil entry. Basil's response was not recorded – but he went on to beat all comers that day.

By the end of 1926, Davenport had entered at least 20 events and gained either a First or a Second in every one, with 5 FTDs (Fastest Time of the Day) and an Overall Winner at Shelsley Walsh.

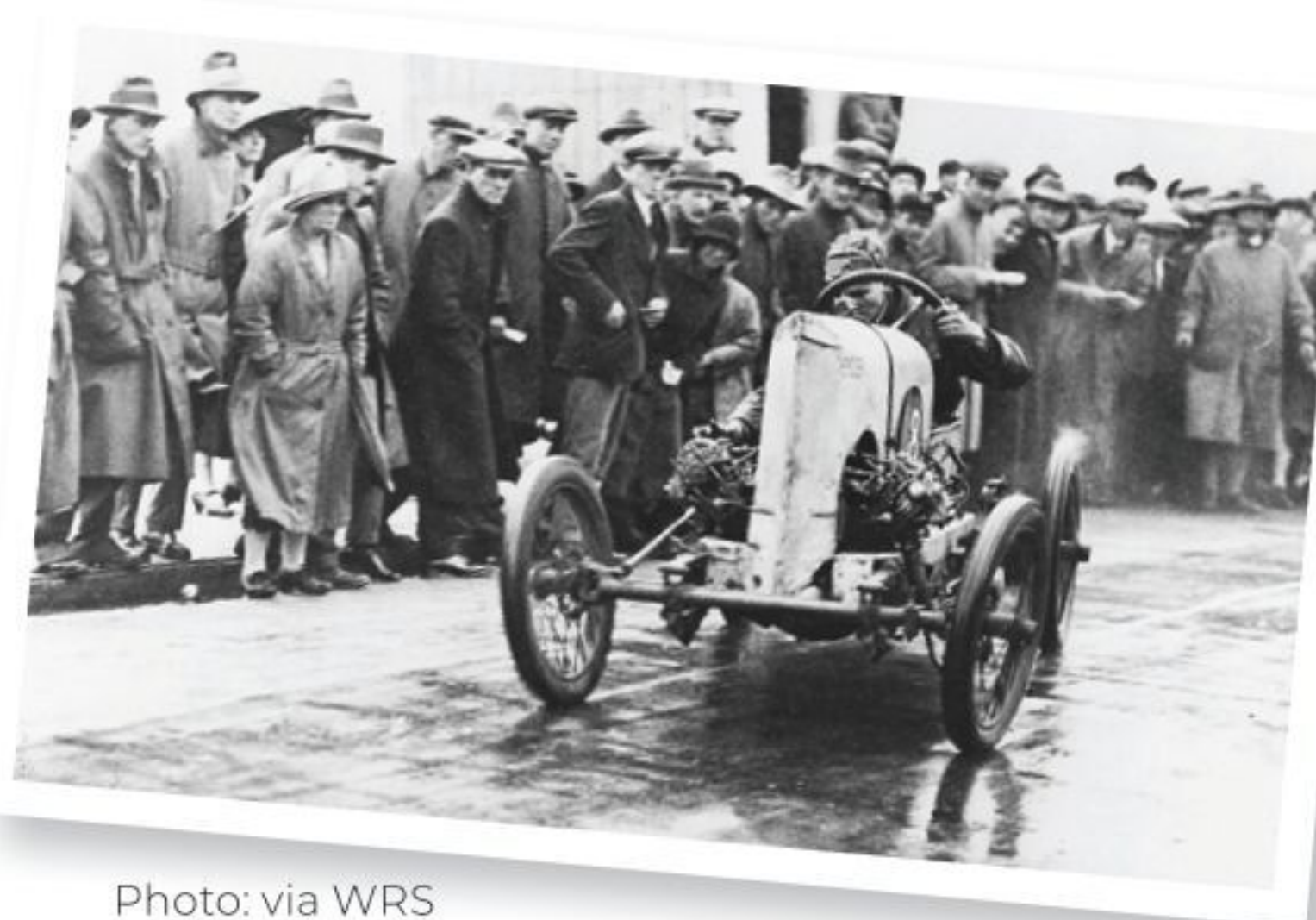


Photo: via WRS

Colwyn Bay, September 5, 1925. B.H. Davenport in his G.N. 'Spider'.

The next year, up against Raymond Mays in his exotic and fabulously expensive supercharged 2.0-litre Mercedes, Davenport had mixed a new "dope" fuel mixture with bigger Solex carburetors

and was trying very hard on his second run up Shelsley Walsh when the engine finally had enough and exploded. The forked con rod gave way, and shrapnel flew in every direction. He later said, "Some silly spectator burned his fingers trying to pick up bits for souvenirs."

Astonishingly, in time for the last event of the season, Basil managed to effectively build and fit a new engine. The new, more efficient combustion-chamber design was made with the advice of Prof.



Davenport in Spider ascending Shelsley Walsh on May 23, 1925.

G.F. Mucklow of Manchester University, who had helped Basil in the past.

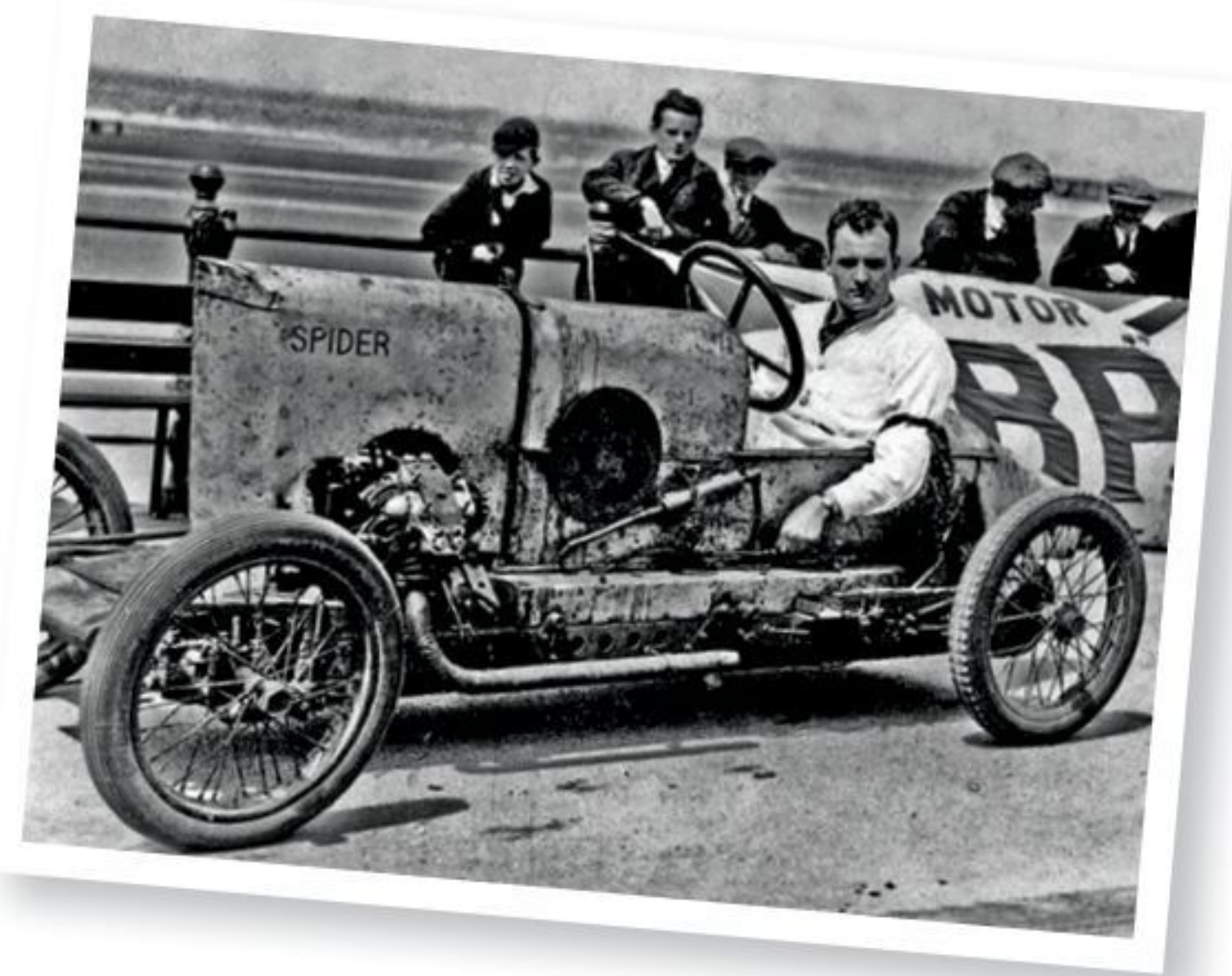
So at the Shelsley Autumn Event in 1927, he was facing Mays once again, but this time in the rain. Journalist Alan Brierley described it well:

"There is no mistaking the staccato bark which rises to a deafening crescendo as, trailing prodigious clouds of spray behind him, a bare-headed Davenport shoots into view, his arms jerking the large steering wheel of his scruffy-looking bolide as it negotiates the S-bend with hardly a trace of a skid. Spider thunders out of sight at a seemingly impossible speed in a desperate attempt to defeat the threat of Raymond Mays' blown 2-litre Mercedes . . .

"And he does! The time is posted on the board: 47.8 seconds – so not only has he beaten Mays, not only has he established the Fastest Time of the Day, but he has also carved a whole second off his record from the previous year, which had been set on a dry road. And all this in near-impossible conditions!"

So Spider had gained a new track

record, and Davenport remembered it very clearly:



*Southport Promenade, 1926.
Davenport never polished his cars.*

“It was truly the best drive of my life. It was wet and Mays was leading on the first runs, so I really had a go – and knocked a whole second off my old track record!”

THE 1930 EUROPEAN HILLCLIMB CHAMPIONSHIPS

After two more very successful record-breaking seasons, and despite some of the other top drivers having moved on to using twin rear wheels, Davenport was still up there with them and gaining FTDs on a frequent basis. Consequently he was a serious contender for 1930 Championships.



*In 1931, the GN Wasp, GN Spider
and GN Gnat were lined up
at Shelsley Walsh.*

Among the famous names from both home and abroad, there was Rudolf Caracciola, with the exceptionally powerful 7.1-litre SSK Mercedes 38/280, and Hans Stuck von Villiez, with the works

3.0-litre Austro-Daimler. Despite this show of force, Basil was not scared:

“Mays and I were going to take on the Germans, but then his Vauxhall-Villiers went wrong, so I was on my own. My brother and I arrived and settled in, and then Stuck and Caracciola turned up with their transporters, works mechanics, and mobile workshops, families too . . .

“Well, I knew I could beat Caracciola – that giant Mercedes was much too big for the Hill – but Stuck was going to be a problem. Then they found that he’d messed up his entry, and asked if I was going to protest? Was I, hell! I said that I’d beat him fairly or not at all.”

He practiced in his G.N. BHD Special, his “workhorse,” but competed in Spider because, as he said later: “Spider’s engine life at full bore was approximately minutes at most before a piston would fail and seize, so I had to be careful.”

In the event Davenport did really very well, competing with Germany’s top professional drivers, factory supported with their state-of-the-art machinery. Probably unsurprisingly, Stuck beat him, by just 1.8 seconds. But then he did beat Caracciola.

The following season saw yet more firsts, following further cylinder-head modifications over the winter months and the fitting of front-wheel brakes for the first time.

He wasn’t the only one still competing with much-modified G.N. cyclecars at that time, the three notable cars all having insect names: E.J. Moor’s Wasp, E.G. Sharp’s Gnat, and B.H. Davenport’s Spider.

RETIREMENT

By this time, Basil felt that he had little more to prove on the track and his work back at Davenport’s Mill was taking priority, so he retired from competition and Spider was stored away.

He hadn’t lost interest, of course, and, behind the scenes, he was considering a completely new engine, with further help from Prof. Mucklow and Chris Shorrocks of supercharger fame.

This “secret” project, not really re-

vealed until the publication of this book, was to have been a two-litre 90-degree air-cooled V-4. Most of the necessary patterns were made and even a few castings. However, the outbreak of war put an end to all this, although the cam boxes were subsequently used on a later version of the V-twin.

RESURRECTION

After the war, things had calmed down at the Mill, and Davenport was persuaded to dig Spider out and get it going again. So he competed at hillclimbs, Shelsley Wash again and the relatively new Prescott, but without any great success – certainly not as in his heyday.



*By 1949, Spider had been taken out of
storage and fitted with an even larger
engine and new body.*

It soon became clear that the old 1.5-litre engine was past it, and so a new engine really was needed. However, despite all the work already done on the V-4 project, he wanted a quick solution, so he and Prof. Mucklow put an almost new 2.0-litre V-twin together in very little time, with the cam chain located at the front. A result of the Prof’s research meant that megaphone exhausts were the way to go, together with much fatter tires of a modern mix of rubber. All this deserved a new body too, and so that’s what was seen at Shelsley in 1949.

TWO SPIDERS

By this time there were so many discarded components in his shed that Davenport was able to reconstruct what was effectively the “original” Spider, and

so ever since there have been both Spider I and Spider II on the scene.

Basil Davenport continued to campaign the ever-developing Spider II in open competition, while he also demonstrated Spider I in vintage events; he had the best of both worlds.



Photo: G Griffiths.

The re-constructed Spider in 1952. Thereafter this became the Spider I.

The three G.N. “insects” were still on the scene and were lined up again at Shelsley in 1972.

Basil Davenport carried on tuning and driving his beloved Spiders right up until his death in 1979. In the years since, trusted drivers have treated the cars in just the way they should be.

NEW DRIVERS

Ron Sant and then David Leigh cared for and raced Spider I, with very few changes. Harry Johnson then owned Spider II for a while before Phil Spencer took over its development and preparation, while his son, Martin, still races it very effectively indeed. Quite often, both Spiders are seen in the pits together. In December 2020, David Leigh passed Spider I on to Justin Maeers, who has Jim Edwards as both a very competent mechanic and driver.

... and so the Spider Story continues.

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Photo: N Bruce



Photo: Via J. Edwards



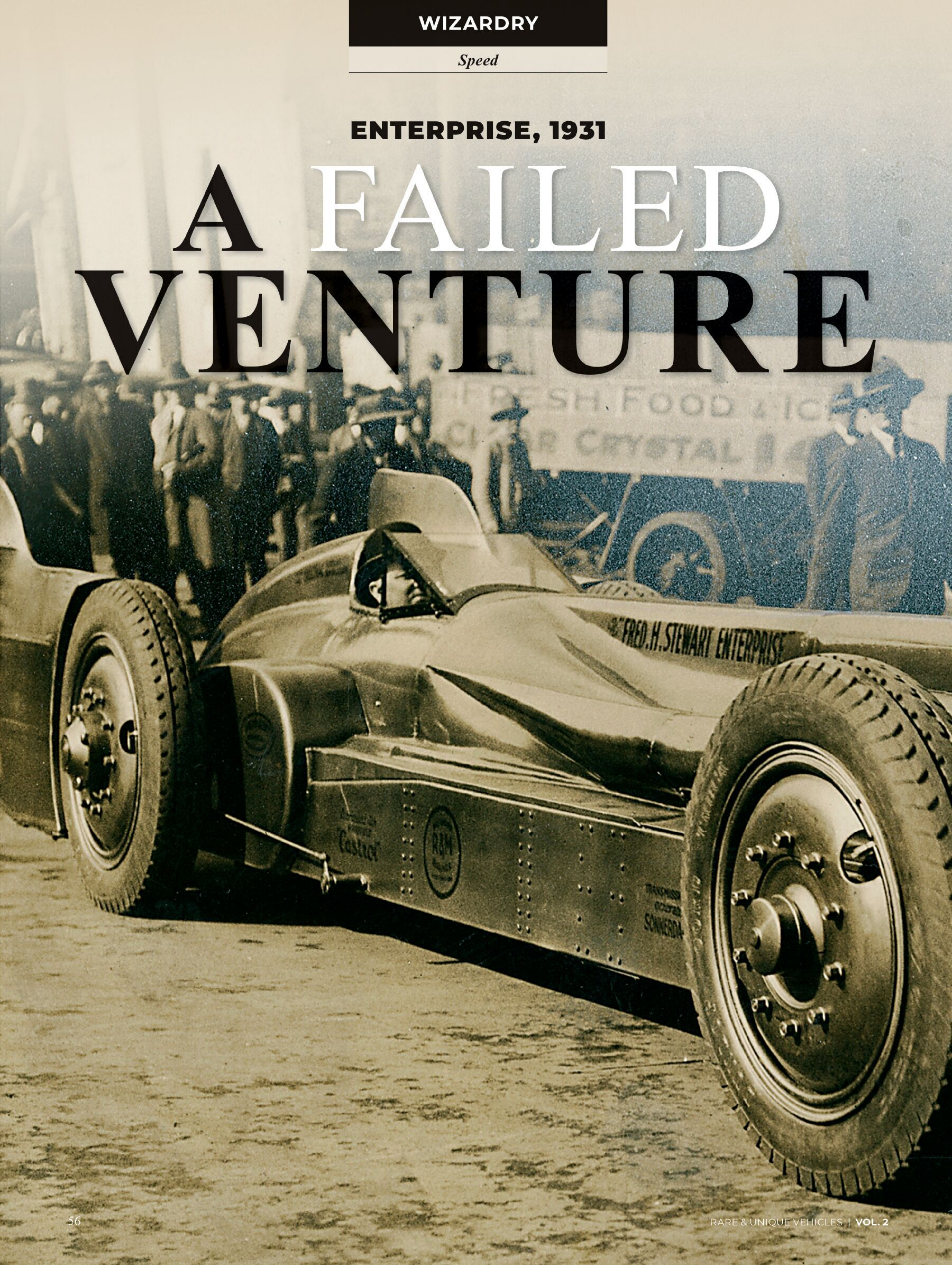
1: In 1972, the same three G.N. Specials were lined up again, in the same place, in the same order: Wasp, Spider I, and Gnat.

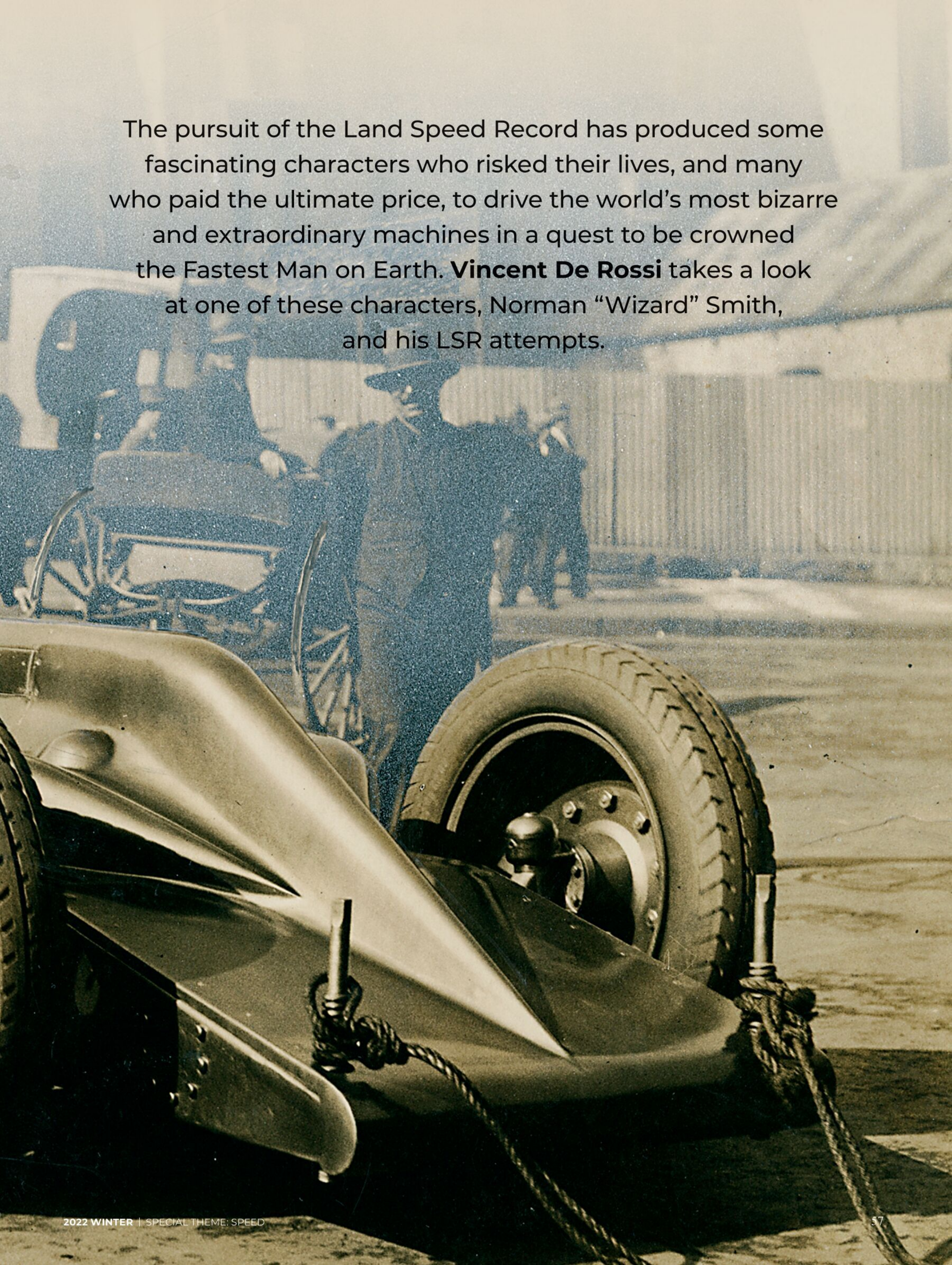
2: Eventually, Spider I went to its third owner and a new driver, Jim Edwards, and here it is seen in Jim's workshop.

3: Similarly, Spider II went to the Spencers, and here Martin Spencer is driving the even further developed Spider II up Shelsley Walsh in 2009.

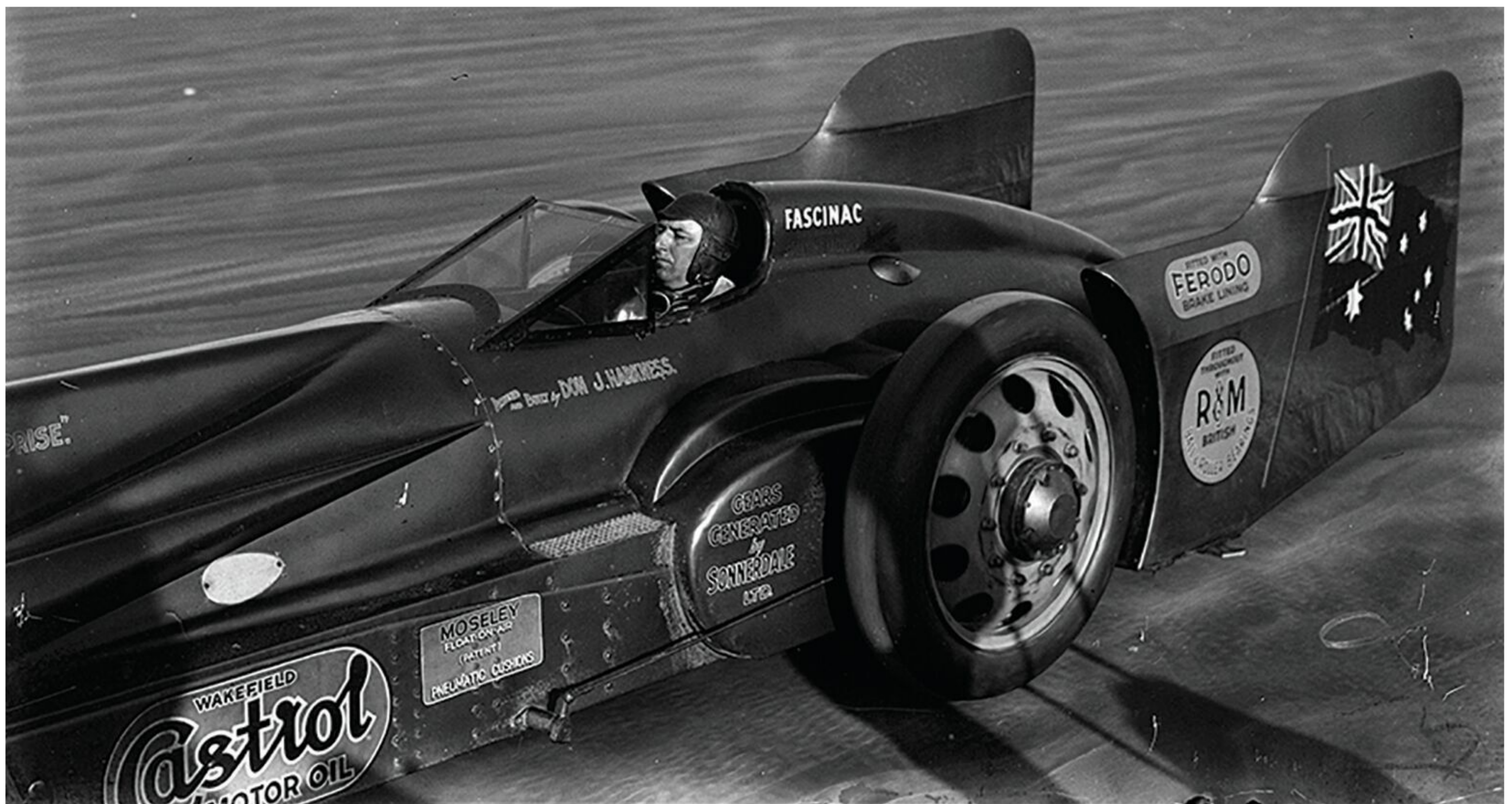
ENTERPRISE, 1931

A FAILED VENTURE





The pursuit of the Land Speed Record has produced some fascinating characters who risked their lives, and many who paid the ultimate price, to drive the world's most bizarre and extraordinary machines in a quest to be crowned the Fastest Man on Earth. **Vincent De Rossi** takes a look at one of these characters, Norman "Wizard" Smith, and his LSR attempts.



Norman Smith set an official 10-mile world speed record with the Enterprise in 1932, reaching a speed of 164.084 mph (264.06 km/h).

▶ AUSTRALIA BETWEEN TWO WORLD WARS

Australia in the 1920s heralded a brave new world that emerged from the devastation of World War I. Australia's allegiance to the British Empire's war effort had come at a high price; thousands of young men had been slaughtered, families had been fractured, and returned soldiers often struggled to fit back into society. Eager to put the horror and drudgery of war behind them, Australians began looking for inspiration, for adventure, and to dare to dream once again. At this time, everything was a race. Newspapers were awash with headlines about daredevil aviators like Charles Lindbergh who, became the first man to fly solo nonstop across the Atlantic; Australia's own Charles Kingsford Smith, who was the first man to fly across the Pacific; and British automobile speedsters including Malcolm Campbell and Henry Segrave, who proved it was possible to drive at over 200 mph (320 km/h).

NORMAN "WIZARD" SMITH

High speed was high fashion. These daredevils were the new heroes of the age. They were noble, fearless, and debonair. Norman "Wizard" Smith was Australia's premier speed ace. Despite the suggestion of glamour his nickname may convey, Smith was a lumpy, shy sort of family man; as writer Steve Simpson described him, he was "perhaps the very antithesis of a daredevil."

Norman Leslie Smith was born on July 13, 1890, in Richmond, Sydney, the ninth child of native-born parents William Smith and his wife Cecilia, née Kennedy. Brought up on a farm in Richmond, he was later apprenticed as a motor mechanic to Issac Phizackerley, who launched his own automobile at the turn of the century. Phizackerley built several cars of his own design, including one which was exhibited at the 1902 Sydney Agricultural Show. Conventional in design, the two-seater was powered by a single-cylinder 6-hp De Dion-Bouton engine coupled to a



(Source: MAAS).

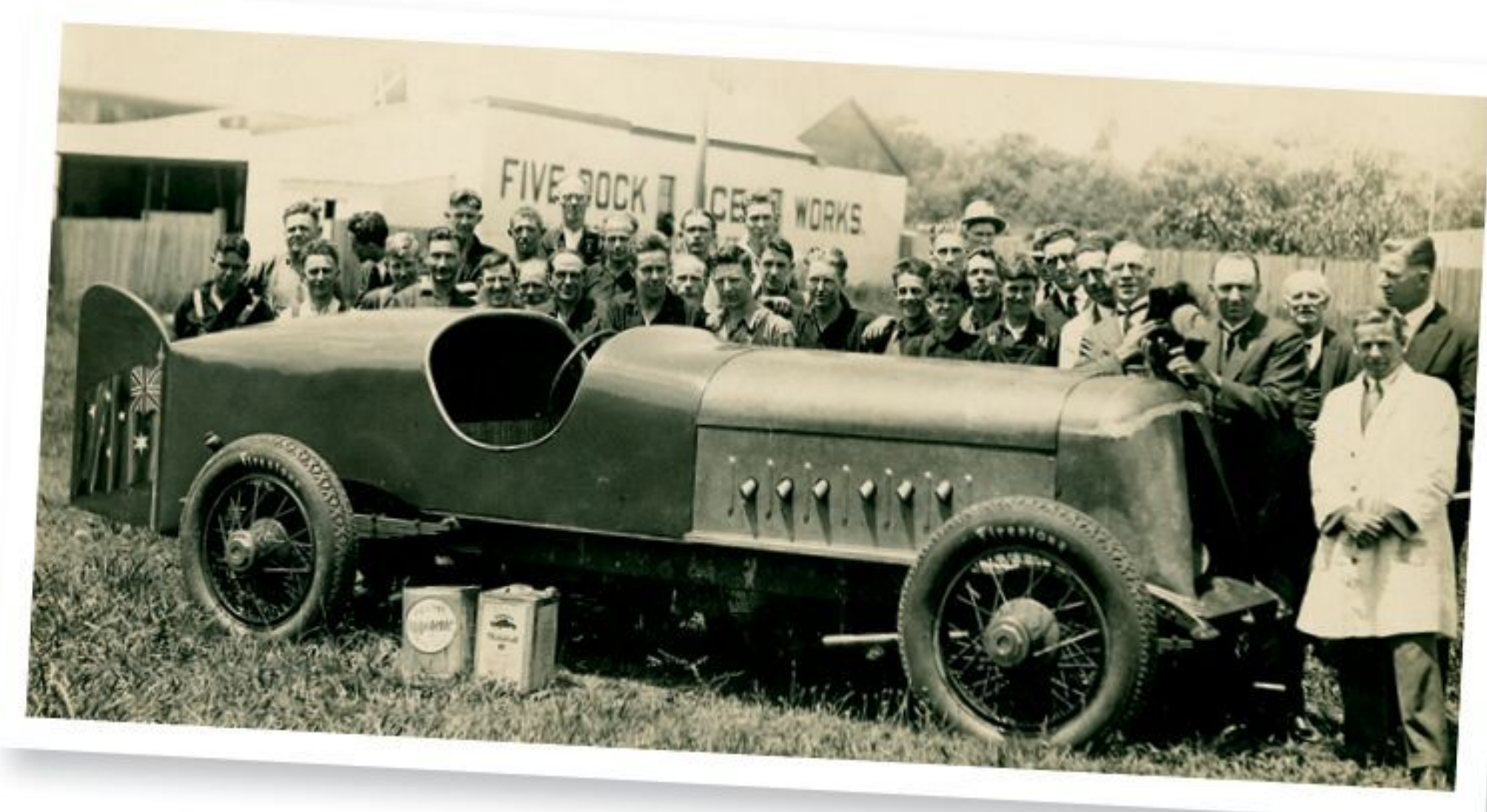
Norman Smith talks to Australian pioneer aviator Charles Ulm.

three-speed gearbox. Pricewise, Phizackerley's cars were too expensive to compete with imported models, and he would later become a motorcar importer. Nevertheless, Smith would learn valuable lessons here which would later prove to be advantageous.

On April 15, 1911, Norman Smith married Harriett Ann Russ. With the outbreak of World War I, he enlisted in the Australian Imperial Force on September 25, 1916, and embarked overseas, but he was invalided home from France suffering from rheumatic fever. That painful and debilitating disease was considerably more dangerous 50 years ago than it is today. Smith returned to Australia and was discharged on June 7, 1917. Smith was to be handicapped throughout his whole life by an impaired heart. He then briefly worked as a salesman for the Queensland Motor Agency before joining Dalgety & Co in Sydney, agents for Hudson and Essex cars. To promote his employers' cars, Smith began entering races and rallies. In 1919 he won a hillclimb at Royal National Park. Unbeaten in all the State's major motoring trials in 1922 and winner of the Victorian Alpine contest, he became known as "Wizard." The next year, he set inter-city records in Brisbane, Sydney, Melbourne, Adelaide, Hobart, Launceston, Auckland, and Wellington. Appointed motoring editor of the Sunday Times and the Referee sporting newspaper in 1924, he performed stunt-driving feats in American cars, often wearing his business suit and homburg hat. In 1926 he set a 24-hour record at the Maroubra Speedway, infamous for being dangerous with a lot of accidents occurring, and regained the Brisbane–Sydney record. Two years later he created Australian records for distances covered in six, 12, and 24 hours and broke the long-distance record held by John "Iron Man" Burton in driving from Fremantle to Brisbane.

RECORD ATTEMPTS WITH THE ANZAC

On March 29, 1927, Sir Henry Segrave propelled his 1000-hp Sunbeam Mystery to 203.79 mph (327.97 km/h) at Daytona Beach, Florida, making him the first man to exceed the 200-



The Anzac set many Australasian speed records in 1928-1929.



The Anzac in preparation for a record attempt.

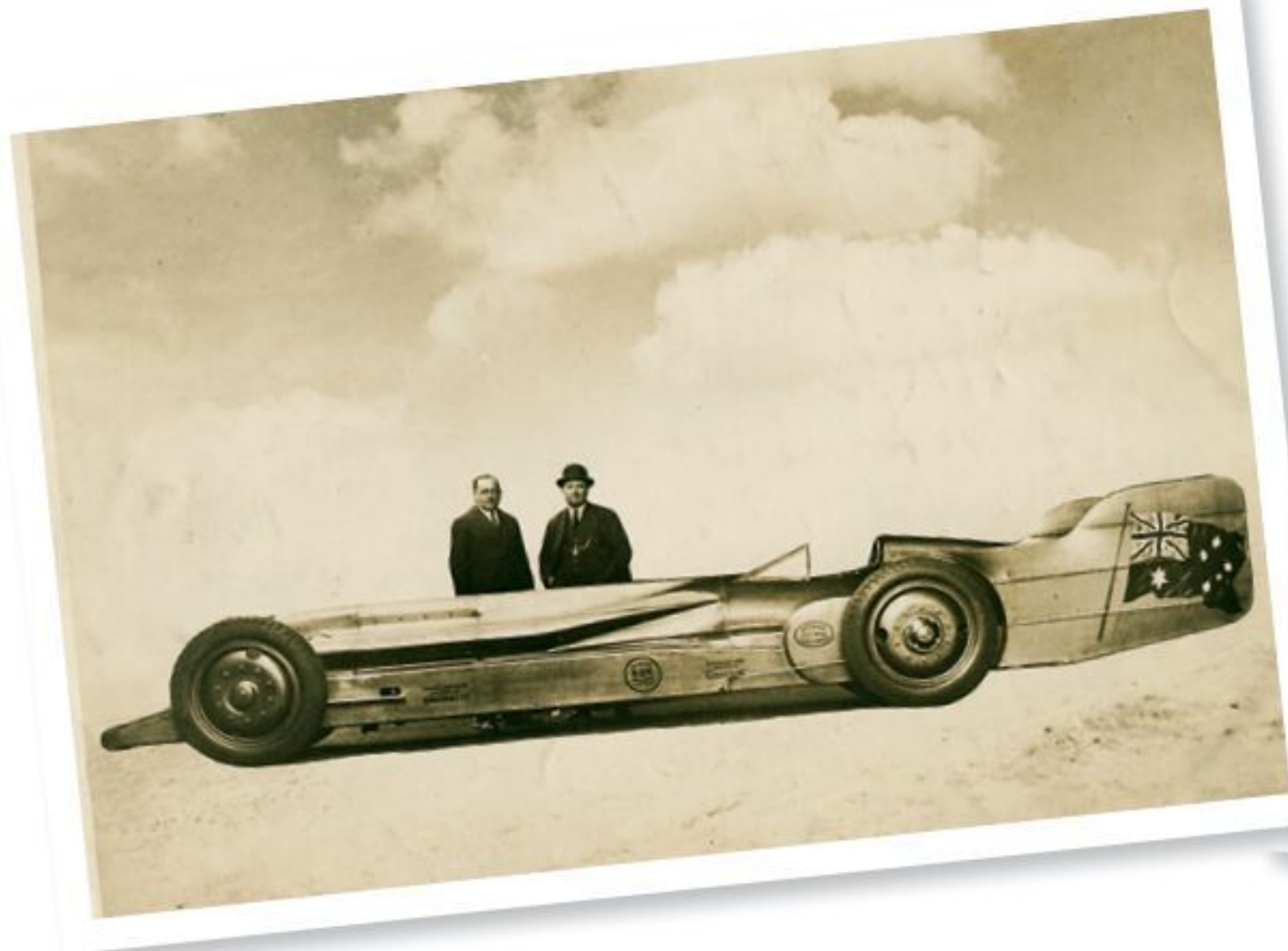
mph barrier, which many at the time thought was impossible. In under a year, Malcolm Campbell and his Bluebird upped the ante to 206.956 mph (333.048 km/h) at Daytona Beach. Barely two months later, American Ray Keech with his Triplex Special went even faster, at 207.552 mph (334.007 km/h) at the same location. In less than a year, Henry Segrave debuted his new Golden Arrow at Daytona Beach and blew his opposition away, running 231.446 mph (372 km/h), a feat that would earn him a knighthood. Speed fever gripped the world. The Land Speed Record was an ongoing saga of routinely blockbuster proportions, and Smith wanted a piece of it. One can only imagine the excitement in Australia when the news came of this bold new quest for the Land Speed Record, but unlike Campbell and Segrave, Smith had no connections, work facilities, or sponsorship. That didn't stop him from announcing to the world that he would build an automobile that would travel faster than his English and American contemporaries and capture the Land Speed Record for the Land Down Under. Smith engaged fellow racing driver, record breaker, and engineer Donald Harkness, the first man in Australia to exceed 100 mph, to design and build a racing car. The result was an enormous racer dubbed the Anzac. Painted gold, the Anzac's streamlined body sat on a vast Cadillac chassis that was powered by a Rolls-Royce V-12 Eagle aero engine donated by the Royal Australian Air Force and capable of producing 360 horsepower when 1,000 hp would seem to have been the minimum required. The car had immense thin wire wheels, a raked and slotted radiator cowling, a modest little tailfin, a small flat windscreen, plus a small seat for the riding mechanic and an aircraft-type pilot tube on the front of the car to measure speed. The Anzac looked exactly like an elongated and ultra-heavy conventional racing car of the times.

When testing the Anzac at Gerringong, New South Wales, on December 1, 1929, Smith with Harkness riding as his mechanic created an Australian record of 128.571 mph (206.909 km/h). The next month in New Zealand, at Ninety Mile Beach, he set an unofficial Australasian 10-mile

(Source: MAAS).

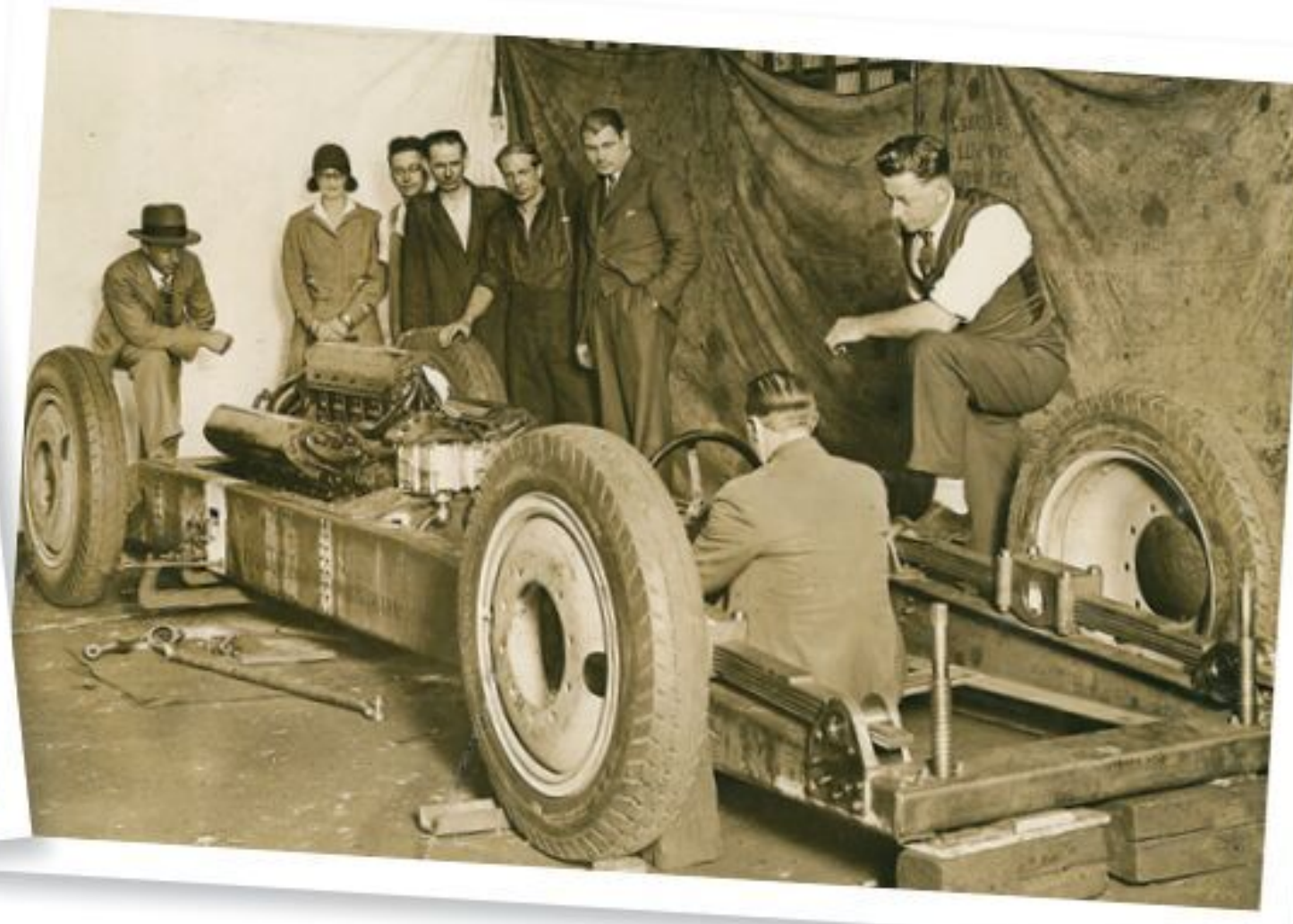
(Source: MAAS).

Source: MAAS



Norman Smith poses together with Cyril Westcott, General Manager of the local Castrol subsidiary, which sponsored the car.

Source: MAAS



The Enterprise during its construction.

record at an average speed of over 148 mph (238 km/h). Aware of the Anzac's inadequacies, Smith concentrated on Australasian records and, while searching for a suitable site for his speed runs, set new inter-city records in New Zealand.

THE ENTERPRISE

Once Smith had broken practically every Australian motor record there was, he authorized Don Harkness to design and build a faster car, one that would have "flying mile" world record potential.

This time, Smith had a beneficiary in Sydney businessman and ex-politician Fred H. Stewart. Part of the deal was that Smith agreed to name the new record breaker "The Fred H. Stewart Enterprise."

The car was built at Harkness & Hillier's premises in Sydney around one of the latest Napier Lion engines loaned by the British Air Ministry via the RAAF. This engine normally put out 900 horsepower, but adding a centrifugal blower upped the power to 1,450 hp. The enormous engine sat in a massive girder-rail chassis with multiple cross-bracing to form a car that measured 32 feet (10 meters) overall and weighed three tons. So low was the car that the New Zealand Herald newspaper quipped, "It will be able to run on its wheels even upside down."

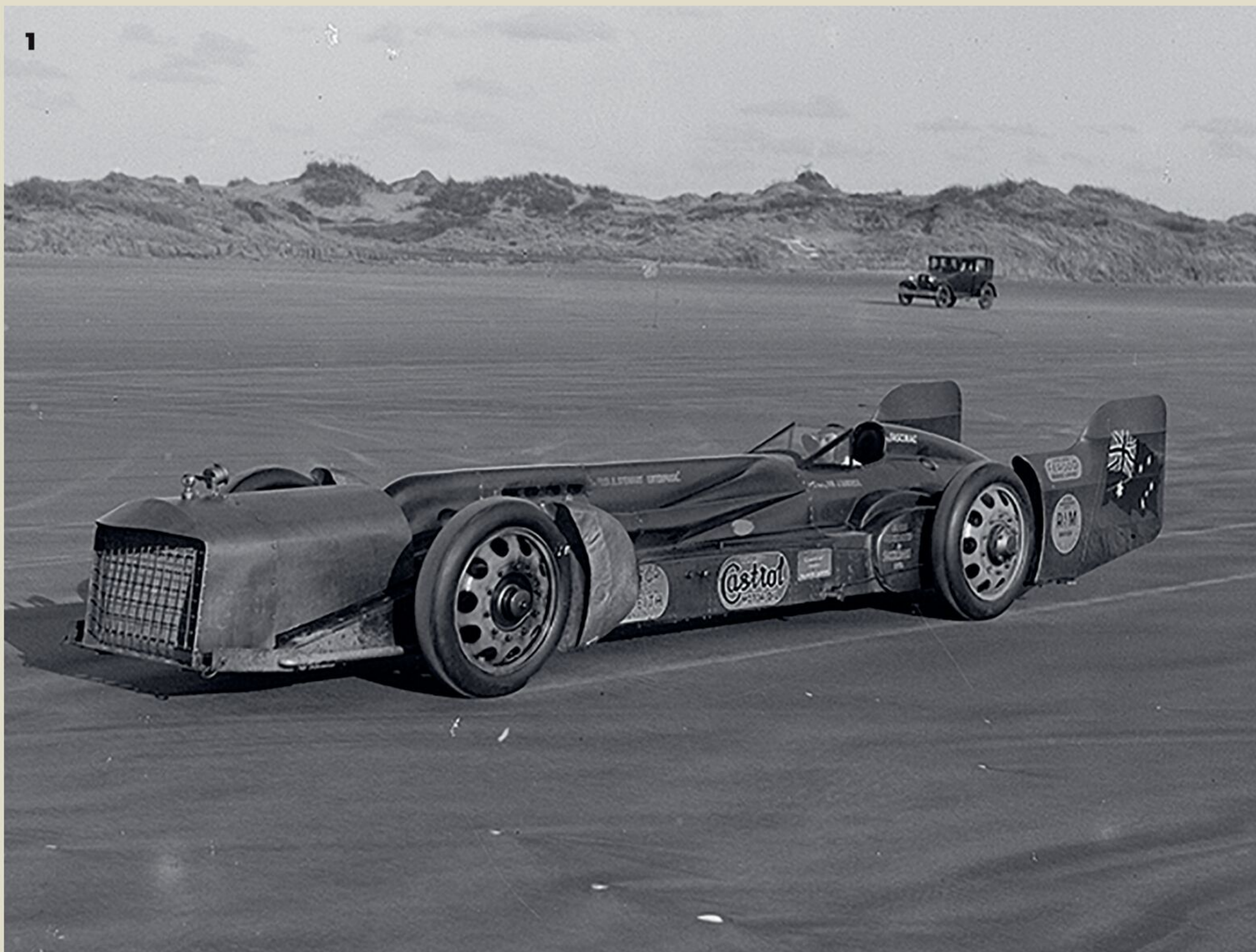
The superbly executed bodywork was fabricated by Gough Brothers, as was the bright golden Duco lacquer which, accented with bright red lettering, glistened from end to end. There were numerous delays and a lot of disagreements concerning its design, especially when it came to its cooling system. Harkness insisted on ice cooling whereas Smith, concerned that the engine would overheat, insisted

on a traditional front radiator. The delays coupled with constant quarrels were too much to bear for Harkness. As a consequence, he became rather ill and stayed in Sydney as the Enterprise and entourage left for New Zealand.

Upon arrival in Hukatere base camp at Ninety Mile Beach, Smith's manager, J. H. Mostyn, greeted the pressmen with a lot of optimism. The press had their doubts; they questioned the Enterprise's speed and weight, but Mostyn was full of enthusiasm and said, "The 10- and 15-mile records are in our pockets, and we ought to have no difficulty at all with the flying mile."

Meanwhile back in Sydney, the newspapers were full of Smith's overseas adventure. It was there that Harkness saw for the first time the unsightly front-mounted radiator Smith had fitted in New Zealand. Harkness was furious and began legal proceedings in Sydney, but he later settled out of court. In New Zealand, the course proved to be troublesome from the start. The practice run proved disappointing, the beach and conditions were poor, the beach was pitted with unexpected potholes and rippled with short sharp undulations. But worse than all that were the jagged and sharp toheroa shells that threatened Smith's stock of tires. On January 26, 1932, on a wet and bumpy surface, "Wizard" Smith set an official 10-mile world speed record of 164.084 miles (264.06 km) per hour, but that was well below the 300-mph target they had hoped to achieve. After failing to challenge Sir Malcolm Campbell's "flying mile," which was the absolute record, months of inactivity followed amid adverse publicity. The press unfairly dubbed Smith "Windy", going so far as to call him a coward. Smith's last challenge, on May 1, 1932, failed. As the Enterprise, traveling northwest

1



Source: Auckland Libraries, 1370-U065-07

2



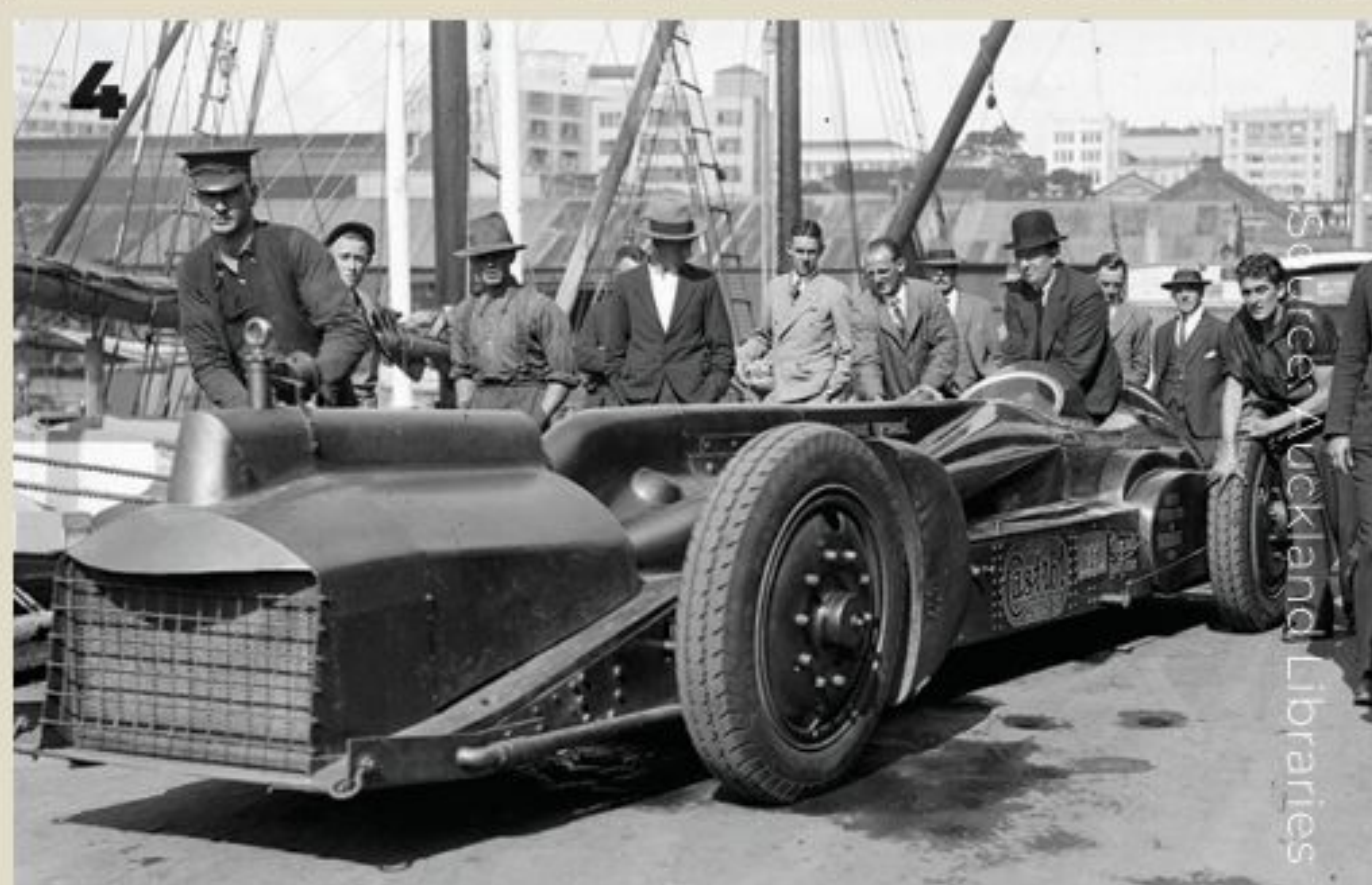
Source: MAAS

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Source: Auckland Libraries, 1370-329A1

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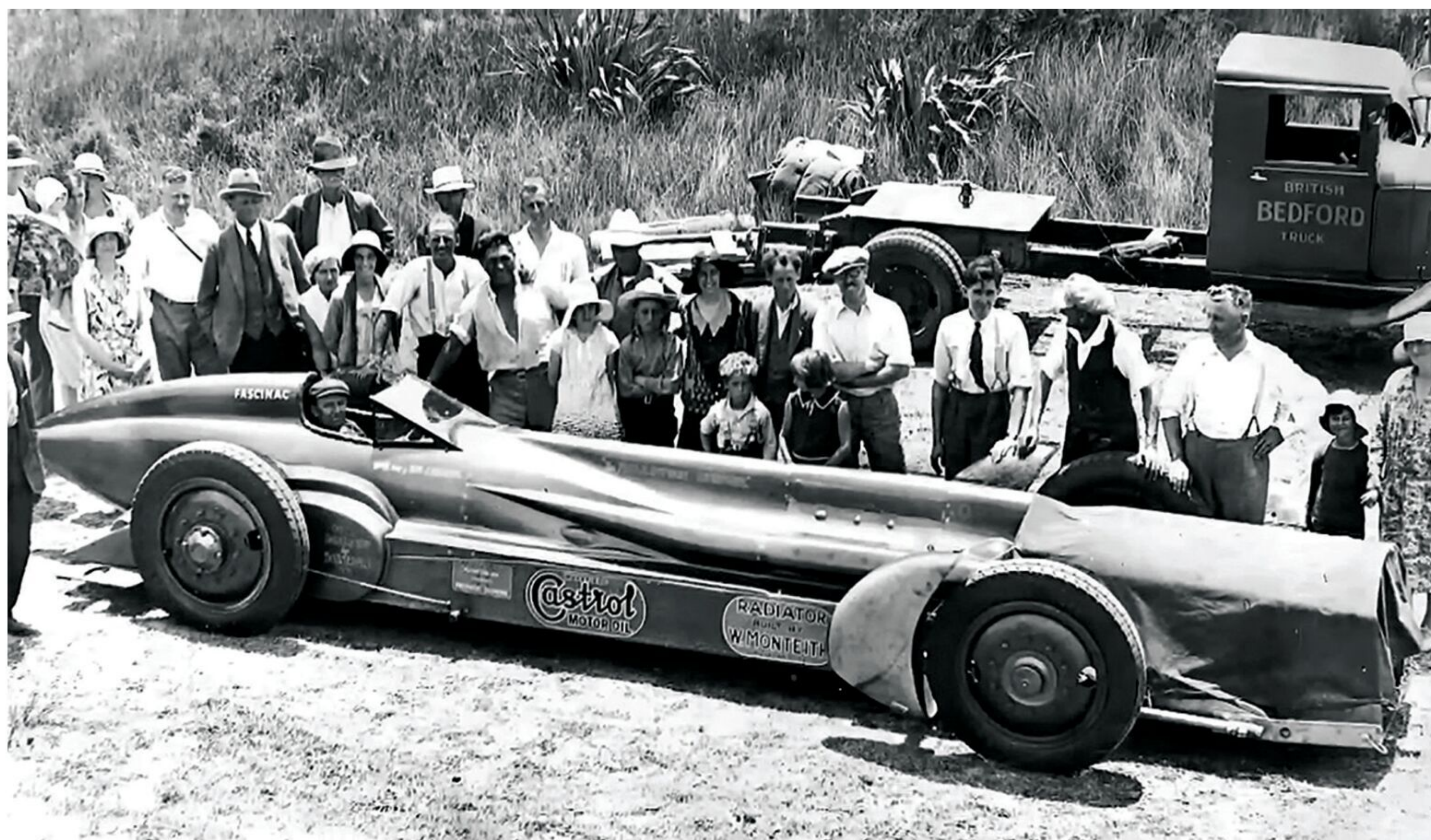
Source: Auckland Libraries, 1370-329A10

1: For the world speed record attempt in New Zealand the car received a new front piece and additional cooling.

2: The Enterprise arrives in New Zealand in 1932.

3: The Enterprise at the Ninety Mile Beach in 1932.

4: Norman "Wizard" Smith has now been largely forgotten.



The proportions are clearly visible on this picture.

on Ninety Mile Beach, accelerated through 170 mph (272 km/h) toward the start of the course, the Napier engine began backfiring and caught fire. Saltwater spray had inundated the engine, causing arcing from the magnetos. The sparks ignited fuel around the carburetors. Smith slowed as quickly as he could and jumped from the burning car while it was still moving. The fire was quickly extinguished and the damage was deemed not too severe, but Smith had spent a rough five months in New Zealand and had had enough. Smith returned to Sydney, then promptly sued the *Smith's Weekly* for alleging that he was a coward. Although he was awarded damages, his public standing remained low and never recovered. With insufficient funds, he abandoned plans for further challenges. The truth is that the pursuit of the Land Speed Record had cost Smith much of his savings, some of his dignity, and a lot of his friendships.

As for the *Enterprise*, Harkness wanted nothing more to do with it. The car sat outside Smith's shop for a while, but what happened to it after that is up for debate. Some say it was cut up and buried on Harkness & Hillier's property and the engine, as it was on loan, was sent back to England via the RAAF, but that is not confirmed as most of the people involved are either dead or have vague recollections in their old age. As for Smith, in 1933 he twice reduced the Brisbane-

Sydney record and, surveying the route for a race in 1936, drove around Australia in 45 days. That year he joined Stack & Co Pty Ltd, motor dealers; he retired as their import representative in 1957. Smith was a persevering man. His short and plain physical appearance did little to offset his enigmatic, introspective personality and, paying insufficient attention to publicity, he was denied the rewards which his skills and achievements should have brought.

"Wizard" Smith remains to this day unknown and obscure even in his own country of birth, but his audacious undertaking during the Great Depression is to be commended, not forgotten. Survived by his wife and daughter, Smith died at Kogarah on October 1, 1958. ♦

SOURCES:

- The Real Story of Wizard Smith by Steve Simpson.
- Wizard of Oz by Clinton Walker and various newspapers from the era.

SOURCE OF IMAGES:

- Museum of Applied Arts and Sciences, Australia
- New Zealand Herald Glass Plate Collection, Auckland Libraries, New Zealand.



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The story of Eric Fernihough, his world record attempts, and his untimely early death has largely been forgotten.

Terry Wright is completing a book about the great British engineer and his Brough Superiors. Here is his account of Eric's fatal run at Gyón, Hungary in 1938.

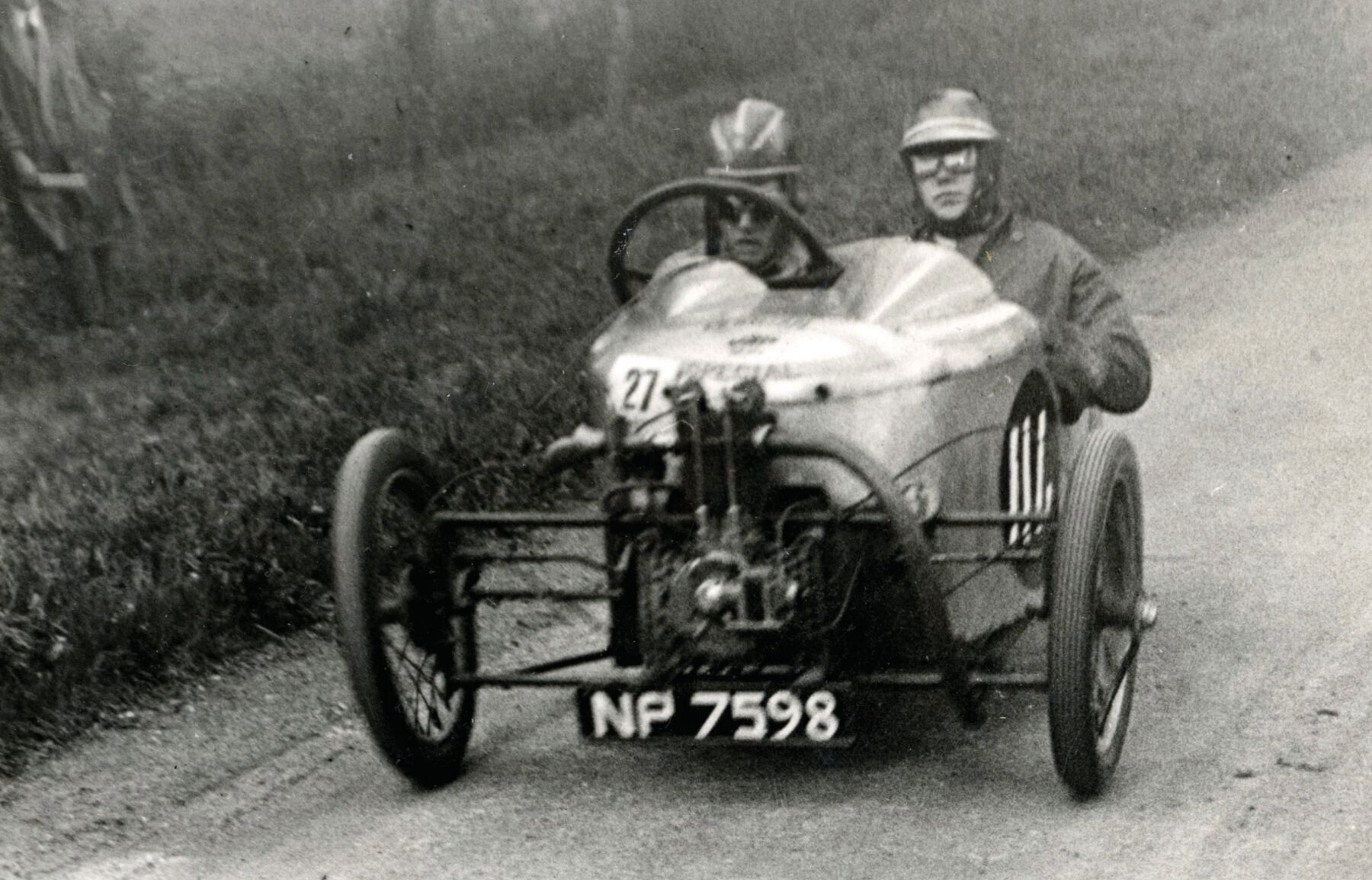
UNSUNG



**ERIC
FERNIHOUGH**

HERO

Eric Fernihough on his streamlined Brough Superior at Brooklands in March 1938, one month before his fatal record attempt.



Very early on a cold and misty morning, on the vast Hungarian plain south of Budapest, a streamlined, supercharged motorcycle was pushed into life. It would have hesitated and coughed a bit, and perhaps would have needed an extra pusher or two, because alcohol fuel does not vaporize easily when it is cold. Eventually, the very special Brough Superior would have fired up, and the uneven, sharp rasp of Eric Fernihough's unsilenced V-twin JAP engine would have woken the residents of the recently bypassed village of Gyón.

Shortly afterward, 33-year-old Eric Crudgington Fernihough was flung off his wildly "tank-slapping" motorcycle into the ditch on the side of the new road to Istanbul south of Budapest. There, on April 23, 1938, one of Britain's greatest motorcycle racers died along with his hopes of regaining the absolute world motorcycle speed record taken from him the previous year by Ernst Jakob Henne on a factory BMW.

EARLY LIFE

Eric Fernihough was a largely unsung British hero of the times when speed – on land, water, or in the air – was a global passion, and records – world and national – tumbled

almost weekly. The motorcar Land Speed Record had been in British hands almost continuously since before World War I, with widely publicized record-breaking by Malcolm Campbell and Henry Segrave. Only single French and American efforts disturbed British hegemony. British dominance of motorcycle speed records had also been the case during the 1920s, although riders Bert le Vack, Claude Temple, and Oliver Baldwin were probably not household names as the car men were.

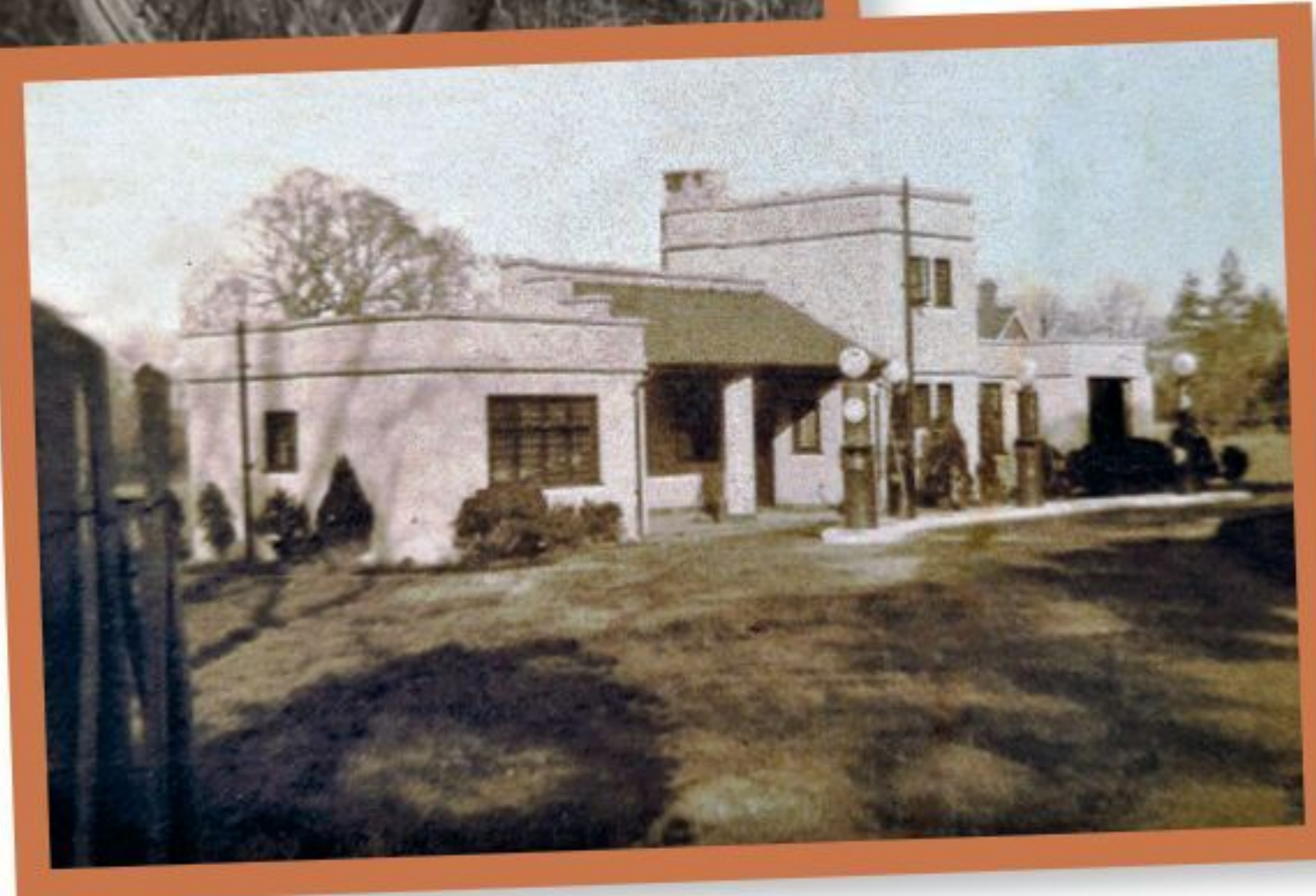
Fernihough did not have a good start to life. His father and mother were initially well to do. But not long after he was born, in Birkenhead in 1905, the ninth child of Jane and John Fernihough, his mother was recorded working as a lowly stewardess for the Cunard steamship line. It appears that all but Jane's grown-up children were in care. Of the father there is no trace at the time, and Jane was to die giving birth to a daughter in December 1908.

Chosen for adoption by Mrs. Emily McCalmont at a Merseyside children's home sometime before 1910, Eric retained the Fernihough surname and lived near Bournemouth with his new mother, who had been widowed in 1903. We know he spent two years from 1920 boarding at Clayesmore School near Winchester and three years at Cambridge University studying chemistry, engineering, and economics. He graduated with a B.A. degree in June 1926 and later acquired an



Fernihough set many world records with this 175 cc Excelsior.

Brooklands Museum



A group of British racers at the 1933 French Grand Prix. Far right is Fernihough with his Excelsior, accompanied by his wife, Dorothy.

Fernihough's garage at Brooklands.

M.A. Quite a lot is known about his Morgan three-wheeler and motorcycle activities of the time, some of it from the diary of the remarkable Miss Butler. She recorded that she became engaged to Fernihough in November 1924 to give some apparently necessary (in the eyes of her parents) respectability to her spending a lot of time in his Cambridge shed and at various speed events all over southern England.

Whether the relationship was purely platonic and competition-focused we will never know, because Butler's will required that her diaries be destroyed. Fortunately for this story, she wrote several sets of extracts about her time with Fernihough. After various adventures including world records at Brooklands driving his Morgan, and a bad crash in 1926, her father banned further racing. Mrs. McCalmont put her foot down, too, and, Butler recorded, "the engagement fizzled out."

FIRST STINT IN MOTORCYCLE RACING

After Cambridge, Eric took up motorcycle racing and was a frequent competitor and record breaker at the Brooklands track. He still lived in Southbourne and worked for Hendys, Britain's first Ford dealer, which had a branch in Bournemouth and also dealt in motorcycles. From 1926 he had an extraordinarily successful motorcycle racing career, on a variety of makes but mainly Excelsiors with JAP engines,

initially at Brooklands and in Ireland but eventually on the Continent.

Late in 1931, Fernihough married Dorothy Penrose and took over the Tower Garage next to the Brooklands track, where he developed a tuning and motor engineering business. As well as winning many major races at Brooklands, he had numerous class wins and places in international motorcycle races in Belgium, Switzerland, France, Sweden, Ireland, Holland, and Spain. In 1932, he recorded 18 firsts and 13 lap records. In 1933 he had 14 firsts and 17 records. In 1934 he had 16 firsts, with 18 in 1935 and 10 in 1936.

CHASING RECORDS

In July 1935, with a JAP V-twin engined Brough-Superior motorcycle he had developed himself, Fernihough set a new Brooklands lap record for motorcycles at 123.54 mph. It was a phenomenal speed that was only to be slightly bettered by Noel Pope before the track closed for racing in 1939.

In 1936 he made his first move toward taking the absolute world motorcycle speed record with a visit in October to record sessions on the new German autobahn from Frankfurt to Darmstadt. The flying-start records eluded him, with Ernst Henne's factory BMW taking the absolute record over a kilometer to 159.1 mph, but Fernihough was able to claim a standing-start kilometer record of 103.56 mph. After travel-



Fernihough's record breaking Brough Superior with minimal aerodynamic add-ons in 1936.



After a lap record at Brooklands in 1935 with a slightly modified Brough Superior. Francis Beart and Dick Chapman helped tuning the bike.

Brooklands Museum

ling to Gyón south of Budapest in early 1937 – now with two bikes, one supercharged and one with a sidecar – Fernihough narrowly took the absolute record from Henne at 169.79 mph on April 19. A “second prize” was the outright sidecar record. A racing injury in Sweden put him out of action during the latter part of the year. Meanwhile Piero Taruffi (Gilera) and Ernst Henne, each with a mere 500 cc (but supercharged with full streamlining), attacked the record. At the beginning of 1937 it stood to Henne at 173.68 mph.

THE TRAGEDY

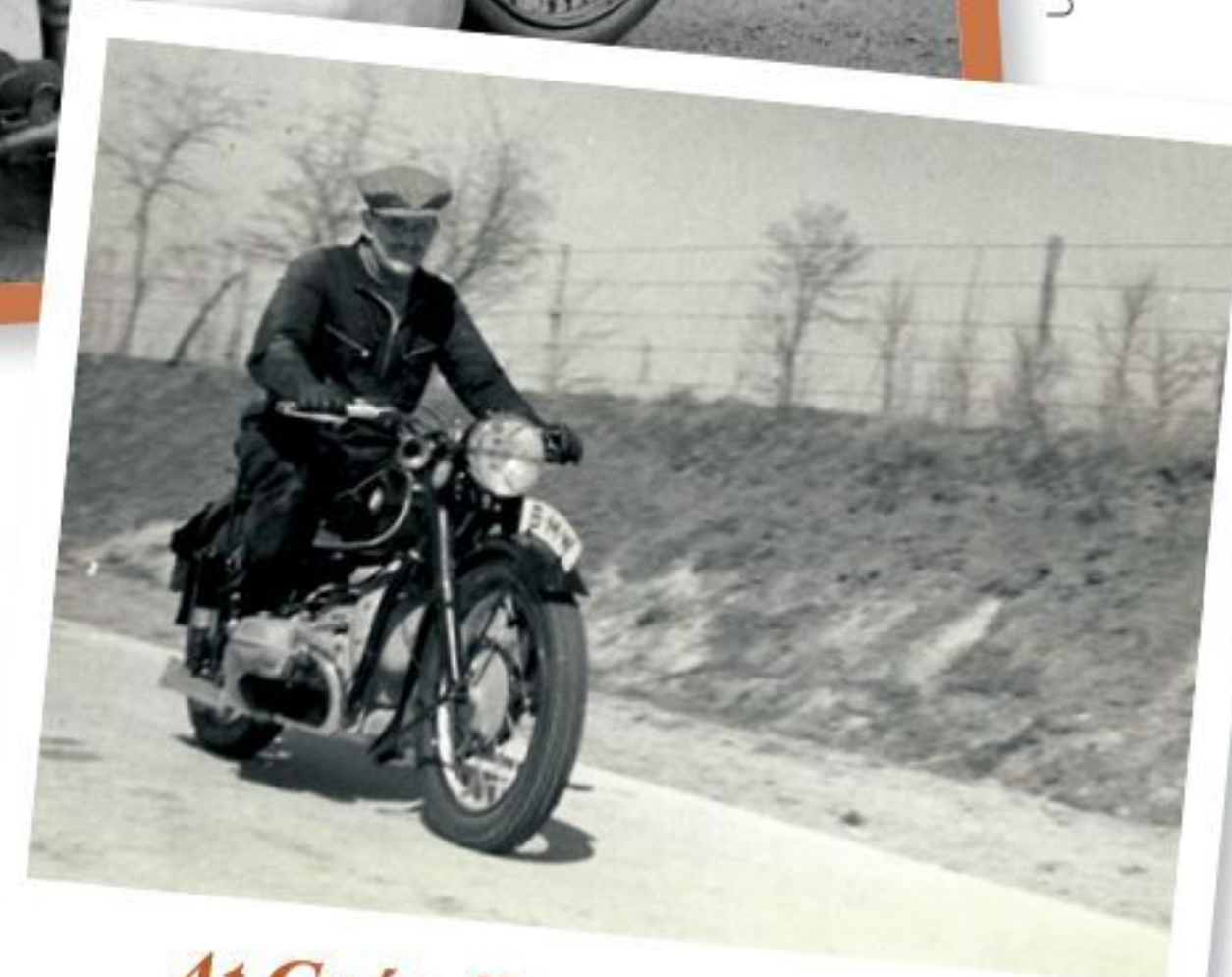
Once again motoring the long road to Hungary, Fernihough returned to Gyón in the spring of 1938 to try to cap Henne's new record. It was a tall order, even though the road was modern and part of it had been designed to be level and dead straight specifically for record breaking. The timed-kilometer section was in the middle of the 5-km straight and every bit of road available was needed to accelerate and brake. This meant that the approach curves had to be taken at considerable speed. The flying mile started with one of the kilometer timing points, so it was effectively even nearer to the southern end and the approach speed was critical. Fernihough made it his practice first to do a fast single timed run away from Budapest, which was the reverse of normal use of the course. He would then do pairs of runs starting from the south away from the sun, maybe so that he would have the longest approach to the mile on the return run.

With the road mainly slightly elevated above the surrounding plain, there were only a few trees and buildings on the



This photo was sent by Eric to a young fan in Australia in 1937. The tail fairing was abandoned after testing at Brooklands and replaced with a more substantial unit.

Brooklands Museum



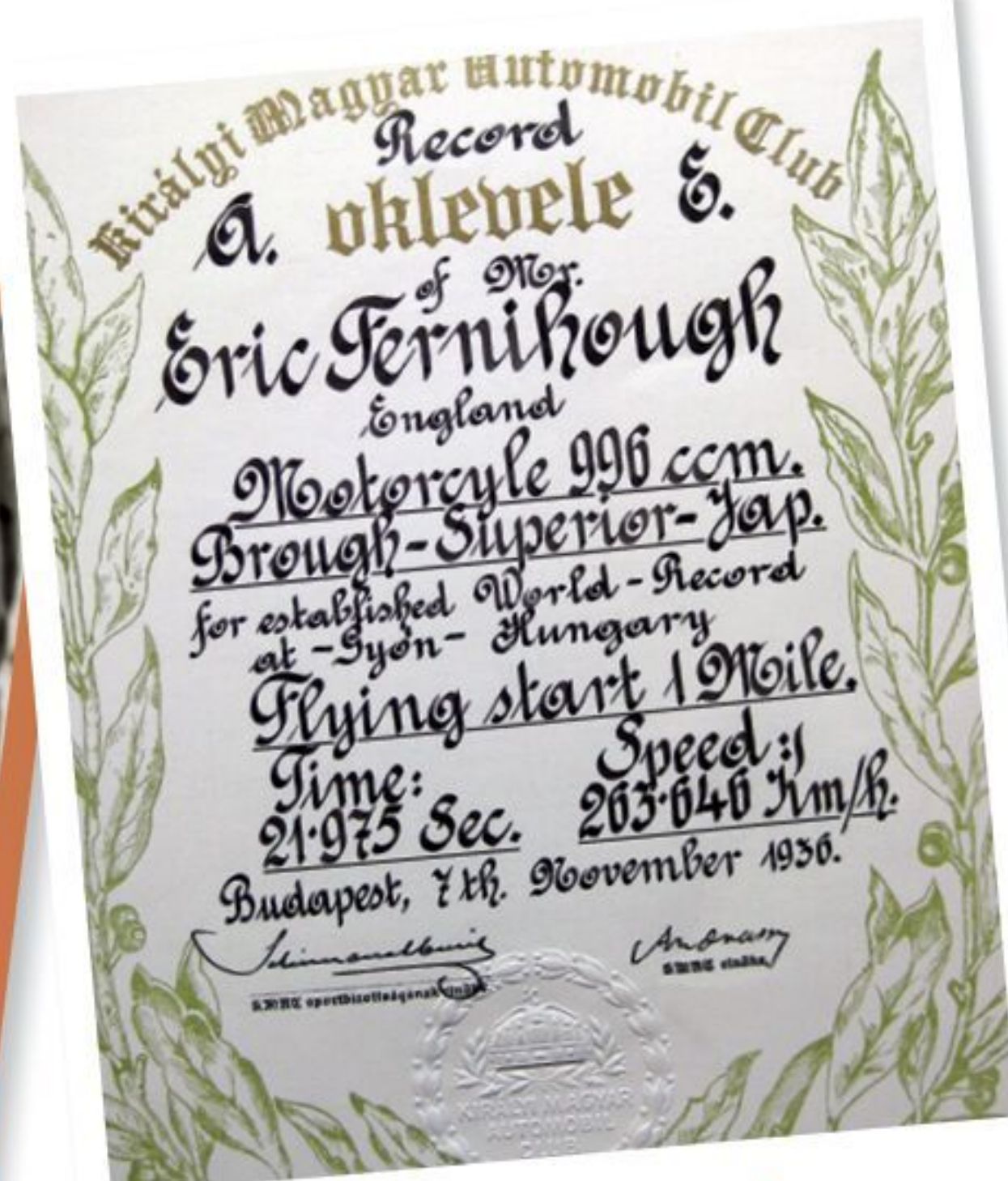
At Gyón Fernihough also tried out a BMW.

Brooklands Museum

roadside apart from a roadhouse (which is still there) in the middle of the timed section. The Royal Hungarian Automobile Club, for a daily fee of £75, provided all the necessary facilities. The road was swept during the night. There were gendarmes with rifles to keep order. First, Fernihough cruised up and down in an open car checking for wind shadows and any other hazards. Then the bike was warmed up and “hotter” plugs fitted. Finally, by way of



The last configuration of the streamlined Brough Superior with the engine fairing removed, which was wrecked at Gyón, killing Eric Fernihough.



Hungarian record certificate from 1936.



Today a memorial plaque has been placed on the wall of the restaurant, almost at the same spot where Fernihough was killed.

preparation, there was a fast run north to south, and a last action photograph was taken with him flat on the tank and his arms fully extended.

All seemed well and he started his first record run back toward Budapest. What followed was only sketchily reported, and ever since there have been arguments about the cause. Fernihough accelerated the big bike through the challenging approach curve into the long straight ahead. As the timing equipment was triggered at an estimated speed of 180 mph, the officials saw a slight wobble of the front wheel. Almost instantly this developed into a violent oscillation of the handlebars from lock to lock.

Motor Cycle quoted an eyewitness in its issue of April 28, 1938: *As he entered the measured distance a slight wobble was to be seen. Then very severe wobble developed. Poor Ferni tried to correct it but ... it made the front fork go from one lock to the other. It was impossible to straighten. He lost control, flew about thirty yards, landed on the wall of the ditch and fractured the base of his skull.*

The Hungarian press agency put out a release with the news of the accident at 12:00 noon, and the story was in the British newspapers that afternoon. Fernihough's companion, John Rowland, then had the dreadful job of driving their station wagon home to England with Fernihough's coffin following a few days later. It was given a massive sendoff by Hungary's car and motorcycle enthusiasts.

There is evidence that Eric Fernihough knew what he was up against in trying to regain the record, but that he bravely went on. A surviving letter from one friend to another, writ-

ten on the day of his death, says "[the] sad truth compels me to admit somehow it was not unexpected. I spoke to him on the matter the last time I saw him ..."

Fernihough was not the first, and not the last, to experience the sometimes fatal interactions between aerodynamics and vehicle design, which even today are not always understood or predictable. Streamlining design for high speeds was still in its infancy, as the published words of record-car designers of the time will testify. Certainly, in those days, practically nothing was known about the high-speed dynamics of motorcycles.

It is notable that this fatal run was the first time Fernihough went to record speed with a near-full enclosure of the body of the bike. He had earlier run it with little or no streamlining – not even enough to keep the wind off his goggles, which were distorted so much he sometimes couldn't see the road properly. He had last tried for his absolute record with just a crankcase/gearbox fairing and a new tail fairing. With this he recorded that he had frightened himself badly.

In April 1938 an accumulation of second-order effects probably started to get worse as speeds rose, with the fatal tipping point perhaps being the now more complete streamlining shifting what is known as the keel area fatally forward, while maybe generating some completely new handling problems.

Eric Fernihough was buried in Boscombe cemetery, Bournemouth, on May 4, 1938. He is still remembered by a memorial on the wall of the restaurant by the road where he died in what is now the city of Dabas. ♦

**DUESENBERG SJ
MORMON METEOR**

STREAMLINER FOR THE SALTS





Duesenberg – a name which is synonymous with racing and luxury. This great American brand once challenged the Land Speed Record. **Dennis Adler**, one of the foremost experts of the brand, recalls the story.

1: Ab Jenkins and the Duesenberg Special in their natural habitat: the Bonneville Salt Flats.

2: Ab tries out his Land Speed Record car.

3: It was usual to install the movie camera on top of cars.



FRED AND AUGIE DUESENBERG

It was all about the racing. For Fred and Augie Duesenberg, it had always been about the racing. During the turbulent Model A years in Indianapolis, the race cars had come first and foremost. And they had won when the company had failed. After E.L. Cord entered their lives, the race cars became a little less important, but Fred brought the racing cars to the Model J with the addition of his centrifugal supercharger introduced on the SJ in 1932, a feature he had employed as far back as the 1920s. Sadly, Fred would not live to see the greatest achievement of his supercharged Model SJ. He died from complications following a traffic accident in July 1932.

THE J AND SJ

With the introduction of the Model J Duesenberg in December 1928, Fred's attention was drawn away from the racetrack, and though the company continued to compete, the glory days seemed to be over. By 1929 Harry Miller's cars were dominating Indy and most of the races around the country. The supercharged Duesenberg straight-eights, however, had left their mark on motorsports history, and on Indianapolis. Even after the introduction of the Model J, Fred kept his hand in the racing program at Duesenberg Brothers, located across the street from Duesenberg Inc. He produced a handful of race cars based on the Model A, two of which were purchased by Pete DePaolo, and at one time there

were no fewer than eight qualifiers for the Indianapolis 500 equipped with Duesenberg Brothers engines or chassis. In 1931 there were 16 cars on the entry list with the Duesenberg name, one of which finished second, less than a minute behind the winner. Most Duesenberg race cars, however, were seeing the dust of Millers ahead of them at the finish line, and by the early 1930s the company's involvement with racing was over. Fred retired from racing after the 1931 Indianapolis 500, although Augie remained deeply involved, as did Fred's son Denny.

In 1932 Duesenberg introduced the supercharged Model SJ, Fred Duesenberg's crowning engineering achievement. The centrifugal supercharger, designed by Fred Duesenberg, ran at six times the engine speed, increasing manifold pressure eight pounds at 4000 rpm and boosting engine output to a remarkable 320 horsepower.

THE MORMON METEOR

Working for Duesenberg Inc. by the mid-1930s, Augie still remained involved with racing and motorsports, and three years after Fred's death in July 1932, he spearheaded a bid for the Land Speed Record at Bonneville with driver Ab Jenkins and a remarkable supercharged Duesenberg Special known as the Mormon Meteor. A new chapter in the history of Duesenberg racing was about to be written.

On August 31, 1935, scorching 120-degree heat was radiating off the glistening white salt flats, sending a wall



4: The newly completed Duesenberg Special in June 1935. From left to right: Augie Duesenberg, Ab Jenkins, Harvey Firestone, and John Thomas.

of translucent distortion weaving skyward across the miles of barren terrain. In the distance, the sound of an engine shattered the still desert air like rolling thunder and a streamlined fuselage materialized, ghostlike, through the vortex of thermal reflection, hurtling past the timers at nearly 160 mph (257.5 km/h). Over the next 24 hours David Abbott “Ab” Jenkins, already America’s number-one speed record holder, would record an average speed of 145.47 mph (248.59 km/h) on a 10-mile (16 km) oval course laid out across the Bonneville Salt Flats. The distance traveled by Jenkins and the Duesenberg Special over 24 hours was 3262 miles (5249.68 km), nearly the equivalent of driving coast to coast in one day. Jenkins also established a new one-hour speed record of 152.145 mph (244.85 km/h), breaking the previous one-hour speed of 134.9 mph (217.1 km/h) set in March 1934 at the Avus Ring in Germany by Hans Stuck, who was driving the brand new Auto Union race car designed by Ferdinand Porsche.

Jenkins’s record-setting run was more than another test of man and machine; it was proof of the supercharged Model SJ Duesenberg’s capabilities. It was the embodiment of everything Fred Duesenberg had spent his life creating. It was his legacy. Though built for the Bonneville speed and endurance trials, with mechanical modifications engineered by Augie Duesenberg and a spectacular body designed by J. Herbert Newport, the Duesenberg Special was little more than a modified Model SJ. It had the first SJ engine to be

equipped with two duplex carburetors, special ram’s-horn manifolds, a higher 7.5:1 compression ratio, and Federal-Mogul insert bearings. For Jenkins’s speed runs it was also set up with different cam timing, a 3:1 rear end with straight bevel gears, and dual fuel pumps with independent fuel lines. Horsepower with the supercharger engaged was estimated at between 390 and 400 hp at 5000 rpm, based on a Duesenberg dynamometer test conducted in May 1935. The car was specially equipped with a dropped tubular front axle and 18-inch wheels, instead of the production model’s 19-inch wheels. The chassis was never given a serial number, and the only numerical reference is the engine, J-557.

From the standpoint of aerodynamics, which was still very much an unrefined art, and without the aid of a wind tunnel, Newport and Augie Duesenberg had theorized that an angled grille shell, a single integrated headlight (selected from the 1935 Auburn parts bin!), a full-length louvered belly pan, and a tapered tail would significantly contribute to reduced aerodynamic drag. Although the car has never been tested in a wind tunnel, it is very likely that Herb Newport’s design did indeed contribute to the Duesenberg Special’s stunning performance in 1935.

COMPETITORS

Later that year a contingent of British competitors came to Utah to challenge the Meteor’s one-hour and 24-hour records. Captain George E.T. Eyston and John Cobb,



Automodello® built just 599 units of its Mormon Meteor scale model.

1



2



3



1: Small details, such as the power-bulged hood, have been carefully re-created.

2: Even the Ab Jenkins script is readable.

3: Cockpit details include dark red upholstery and a patterned "rubber" floor mat.

piloting speed record cars powered by aircraft engines, came away from Bonneville with little accomplished. Cobb's Napier-Railton, powered by a 12-cylinder Napier aero engine with three times the displacement of the Duesenberg straight-eight, recorded a one-hour speed of 152.116 mph (244.8 km/h) and a 24-hour average of 134.85 (217 km/h), both inferior to Jenkins's times in the supercharged Duesenberg. Captain Eyston's Speed of the Wind, powered by a 12-cylinder Rolls-Royce Kestrel aircraft engine, managed to top the Meteor's hour by 7.2 mph (11.6 km/h) and the 24 hours by 5.05 mph (8.1 km/h). But it was a short-lived triumph. Jenkins and the Duesenberg Special, which had been christened the Mormon Meteor following a name contest conducted by the Salt Lake City Deseret News, returned to Bonneville in 1936 fitted with a 12-cylinder, 650-horsepower Curtis Conqueror aircraft engine (what was good for the Brits was good for Jenkins and Augie Duesenberg), sweeping away all of the previous year's records in every category from 50 miles to 48 hours.

Despite the fact that most of Jenkins's records were re-established without the original supercharged SJ engine, his achievements at Bonneville with the Special were the fulfillment of both Fred and Augie's long-time passion. Augie continued to work with Ab until 1938, when they retired the Duesenberg Special. Jenkins purchased the original Mormon Meteor with engine J-557 reinstalled and a windshield, doors, and more stylish fenders added, and logged another 20,000 highway miles before parting with the car in 1943. Changing hands several times in the 1940s, the Meteor became part of the Royce Kershaw collection in 1959. In 2019, it was acquired at auction for a private collection in Ohio.

AUTOMODELLO® MORMON METEOR

Automodello® released a 1:24-scale model of the Mormon Meteor in 2012 as part of their ONE24™ series, re-creating in scale all the grace, power, and presence of this truly great American Racing icon. 599 units were built which are now sold out. ♦

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THE **ART** OF CARLO DEMAND

For many people the word speed brings up memories of illustrations by Carlo Demand (1921-2000) whose résumé includes 11 hardcover books, monographs including one commission celebrating 100 years of Mercedes-Benz race cars, illustrations for countless magazine articles, and advertisements for Fortune 500 companies, along with 14 German Mad Magazine covers. **Dr. Mark Moskowitz** pays tribute to a renowned and prolific commercial artist.



Carlo was noted for his ability to integrate the crowds with the action. Poised atop the red car is the stern-faced Chevalier Rene de Knyff, winner of multiple races including the 1898 Paris to Bordeaux. Subsequently, de Knyff would become the first President of the Commission Sportive Internationale (CSI), the predecessor to the FIA.

AN ELECTRIC CAR ACHIEVES A LAND SPEED RECORD EXCEEDING 100 KILOMETERS PER HOUR

At the turn of the 19th century, steam, gasoline and electricity were all considered viable as the source of horseless carriage propulsion. Ransom E. Olds founded the Olds Motor Vehicle Company in 1897 and produced an electric car. Dr. Ferdinand Porsche's electric Egger Lohner C.2 Phaeton could achieve 22 mph. It appeared at the 1900 World's Fair in Paris.

Thomas Edison would soon drive a Studebaker Electric. In 1899 and 1900 electrics outsold all other types of cars in the United States. Camille Jenatzy, heir to his family's rubber fortune and a trained civil engineer, pursued speed first on bicycles and then in the electric bullet shaped "Le Jamais Contente" (The Never Satisfied). The Belgian had produced his own line of electric trucks and carriages. His racer was designed by Rheims and Auscher and built from Partinium, a lightweight alloy of aluminum, tungsten and magnesium. Paired Postel-Vinay 25kW motors drew 124 amps and produced 68 horsepower. They drove the axles directly avoiding the friction losses of a transmission, thus the necessity for small tires. This may have been the first purpose-built race car!

Jenatzy's chief rival was Gaston de Chasseloup-Laubat. The Count in his Jeantaud Duc had set speed records at 39.24 mph and later at 57.65 mph. But it was Jenatzy who eclipsed the 100 kilometer/ hour mark setting a record of 65.792 mph (105.882 kilometers/hour) at Acheres, Yvelines near Paris on April 29, 1899.

Jenatzy became a factory Mercedes driver and dominated the 1903 Gordon Bennett Cup, perhaps the year's most important race. Rumor has it that Jenatzy frequently shared with his friends his vision that he would die in a Mercedes. He safely retired from competition in 1910. He was wounded in a hunting accident on his estate in 1913 and bled to death on route to the hospital. He had been transported in a Mercedes.

Despite the crisp focus and accurate representation of the car, the bricks and the grandstand, Carlo is able to convey the sense of speed: Wheels seem to be rotating and clouds of smoke and dust billow from behind.

THE MARMON WASP

Marmon was a powerhouse in the first third of the twentieth century. As the Nordyke and Marmon company and then the Marmon Motor Company, the auto manufacturer rolled out approximately a quarter of a million vehicles. Marmons were by no means rare but their singular creation, the Marmon Wasp, remains one of the most important race cars of its century. It was no fluke that it won the first Indy 500. It was well prepared. The Indianapolis based company had set its sights on racing as the means to promote their brand. The Wasp wore the number of the Marmon's popular Model 32. Ray Harroun and other in-house engineers had long employed racing to improve their stock models and began to develop a purpose-built racer in 1909. The Model 32's T-head four was extended to a six. The long wasp-like tail was thought to be an aerodynamic advantage as were the smooth or disc wheel covers. A single seater was lighter than a riding mechanic filled two-seater, thus the need for a rear view mirror similar to ones Harroun had seen suspended from a pole on horse drawn carriages in Chicago. Much later he revealed the mirror shook so much it proved to be of little use.

The Wasp was a success well before the inaugural 500. It had prevailed in a trophy race in Atlanta and on Indy's brick surface in 1910, where Harroun drove the Wasp to victory in the 200-mile Wheeler-Schebler Trophy race. Tire failure damaged driver and car two days later, and may have been the impetus to adopt a tire conservation strategy in 1911. Harroun found that though the Wasp was capable of speeds greater than 80 mph, his tires lasted twice as long if he kept a 75mph pace.

Ray Harroun won the inaugural Indy 500 besting 39 other competitors. Harroun's margin of victory was one minute and forty three seconds. The Wasp required four tire changes. Second place Ralph Mulford's Lozier required fourteen.





Each face in the crowd seems focused on the action. Close inspection reveals speed lines behind the hubs. The dust and smoke is curving behind the racer. Is he drifting?

THE 1921 FRENCH GRAND PRIX, JIMMY MURPHY AND THE DUESENBERG. AN ALL AMERICAN WIN

Only Dan Gurney has done it since. Seven days after he and A.J. Foyt won the 24 Hours of Le Mans, the Californian won the Formula One World Championship Grand Prix at Spa-Francorchamps driving his lightweight Eagle, an American creation. Jimmy Murphy and his Duesenberg in winning in France (at LeMans) in 1921 were the first American combination to achieve a Grand Prix victory. Early on Fred and August Duesenberg were better known for racing cars than passenger cars. The legendary and luxurious Js first debuted in New York in December of 1928. Duesenbergs had already won four Indy 500's*. Labeled 183s, an appellation touting their 183 cubic inch inline eight-cylinder engine, four Duesenbergs were sent to LeMans for the 1921 French Grand Prix. Augie Duesenberg and veteran racer George Robertson accompanied the team. For political reasons, the Germans were not welcome but the French competition led by the Ballots was formidable. The French cars had four speed transmissions, while the Duesenbergs had three forward gears. And the French driver roster included such veterans as Jules Goux and Ralph de Palma. The Duesenbergs could tout a new innovation – hydraulic brakes – and they had a reliable motor topped by a single overhead cam and dual carburetors. Disaster struck early. Murphy was demonstrating the circuit to fellow driver Louis Inghibert when a horse bolted onto the track. A rollover ensued. Driver and passenger were both hospitalized with rib and other injuries. André Dubonnet replaced Inghibert. Murphy left his hospital bed to compete. He was scored as leading by lap two. A two-minute pit stop during which only driver and mechanic could replace the rear wheels and fill the tank cost Murphy the lead on lap 12. Six circuits later Murphy recovered the lead and proceeded to lap the field. Natives did not applaud his victory.

*Jimmy Murphy had swapped his Duesenberg's power plant for a Miller engine in 1922.

THE LANCIA D-50 AT THE 1955 MONACO GRAND PRIX

The 1913 Theta had an electric starter and electric lights. A production monocoque chassis supported the 1922 Lambda. The same car sported a V-4 and a sliding pillar independent front suspension. The 1948 Ardea featured a five-speed gearbox. Radial tires were standard on the 1950 Aurelia, the first production car to employ V-6 power. Despite the achievement of technological milestones, Lancia found its sales were floundering and elected to go racing...at the highest level. Accomplished designer Vittorio Jano was already aboard. Twice World Champion, Alberto Ascari, joined the effort after a dispute with Ferrari.

The Lancia D50 debuted in late 1954. It was lightweight. The 4- cam V-8 engine, positioned to lower its and the car's profile, acted as a stressed member. The fuel tanks rested between the wheels and would surrender gas equally assuring balance. Their profile and the inboard suspension were thought to improve aerodynamics.

The Lancia qualified on the pole for the season's final race, the Spanish Grand Prix, but failed to finish this and the next world championship event, the 1955 Argentine Grand Prix. Ascari and the Lancia prevailed in two non-championship Formula One events and briefly led the Monaco Grand Prix after Stirling Moss (pictured at the forefront) retired. Unknown causes resulted in a crash through a barrier and into the Mediterranean. The following week, Ascari was killed while practicing Castelotti's sports car at Monza. The Lancia program was in shambles and the assets were acquired by Ferrari. Rebranded, the D50 achieved four World Championship victories in 1956.

An early work from The Big Race. Note the involvement of those on the sidelines, the intensity easily read on the drivers' faces and the frenetic nature of the entire scene – all easily conveyed in charcoal.





On close inspection, the body and chassis of the Peugeot seem to be curved, reinforcing the feeling of speed in the turn. The introduction of this technique is attributed to the great print artist, Ernest Montaut. Note the difference between this and the projection and attitude of the Duesenberg pictured above.

PEUGEOT POWER DOMINATES THE 1913 GRAND PRIX OF FRANCE

“There’s no substitute for cubic inches” or so it was thought. In 1912, a National with a 490.8 cubic inch engine won at Indy. A 589 cubic inch Fiat followed. Organizers abroad had slowly been instituting limits on racers’ engine

size, overall weight and fuel capacity. Peugeot, with a competition history that dated back to 1895 when its Type 7 won the Paris to Bordeaux, was prepared. Georges Boillot, an engineer and Peugeot stalwart, and Jules Goux, race driver and chauffeur for Robert Peugeot, had lured Paulo Zuccarelli from Hispano Suiza. Together with Ernest Henry, they developed racing’s first dual overhead cam motors. As engine sizes were decreased, they did not want for power. Goux won the 1913 Indy 500. Seven weeks later, Boillot led Goux as their 345 cubic inch Peugeot EX-3s dominated the French Grand Prix at Amiens. At the finish, the third place Sunbeam of Jean Chassagne was nearly ten minutes behind.

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G.N. GEORGANO

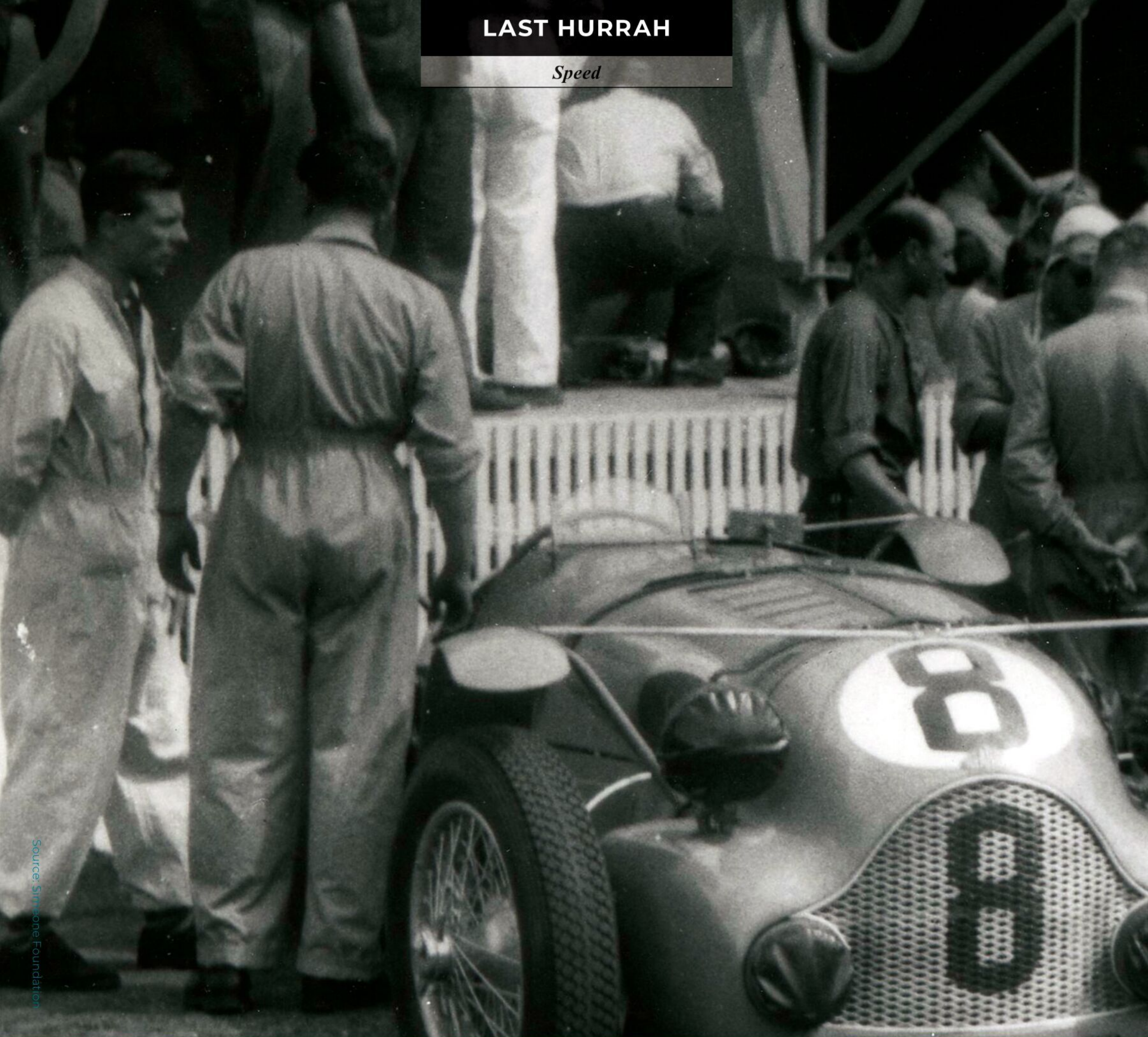
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Source: Sirrine Foundation

THE FINAL ATTEMPT FOR SUCCESS

**DELAHAYE TYPE
175 IN RACING**



The Ecurie Lutetia squad at the 24H of Le Mans in 1950, shortly before the start. #8 Pozzi/Flahault and #9 Serraud/Guelfi with their 4.5-liter Delahayes.

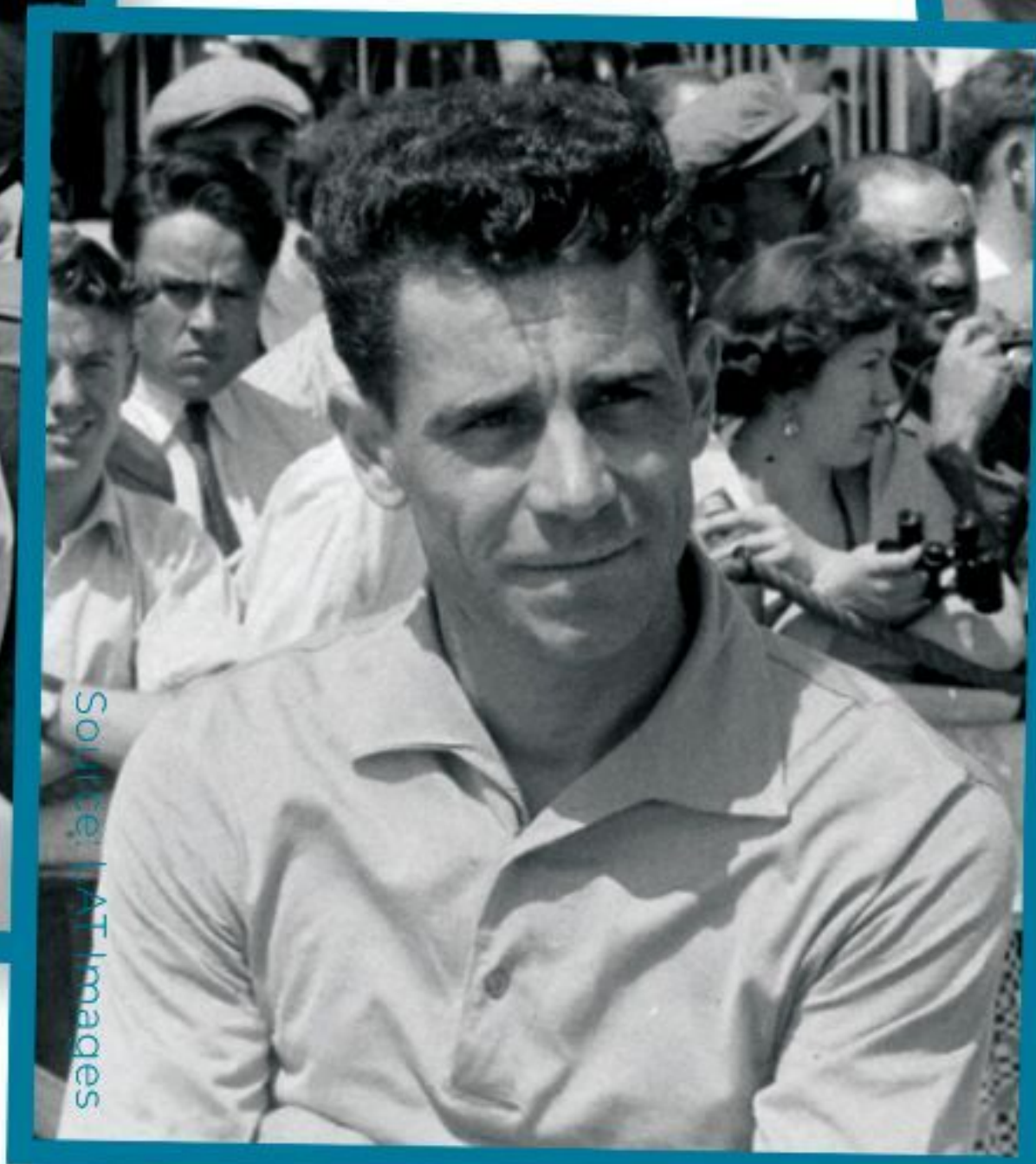
While company management did not dare to enter racing immediately after WW2, some of the best French racing drivers took the initiative and installed the brand new 4.5-liter Type 175 engine in their old chassis – and were successful! Martin Waltz tells us the story.

Source: The Revs Institute



Eugène Chaboud, the French sports car champion 1947.

Source: LAT Images



André Simon achieved his first success on the 4.5-liter Delahaye.

Source: LAT Images



Jean Trévoux, the four-time Monte Carlo winner.

Introduced at the Paris Motor Show in 1946, the brand-new Delahaye 4.5-liter Type 175 engine was intended to succeed its legendary predecessor, the 3.5-liter Type 135, and to conquer the export markets. The company management in the Rue du Banquier did not want to spread themselves too thin, so it was down to private entrants to race the Type 175.

DELAHAYE, DELAGE, AND SNAD

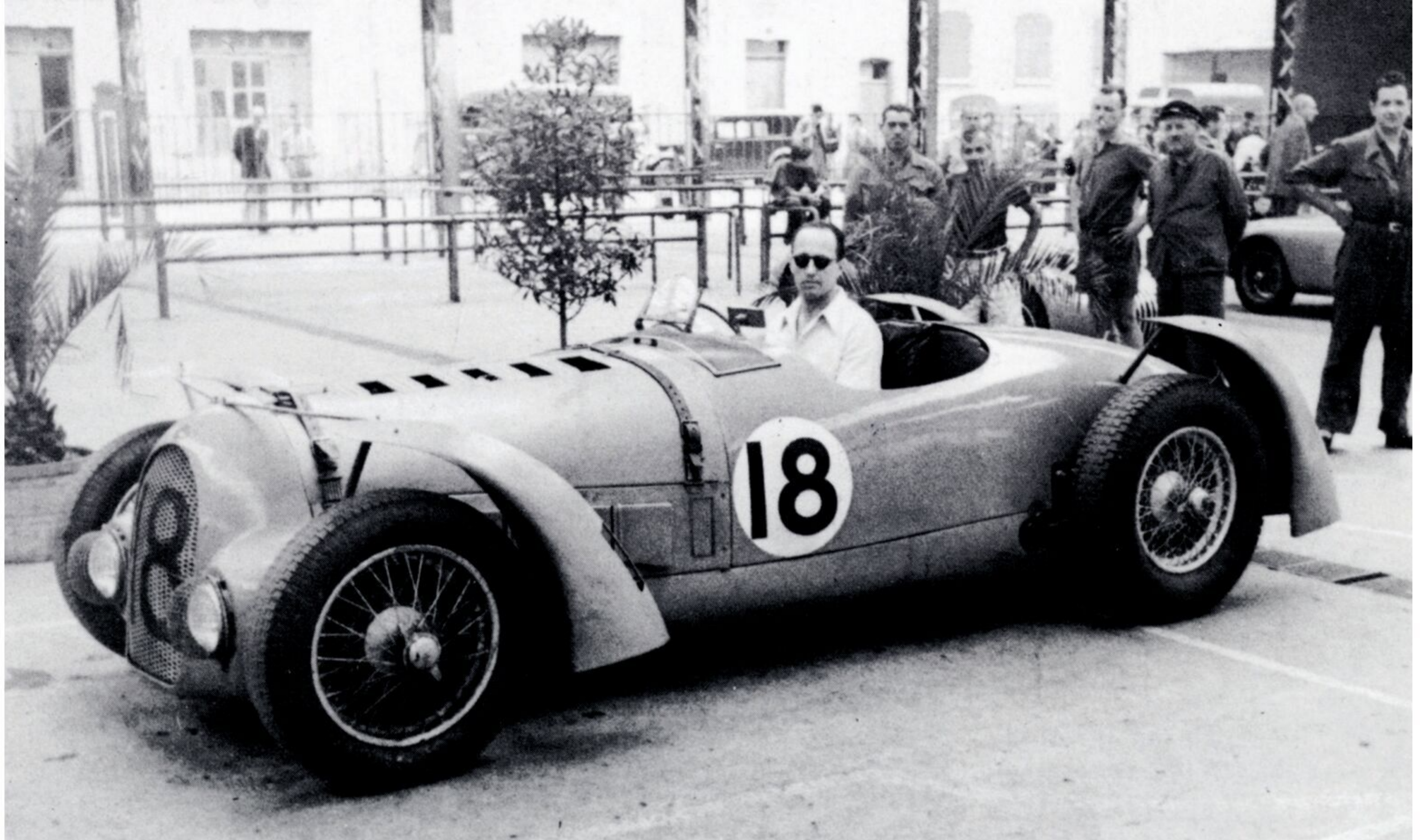
Founded in 1894 by Émile Delahaye, by the mid-1930s the company had earned a reputation as a manufacturer of commercial vehicles and solid, high-quality midrange cars, without shining with technical innovations or even sporting success. Under pressure from mass manufacturers Renault, Citroën, and Peugeot, which were able to offer their vehicles in the same segment at much lower prices due to large-scale production, Delahaye was forced to move into the field of luxury-class vehicles, where handcrafted production methods were still profitable. The stable 3.5-liter inline six-cylinder, which had been developed from a truck engine, was offered from 1935 onward. It was well matched to the sturdy 135-type chassis. It became a popular and economical choice for many French coachbuilders.

Around the same time, in April 1935, the cumulative effect of the Great Depression pushed Delahaye's financially troubled rival, Delage, into voluntary liquidation. A few months later,

the name Delage and the remaining stock of spare parts were purchased by Walter Watney, who reorganized a new company, Société Nouvelle des Automobiles Delage (SNAD). Delahaye was a minority partner in the new company. SNAD hired Delahaye to manufacture Delage cars. Delahaye had excess production capacity because sales of its commercial vehicles had declined considerably, and it was seeking ways to expand its luxury-car production.

Unlike Delahaye to that point, Delage was a brand that in France was virtually emblematic of luxury and sporting success. The 1936 and later Delage cars were technically based on Delahaye. SNAD designed the specifications of Delages to ensure that the marque's essential character was maintained. The combined manufacturing helped both companies grow in the difficult times, and the future shone in rosy colors.

In the years 1936–1939, the Delahaye Type 135 achieved an impressive series of outstanding successes, especially in long-distance races and rallies (including the 24 Hours of Le Mans and the Monte Carlo Rally), in which its reliability was particularly evident and it was often able to defeat significantly more powerful cars. Of course, the advertising effect for the luxury vehicles offered with the same engine was enormous, and sales were excellent. Delahaye tried to reach for the stars and presented an elaborately designed 4.5-liter V-12 engine for the Type 145 and 165 models – the final leap into the highest league of automotive engineering.



Charles Pozzi, winner of the 1949 Grand Prix de l'ACF, in his Delahaye 145/175-S.

WAR DICTATES NEW VISIONS FOR THE FUTURE

But this project came to an abrupt end with the outbreak of war, even before it had really got off the ground. Like other luxury-car manufacturers, Delahaye halted car production in 1940. This did not prevent the company's board of directors from giving early thought to how things could continue after the end of hostilities. It was rightly assumed that the market for luxury cars in France would have shrunk considerably, that sporting competitions would take place – if at all – on a much more modest level, and that scarcity and poor quality of the materials needed for production would be the predominant issues. Above all, opportunities were seen in the export markets, where the brand's good reputation would help sales. To be able to continue playing in the luxury class, the 4.5-liter engine was considered essential, but a new edition of the V-12 was rejected as too expensive and complex. Instead, like their competitor Talbot-Lago, it was to be a 4.5-liter inline six-cylinder, developed on the basis of the successful and proven 3.5-liter.

The project was entrusted to chief engineer Louis Jean-François, who had headed the development department since the early 1930s and played a major role in the brand's commercial success. As early as 1940 he was working on the layout of the new engine. The key design choices were quickly established: same stroke of 107 mm as the 3.5-liter,

but with a bore enlarged from 84 mm to 94 mm (= 4,445 cm³), and a crankshaft with seven main bearings. The output in the version with three Solex carburetors was estimated to be 160 horsepower, compared to 120 horsepower for the 3.5-liter. However, it was initially difficult to achieve this performance on the test bench. When the new engine was introduced in 1946, this figure was still only on paper. The development of the chassis for the Type 175 caused far bigger problems. The ambition was to offer the best of the best. When chief engineer Jean-François died in 1944 at the age of only 53, the components to be used had been determined: Dubonnet-type independent front suspension, De Dion-type rear axle, Cotal electromagnetic transmission, hydraulic brakes. But their coordination was still far from the goal of excellent driving characteristics. Without the spiritual father, perfecting the technical execution dragged on painfully. When in spring 1948, two years after the first presentation, sales of the Type 175, 178, and 180 (versions with longer wheelbases) finally began, development was still not completed.

At the same time, Delahaye's racing drivers, who had countless successes before the war and who had come together in the Ecurie France racing team after the war, were eagerly awaiting a power unit that would compete with the large engines of other manufacturers such as Maserati, Alfa Romeo, or Talbot-Lago. The announced 4.5-liter six-cylinder seemed to be the answer, but it failed to arrive, and

certainly not in a factory-team-boostered version. Finally, at the beginning of 1948, the experienced racing drivers Eugène Chaboud (winner of the 1938 24 Hours of Le Mans in a Delahaye and 1947 French sports-car champion) and Charles Pozzi (later to be the Ferrari importer for France) founded their own racing team, the Ecurie Lutetia, with the plan to use the new Delahaye 4.5-liter engines in racing trim at Grand Prix events and the 24 Hours of Le Mans. A year later, three-time Monte Carlo Rally winner and Ecurie France driver Jean Trévoux (1934, 1939, and 1949 on Hotchkiss) was also looking for a new winning competition car, but unlike Chaboud and Pozzi, he needed a complete car for rally use. In the end, six cars with the large six-cylinder Type 175 engine were used in international races: three by Ecurie Lutetia and three by Jean Trévoux.

THE 4.5-LITER IN RACING – A MIRACULOUS SUCCESS

The fact that the 4.5-liter actually had a successful racing career in the years 1948–1951 must almost be seen as a miracle. Conditions could hardly have been worse. Postwar France had a managed economy distributing scarce raw materials for higher-production, lower-priced cars for the masses. The luxury manufacturers fought for leftovers. Delahaye had a hard struggle to make the new Type 175 a success under these conditions. Many setbacks accompanied the technically ambitious project, sales success did not

materialize, and the financial situation became more critical year by year. A substantial involvement in racing was out of the question.

And yet, thanks to the commitment of individual enthusiasts who felt closely connected to the Delahaye brand, the miracle became reality. In addition to the drivers Chaboud, Pozzi, Trévoux, and the “old fox” Louis Chiron, this also included the head of the still-existing service department for racing at Delahaye, Georges Monciny. With his support, the GP drivers were able to draw on a power output of around 200 horsepower; in rally trim, around 185 horsepower was sufficient.

Eugène Chaboud, the great tinkerer in the top league of Grand Prix racing drivers, had set up his own monoposto for the new season in the winter of 1947–48, based on a 135 chassis with a different track, using the much more rigid front crossmember of the new Type 175 frame and a Type 145 gearbox with straight-cut gear teeth that could absorb more power. In addition to the gearbox, the 4.5-liter V-12 from the prewar Type 145 was originally intended to be used, but its weak points prompted Chaboud to press the factory for a competitive version of the new 4.5-liter six-cylinder engine. At Delahaye, they didn't seem to quite believe in the success of the new engine, but they eventually took the opportunity to test the unit under real-life conditions by one of the best and most experienced drivers in the fight against the dominant Maserati, Alfa Romeo, and Talbot-

Source:
LAT Images



Chaboud in front of Rosier/Talbot-Lago.



1948 Monte Carlo GP, Chaboud (#10) leads Louis Chiron/Talbot-Lago.

Source: LAT Images

Lago. Sources are not clear which races of the 1948 season Chaboud actually used the 4.5-liter engine provided to him. It is certain that, in the course of 1948 and 1949, he drove his monoposto with three different engines: the 3.5-liter, the new 4.5-liter, and the 4.5-liter V-12. The participants in the highest racing class with a displacement of 3.0 to 4.5 liters were only listed by specifying the engine configuration. Since both the 3.5-liter and the new 4.5-liter were six-cylinder inline engines, they are often indistinguishable in the entry documents.

The contemporary motor press and Chaboud himself announced the debut of the new 4.5-liter for the Monaco Grand Prix, which took place on May 16. The monoposto with starting number 10 achieved an excellent seventh place. Two weeks later, at the Grand Prix of Paris, held on May 30 in Montlhéry, there is no doubt about it; there are photos of the car with the bonnet open from this event, which prove the use of the large six-cylinder. Chaboud achieved third place in this race with the starting number 14 and thus the first podium place for the 4.5-liter Type 175-S engine, a success that must have surprised not only Delahaye. The fact that this result was achieved with an engine that had not been fully developed gives an idea of its potential, had the factory been able to devote itself to racing with seriousness. And it didn't stop there. Since Chaboud did not have a single retirement in the races that season, one may assume that he continued to use the engine that had been successful in Montlhéry and

was more powerful than the 3.5-liter. The San Remo Grand Prix (no. 42, ninth place), the Albi Grand Prix (no. 40, fifth place), and the Italian Grand Prix in Turin (no. 50, 10th place) followed, in each of which a six-cylinder was used.

In view of the regular Type 175's difficult sales start, one wonders today why Delahaye did not use this evidence of the powertrain's performance and reliability in advertising. Perhaps it was because the car on which these successes were achieved did not have a genuine Delahaye chassis (even if it was assembled from Delahaye parts) and operated under the name "Chaboud Spécial 001." Thus, these results remained almost hidden from the general public and were only noticed by motorsport enthusiasts. They were to see even more in the following season.

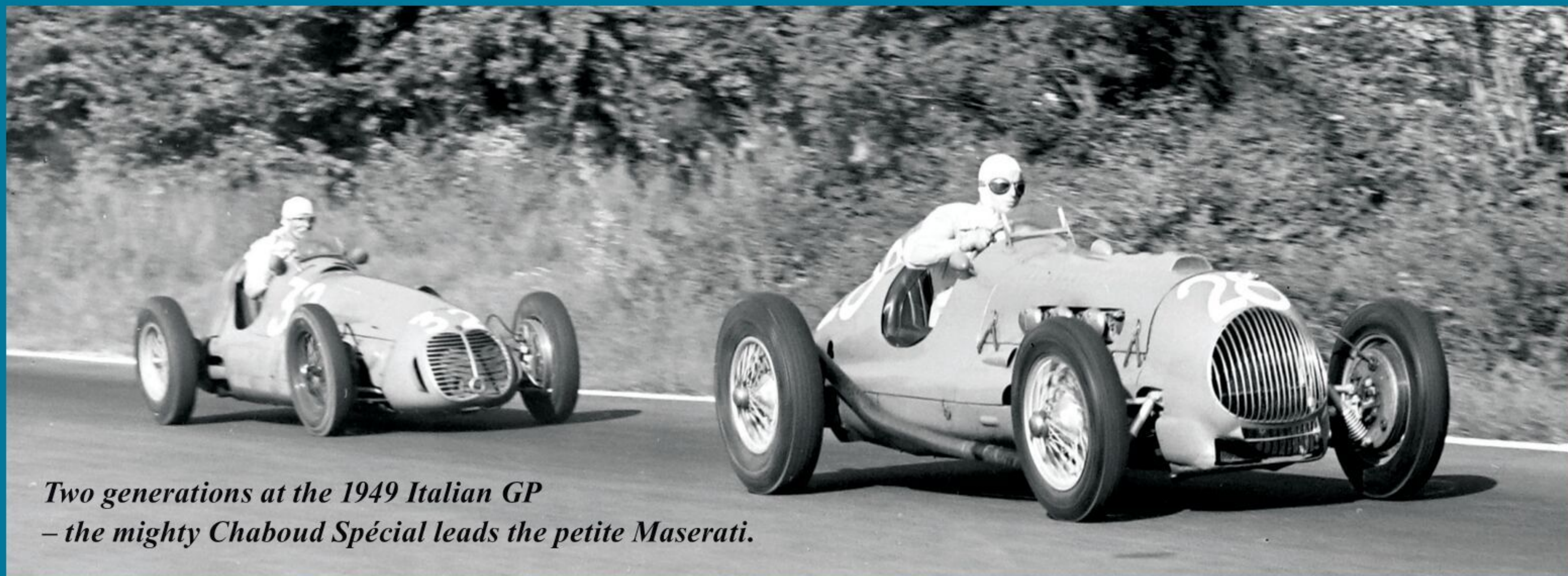
ON THE PUBLIC STAGE, NOW AS DELAHAYE

Delahaye was impressed by Chaboud's successes. Therefore, for 1949, Delahaye lent Ecurie Lutetia two Type 183 engines (the factory designation for the 4.5-liter Type 175), with an aluminium cylinder head, in contrast to the cast iron variant in the series. With their carburettor configuration (3 x Solex 44 HD side draft), they were by now generating 200-220 horsepower. Eugène Chaboud and Charles Pozzi used their private Delahaye parts stock to put together two almost identical cars with very different genes.

Chaboud used as a basis his 1936 Type 135 Spécial chassis no. 47192 (one of 16 built), originally delivered to Pierre

André Simon, who drove the fastest lap, overtakes Mairesse/Talbot-Lago at LeMans, 1949.





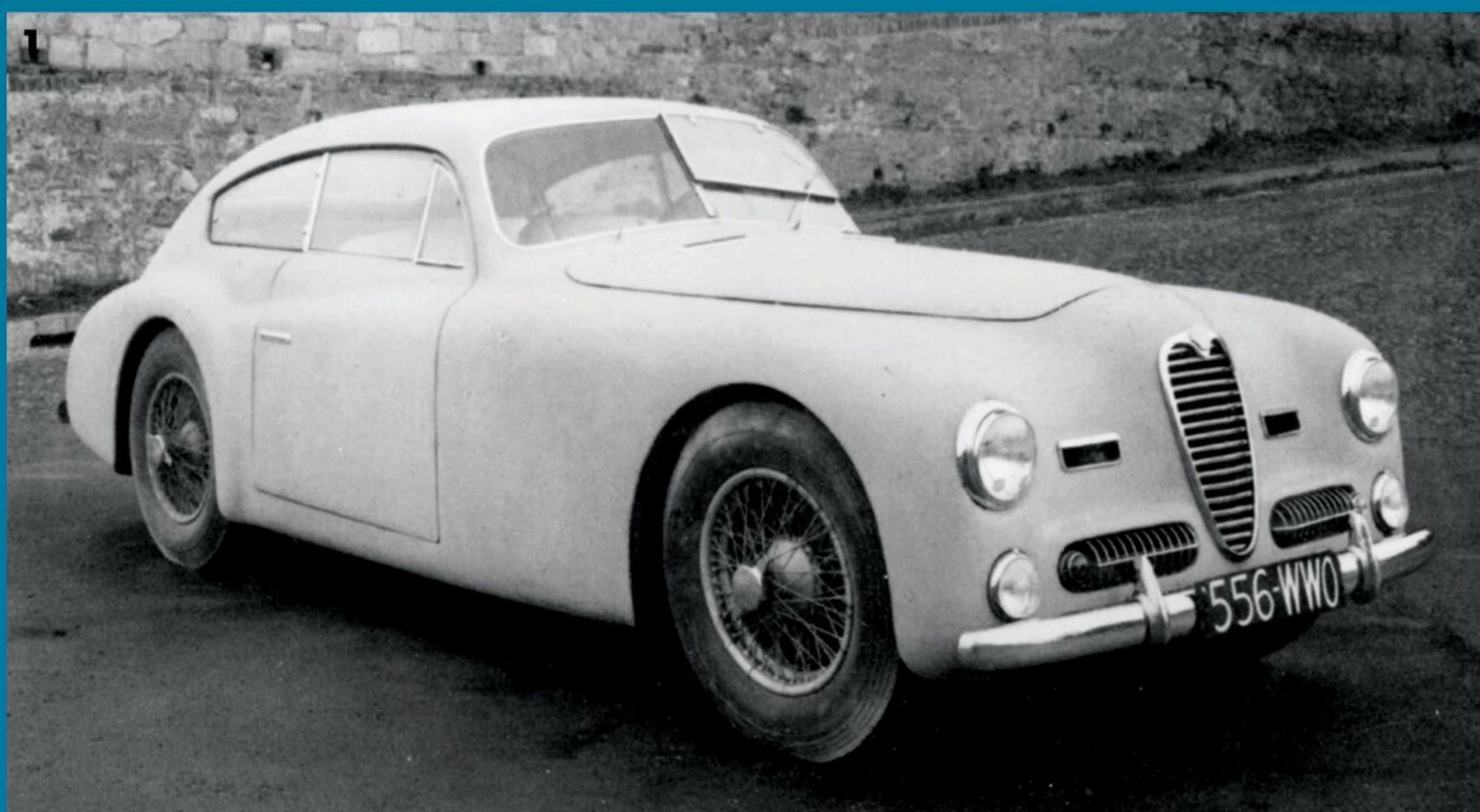
*Two generations at the 1949 Italian GP
– the mighty Chaboud Spécial leads the petite Maserati.*

Source: LAT Images

1: Chassis 815050, the first of the two 175-S fastback coupes built by Motto in 1949.

2: Rally Monte Carlo 1950, Trévoux/Lesurque (#1) amidst the competitors.

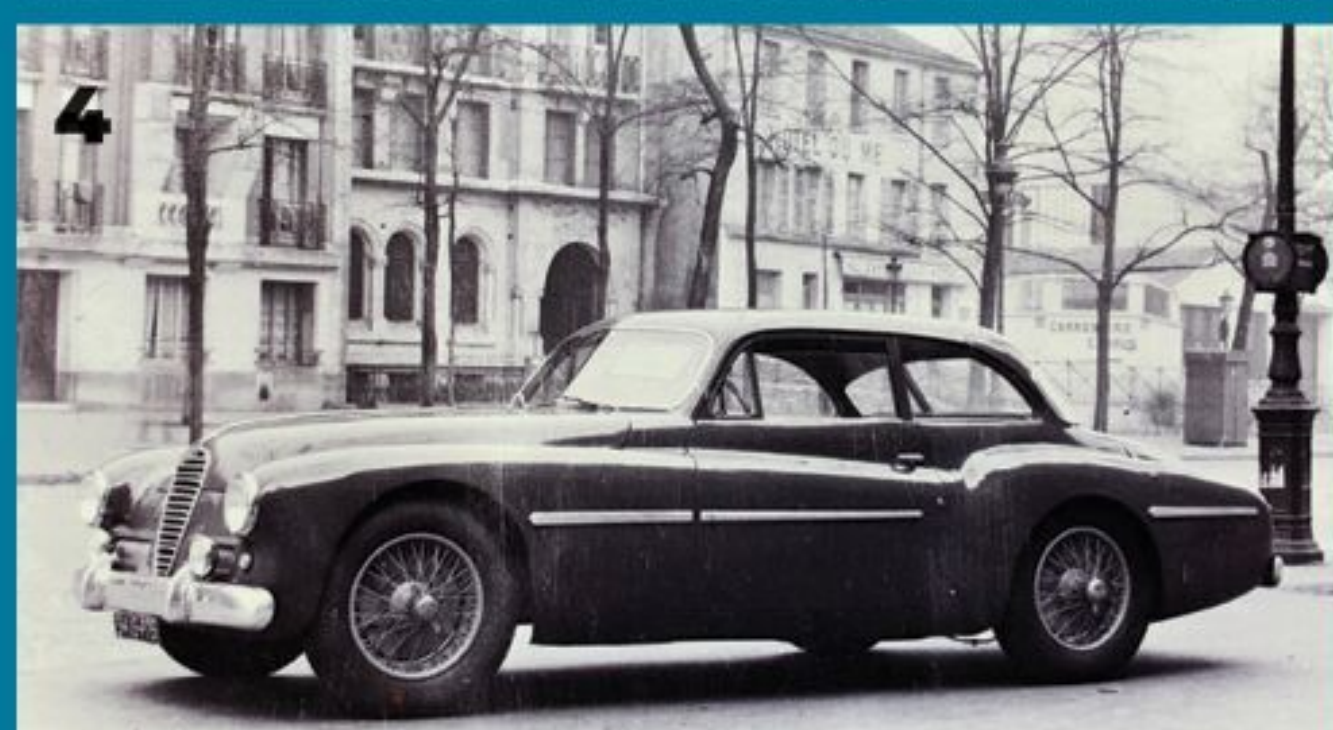
Source: Alessandro Sanna



Source: LAT Images



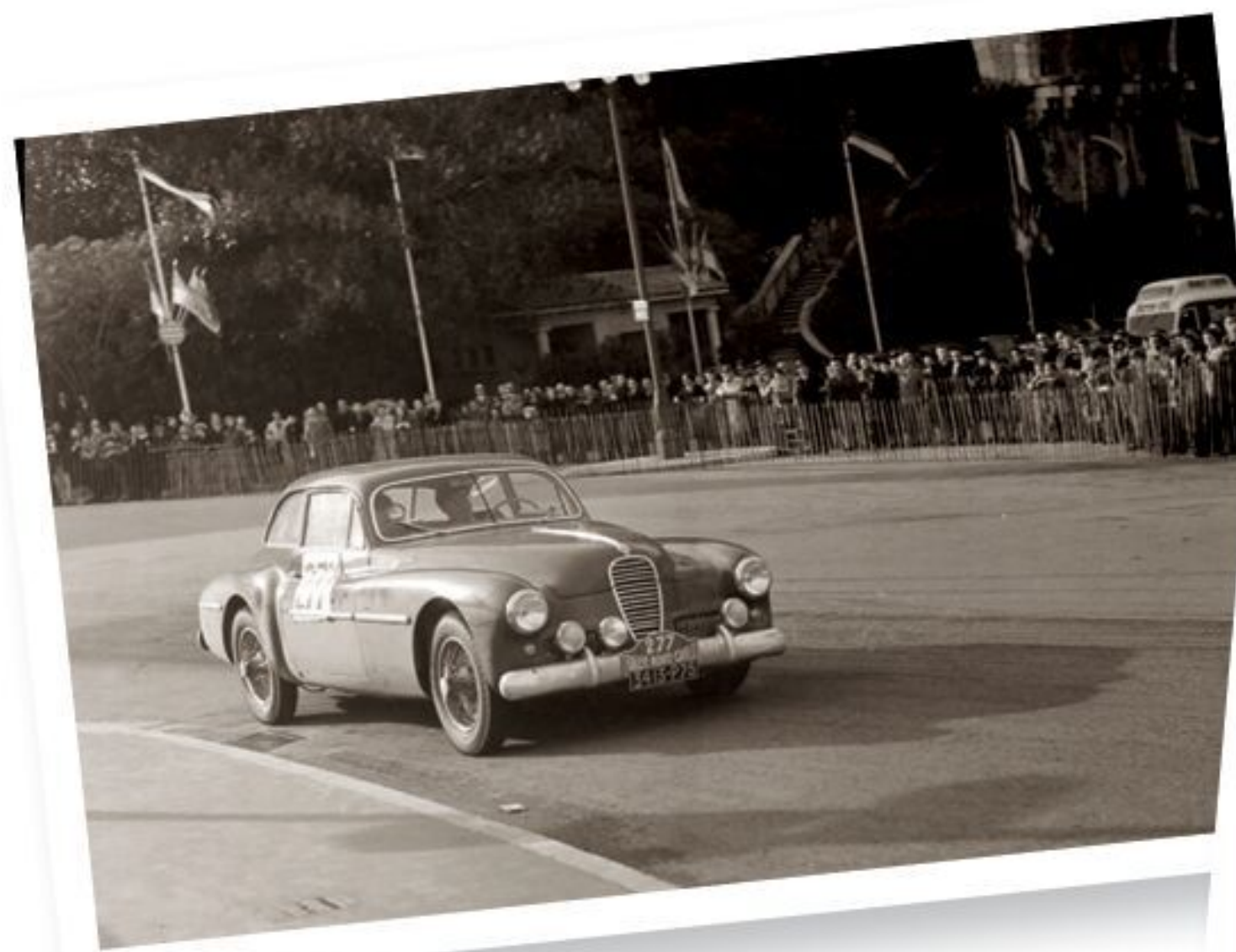
Photo: Floyd Clymer



Source: AVC

3: 1st Carrera Panamericana 1950, Trévoux/Mariotti in Tuxtla Gutiérrez.

4: Chassis 815042, the notchback coupe built by Motto, in Paris in December 1950.



Source: LAT Images

Rally Monte Carlo 1951 – #277 at full speed around the bend.



Source: AVC

Roger Crovetto and Jean Trévoux, the unexpected winners.

Louis-Dreyfus. In 1946 Chaboud had won the Belgian Grand Prix with this car, among others. He equipped the chassis with the improved front suspension, the transverse reinforcement, and the rear axle of the Type 145 from 1938. Pozzi used as a basis for his 1938 Type 145 chassis no. 48775 (one of five built), originally delivered to Lucy O'Reilly Schell's Ecurie Bleue. In 1939, the car with its V-12 engine finished fourth in the German Grand Prix, among others. In the spring of 1949, Chaboud and Pozzi had two almost identical bodies made for these cars by Valtat, so they were also externally recognizable as a team. From then on, the cars were registered under the designation Delahaye 175-S. This designation is derived from the 135-S (for Spécial) and denotes the use of three power-enhancing sidedraft carburetors, compared to the one or three downdraft carburetors fitted as standard.

Their first appearance was at the 24 Hours of Le Mans, which was just being revived after the war. The main competitors were the new Ferrari 166 and the 4.5-liter Talbot-Lago T26. Right from the start the two Delahayes were in the lead. After three hours and 33 laps, Chaboud (no. 3) led by more than two laps over the second Delahaye 175-S with Pierre Flahaut/André Simon (no. 4) followed by the two Ferraris. Shortly after the driver change from Chaboud to Pozzi, their car caught fire while leading the race. Pozzi managed to bring the flames under control enough to drive back to the pits. After a brief repair, Chaboud went back out on the track, but the damage was too serious. After seven hours and 52 laps, no. 3 had to retire. Meanwhile, André Simon in the second Delahaye set the fastest lap of the race, with an average speed of 155.427 km/h. Flahaut/Simon were also unable to finish the race and retired after 179 laps. Despite not finishing, the two 4.5-liter Delahayes

demonstrated their performance and made a strong impression on the competition. This was to be confirmed only six weeks later.

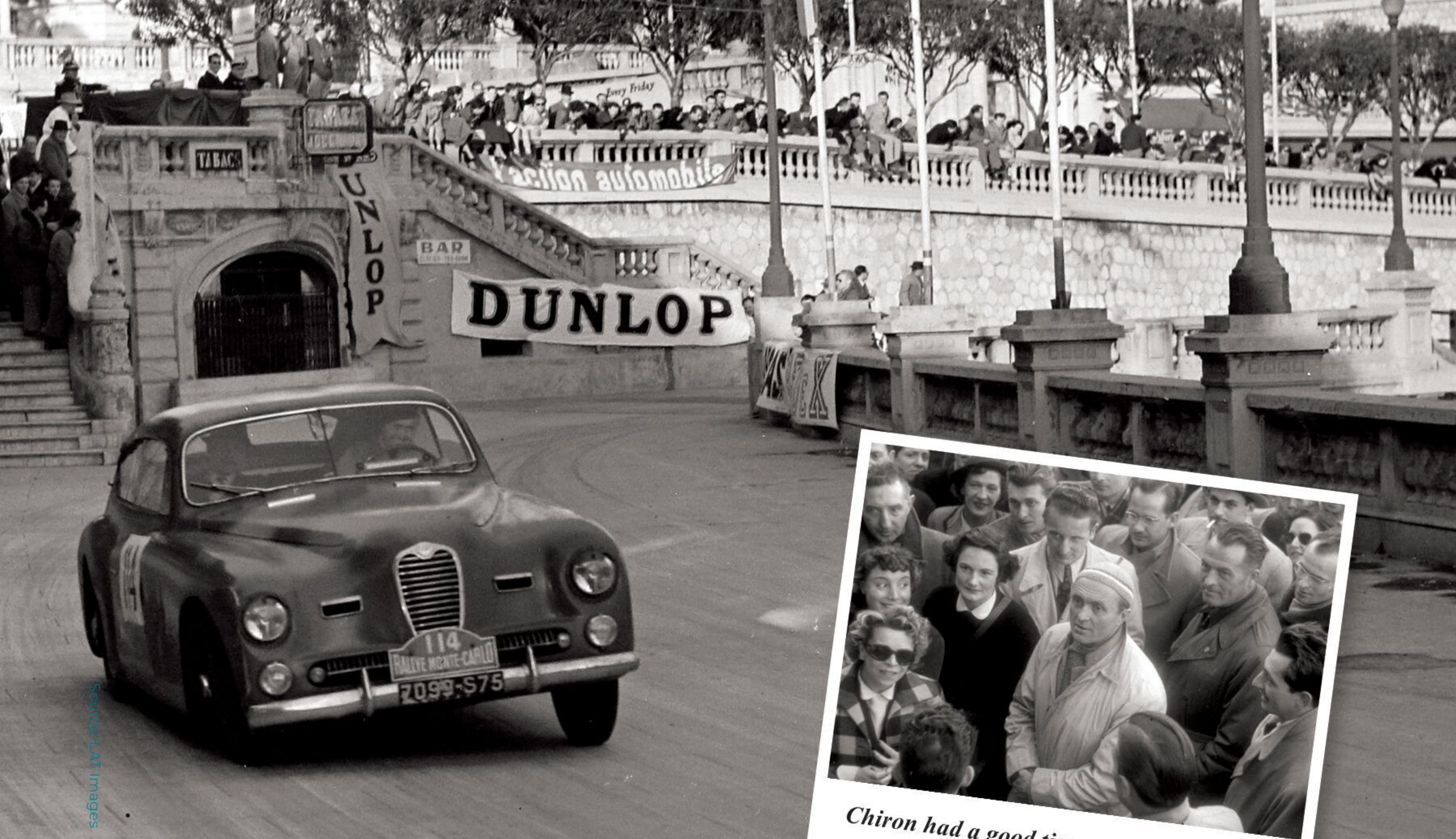
On August 7, the 36th Grand Prix de l'ACF, 506 kilometers, took place in Comminges in sweltering heat. In addition to Chaboud and Pozzi, there were other formidable competitors: Raymond Sommer and Louis Chiron in their Talbot-Lagos, Luigi Chinetti in a Ferrari, and other well-known racers in Talbot-Lago, Ferrari, Alta, Delage, Cisitalia, Simca-Gordini, and Meteor cars. After 10 of 46 laps the order was Sommer, Chiron, Chaboud, Pozzi, Chinetti. After 19 laps Chaboud retired, while Chiron struggled with the heat and fell back. Pozzi was now second, behind Sommer and ahead of Chinetti. On lap 38 Pozzi took the lead and did not let go until the finish – the first Grand Prix victory for the 4.5-liter Delahaye 175-S.

Pozzi won with a nonstop drive of 3:34.02.2 hours at an average speed of 141.844 km/h. This was the definitive proof of the engine's competitiveness. Nobody knew at the time that it would be the last Grand Prix victory for a purely French team for decades.

In 1949, there were two more entries for the 4.5-liter. Eugène Chaboud repeated his participation in the Italian Grand Prix in September, this time at Monza, in his Chaboud Spécial (no. 29) but retired on lap 50 with overheating problems. Charles Pozzi took part in the Coupe de Salon in Montlhéry in October (no. 26) and again finished on the podium in third place.

FROM CIRCUIT TO RALLY TRACK

Inspired by these successes of his former Ecurie France colleagues, Jean Trévoux re-established contact with Delahaye, for which he had already competed at Le Mans



Chassis 815051, the second fastback coupe built by Motto, in its wild chase up to 5th place.

Chiron had a good time – the crowd loved him for his brave performance.

in 1939. In January he had won the Monte Carlo Rally on a Hotchkiss. However, Delahaye now seemed to have a competitive engine in its program again for the 1950 season. In rallying, however, the regulations stipulated production vehicles: if you wanted the engine, you had to use the associated chassis. In terms of rigidity, that wasn't a problem, since Delahaye frames were famous for their stability in all situations. However, the Type 175's new frame was designed for heavy, luxuriously equipped vehicles and was greatly oversized for rally sport. A weight of 1050 kg for a rolling chassis is an enormous starting figure, and ready-to-run examples easily reached a total weight of two tons. Since the only possibility of saving weight was in the production of the bodywork, Trévoux looked around for a company that would be able to make him a light yet strong aluminum skin for the heavy chassis in the shortest possible time. Carrozzeria Motto in Turin, which specialized in custom-made racing cars, built the body for Trévoux.

After he had agreed with Delahaye in November on the delivery of two type 175-S chassis, Trévoux immediately sent them to Turin, where in a few weeks two almost identical fastback bodies were made, differing visually only in the color of the paintwork and the positioning of the fuel-filler flap: chassis no. 815050 light gray, flap on the right, chassis no. 815051 dark gray, flap on the left. The cars returned to

Paris in early 1950, and on January 22 they lined up at the start of the 20th running of the Monte Carlo Rally in Lisbon. The Delahaye certainly didn't go around corners as nimbly as a weasel. But the engine was a serious weapon. Jean Trévoux, with co-driver Marcel Lesurque, was given starting number 1 (chassis 815050) due to their victory the previous year; the second Delahaye with the crew Thoby/Labry was given number 39 (chassis 815051). Little is known about the course of the race. Thoby/Labry had to retire, but Trévoux's car passed its baptism of fire and finished 14th overall. The car had thus proven itself for Jean Trévoux's next goal: participation in the first Carrera Panamericana in Mexico, the toughest road race in the world, just a few weeks later. Trévoux had close ties to Mexico, where he had met and married his Mexican wife in 1946.

This first edition of the legendary road race took place from May 5–10, 1950, over a distance of 3,500 km. Out of 132 teams entered, only six cars were produced in Europe, and only three had European crews, two Alfa Romeo 2500s and the Delahaye 175-S (no. 19). The Alfas at least had a team of helpers on site, whereas Trévoux and his co-driver, André Mariotti, were left to their own devices. Of the 132 teams that started, 52 made it to the finish line, including the Delahaye and the two Alfas, all of which did extremely well. Trévoux and Mariotti overcame a broken half-shaft of the rear axle



*2nd Carrera Panamericana 1951, Chiron and Mariotti (#4)
at the start in Ciudad Juárez.*

drive on the third stage. However, the repair that they carried out on the side of the road caused them a heavy loss of time and threw them back to 87th place. By the end of the ninth and final stage, they had remarkably fought their way back up to 12th place. Even under these conditions (heat, dust, 80-octane gasoline), the 4.5-liter had impressively proven its resilience. Trévoux opened a restaurant, La Cucaracha, in Mexico City. Delahaye no. 815050 stayed in Mexico after the race. However, Trévoux himself returned to Europe once more for a grand finale.

LE MANS FOR A SECOND TIME

Meanwhile, Chaboud and Pozzi were preparing their 4.5-liter cars for the next endurance race at Le Mans in June. Pozzi had significantly changed the front of his car (no. 8), and he formed a team with Pierre Flahaut. Chaboud's car (no. 9) kept its appearance from the year before, but he himself did not enter the race this time, leaving the wheel to Gaston Serraud and André Guelfi. Of course, the teams had set their sights high, but it turned out to be a lousy weekend. Serraud/Guelfi were hit worst. At takeoff, their car wouldn't start; apparently the battery had discharged. A little push would have been enough, but according to the regulations that was strictly forbidden. The car stayed in the pits. Pozzi/Flahaut fared better, but they didn't see the checkered

flag either. After 13 hours, their Delahaye was in fifth place, but fell back to 19th place in the next few hours, when it was disqualified after 165 laps. What happened? The race stewards had noticed that the seal on the filler neck of the radiator fitted before the race had been lost. Pozzi's teammates protested angrily, but Pozzi accepted the disqualification without explaining how bubbling mineral water had got into his radiator.

A month later, on July 30, Pozzi competed again in his Delahaye 175-S, this time at the Rouen Grand Prix, and once again made it onto the podium, finishing second overall. It was the last Grand Prix in which the 4.5-liter was used, proving it was competitive to the last.

FAREWELL, WITH A BANG

At the end of the 1950 season, the race-proven 175-S engines of the Ecurie Lutétia were returned to Delahaye. Jean Trévoux contacted Delahaye again and asked for another chassis in 175-S configuration for the 1951 season. By this time, however, Delahaye management had already decided not to continue the economically ruinous Type 175 project. The last chassis was sold in the spring of 1951, after only 107 examples of the 175, 178, and 180 series had been built. Since the racing engines did not subsequently appear elsewhere, it seems at least likely that one of them found its

way into chassis no. 815042, which Jean Trévoux received from Delahaye in the autumn of 1950. Trévoux again sent the chassis to Rocco Motto in Turin. He intended to repeat the action of the previous year by taking part in the Monte Carlo Rally and Carrera Panamericana. Stylistically, Motto's new work differed significantly from the two fastbacks of the previous year. This time he delivered a modern three-box notchback, painted blue.

At the start of the 21st Monte Carlo Rally on January 23, 1951, Trévoux was not the only one with a Delahaye 175-S. Louis Chiron, who still took great pleasure in all kinds of motorsport, had taken over the second fastback (no. 815051), which had retired the previous year. The two participating teams were Jean Trévoux/Roger Crovetto (no. 277) and Louis Chiron/Robert Mahé (no. 114). What a gifted driver Chiron was. He was able to prove this again after an accident with a great loss of time. On the final lap in the streets of the Principality with the associated acceleration and braking tests, he was fastest, which brought him back up to fifth place in the overall standings.

The audience's enthusiasm for Chiron was enormous after this show. The crown, however, went to the Trévoux/Crovetto team. They took a convincing victory with a car that seemed made for anything but rallying. A sensation, given all the difficulties Delahaye had faced in producing the series. Delahaye's directors must have looked towards the Côte d'Azur with a certain melancholy, knowing that there would be no continuation of this success story. But it wasn't the last appearance yet. Part 2 of Trévoux's plan, the renewed participation in the Carrera Panamericana, was still on the agenda. The victorious 175-S no. 815042 set off on the trip to Central America, while Louis Chiron, who had obviously taken a liking to the 4.5-liter Delahaye, traveled to Italy with the fastback no. 815051 to take part in the Coppa Intereuropa in Monza on April 15. This was a sports-car race and a welcome opportunity to compete with the new Ferrari and Maserati on a circuit. Chiron joined the ranks of the Delahaye 175-S podium drivers; with no. 122 he took a valuable third place in tough competition. In late summer, Chiron received

Photo: AVC



Everything a gentleman racer needs.

815042 is still alive using the "heart" of its predecessor, chassis 815050, since 1966.



Still going strong - the 175-S in its natural environment.

Photo: AVC



Photo: AVC

surprising news: Jean Trévoux offered him the cockpit of his 175-S for the Carrera Panamericana, which was to take place in November. The reason was a request from Packard to Trévoux to drive one of their cars. That was an offer that Trévoux, who intended to stay in America, could not refuse for business reasons. So it came about that one of the greatest names in French racing history was symbolically associated with the last appearance of the 4.5-liter Delahaye 175-S. Preconditions were good, Chiron's co-driver was the experienced André Mariotti, who was familiar with the circumstances. The start of the race was also successful, until the team (no. 4) was disqualified on the fourth day. According to the racing commission, there was

a timeout due to a tire change on a section. A shame after the effort made, but rules are there to be applied. Like its predecessor, fastback no. 815050, no. 815042 remained with Jean Trévoux in Mexico after its racing career.

This mishap ended the racing history of an engine that, with serious support, would have been capable of going down in the annals of racing to a far greater extent. Despite everything, it was able to demonstrate its potential with victories in circuit races and rally events. But the successes of the 4.5-liter Type 175 engine were too late to save Delahaye. The company was sold to its competitor Hotchkiss in 1954, which ended Delahaye car production three months later. By 1956, the Delahaye brand had completely disappeared. ♦

THE CARS TODAY

Chaboud Spécial 001 – *still alive, today with a 4.5-liter Type 175-S engine, similar to the original (European Collection).*

no. 47192 – *still alive, today with a 4.5-liter Type 135-S engine (USA Collection).*

no. 48775 – *still alive today with a 4.5-liter V-12 Type 145 engine, different body (USA Collection).*

no. 815050 – *scrapped, engine today in no. 815042.*

no. 815051 – *still alive, in restoration (European Collection).*

no. 815042 – *still alive, today with 4.5-liter Type 175-S engine from no. 815050 (European Collection).*

Chiron's living room in its original state.



RACING BUGS

Speed



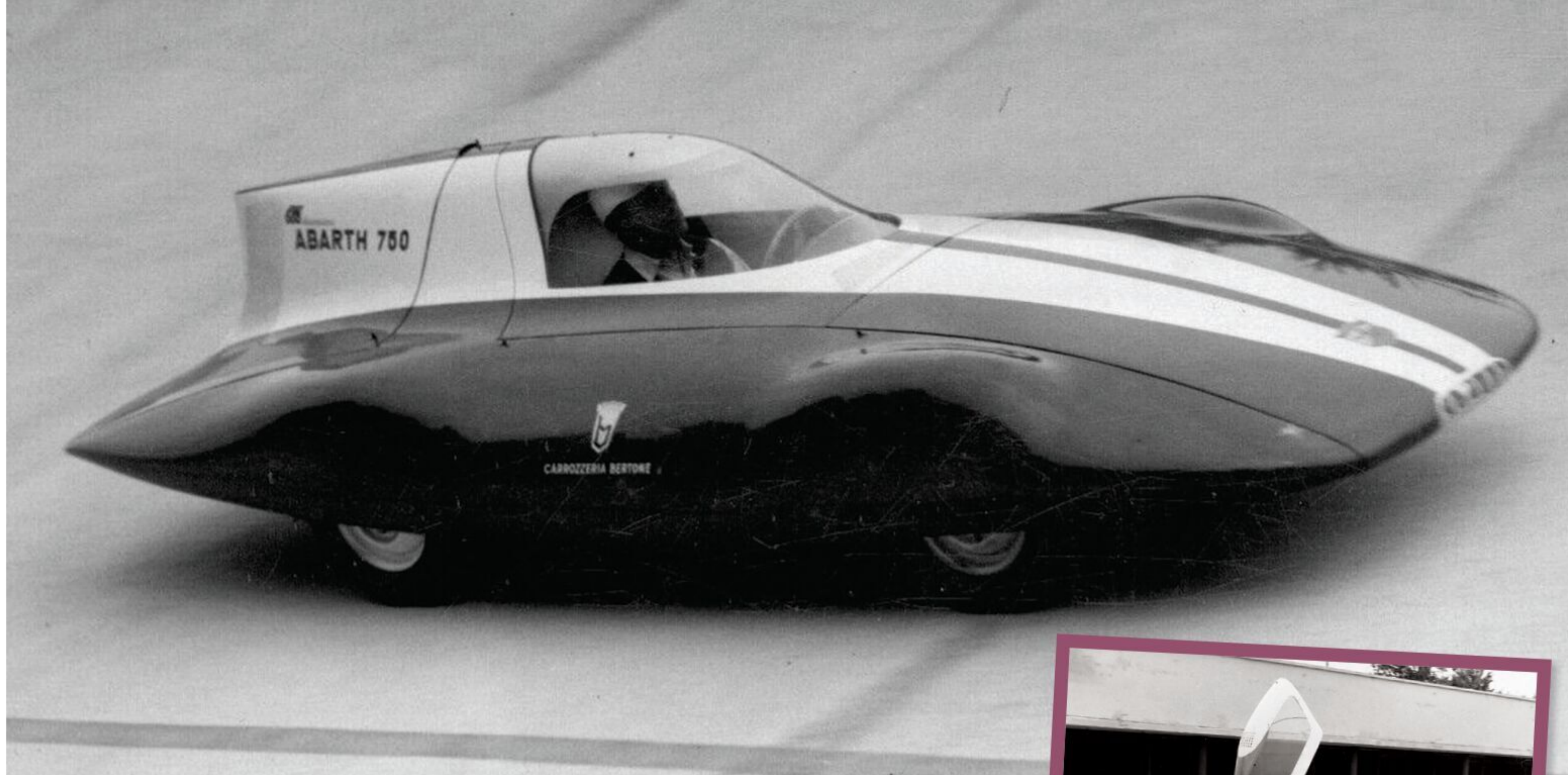
COLOUR PHOTOS:
FEDERICO BAJETTI AND
MICHELE P. CASIRAGHI

**STREAMLINED ABARTH
RECORD CARS**

STREAMLINED SCORPIONS



The Lopresto Collection just finished the restoration of the 1965 Abarth 1000 Bialbero Record Pinin Farina, which prompted its curator, Michele P. Casiraghi, to chart the story of the Abarth record cars.



The Franco Scaglione-styled Abarth 750 appeared in 1956. In June 1956 the car achieved a new 24-hour endurance record completing 3,743.642 km at an average speed of 155.985 km/h.



This striking yellow car attempted a 100,000-km record in 1958.

The story of Abarth covers almost every possible area of racing from the Mille Miglia to Le Mans, from circuit racing to rallies. In this rich sporting life, speed records may be a lesser-known side of the polyhedric activity of the company created by Carlo Abarth in 1949 from the ashes of Cisitalia.

Speed records were not uncommon in Italy before the 1960s. Names such as Piero Taruffi, Giovanni Lurani, and Giuseppe Furmanik; cars including the Alfa Romeo Bimotore and the Fiat Mefistofele; the small cars named Tarf, Colibrì, and Nibbio – all were part of the quest for the highest speed, whether overall or in a specific engine category.

Abarth's golden era started in 1956 and ended in 1966 after 11 years and an outstanding record of achievement: 113 international records in six different classes. The number is more than a third of the total of all records set by Italian cars in their entire history.

1956

This short but successful story began in 1955 with the debut of the revolutionary new rear-engined Fiat 600. Abarth started work immediately on the car, and that same year revealed the 210A concept car by Boano. The following year, the Abarth stand at the Turin Motor Show was filled with five identical Fiat 600 cars, all tuned by Abarth, while a

dozen similar cars were running in the Mille Miglia on the same days as the show. It was the start of a new generation of fast and agile little cars.

Nevertheless, the star of the 1956 Turin show was actually another car, also based on the Fiat 600 chassis. It was a streamlined single-seater bodied by Bertone, who had been partnering with Abarth since 1952. The first record car by Abarth, it debuted on the track in June 1956 with a 600-derived 750-cc engine, conquering its first records in 24-hour trials at 155 km/h. This was just a test before the real affirmation of this model: a set of records between 5000 kilometers and 72 hours, again in the 750 class.

After the successful attempt, the car was recycled with both 500-cc and 800-cc engines. At the end of 1956, after 20 records in three different classes, the car ended its career, leaving space for the first record car by Pinin Farina

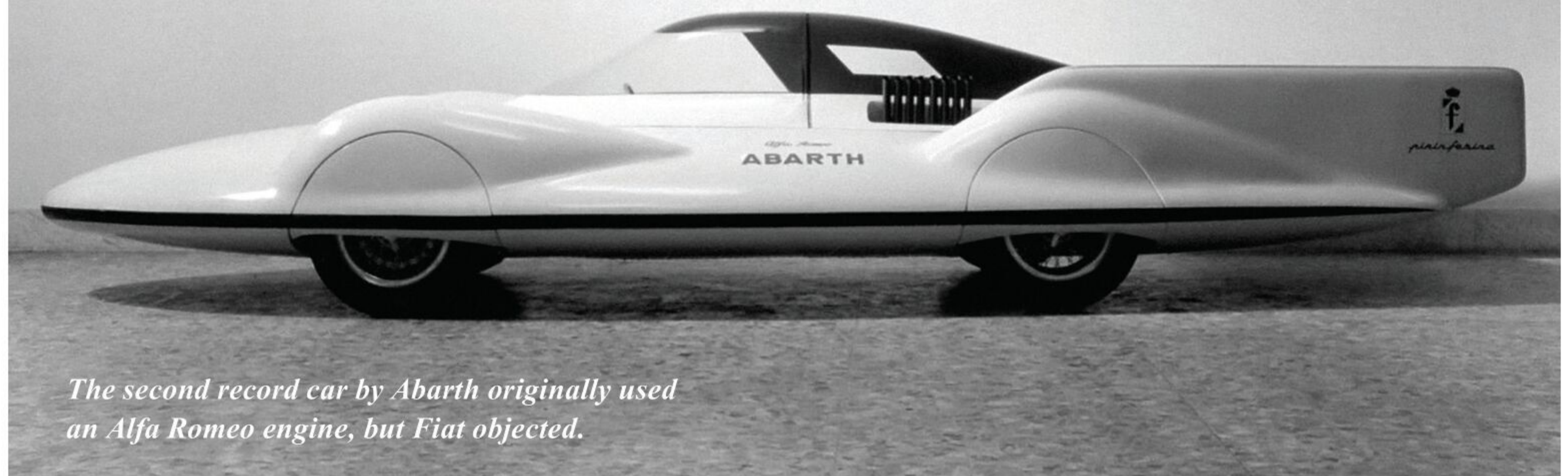
1957

In the '50s and '60s, Pinin Farina worked on almost every car brand in Italy: Alfa Romeo, Fiat, Lancia, Ferrari, and Maserati. All were made great by the beautiful designs of the Turinese coachbuilder. Abarth rarely worked with Pinin Farina, except for a one-off Fiat 500 and an Abarth-OT show car in 1964–1965, and, of course, a successful series of five streamlined single-seaters built from 1957 to 1965.

The second record car by Abarth was born with the purpose of achieving success in higher-displacement classes. For

RACING BUGS

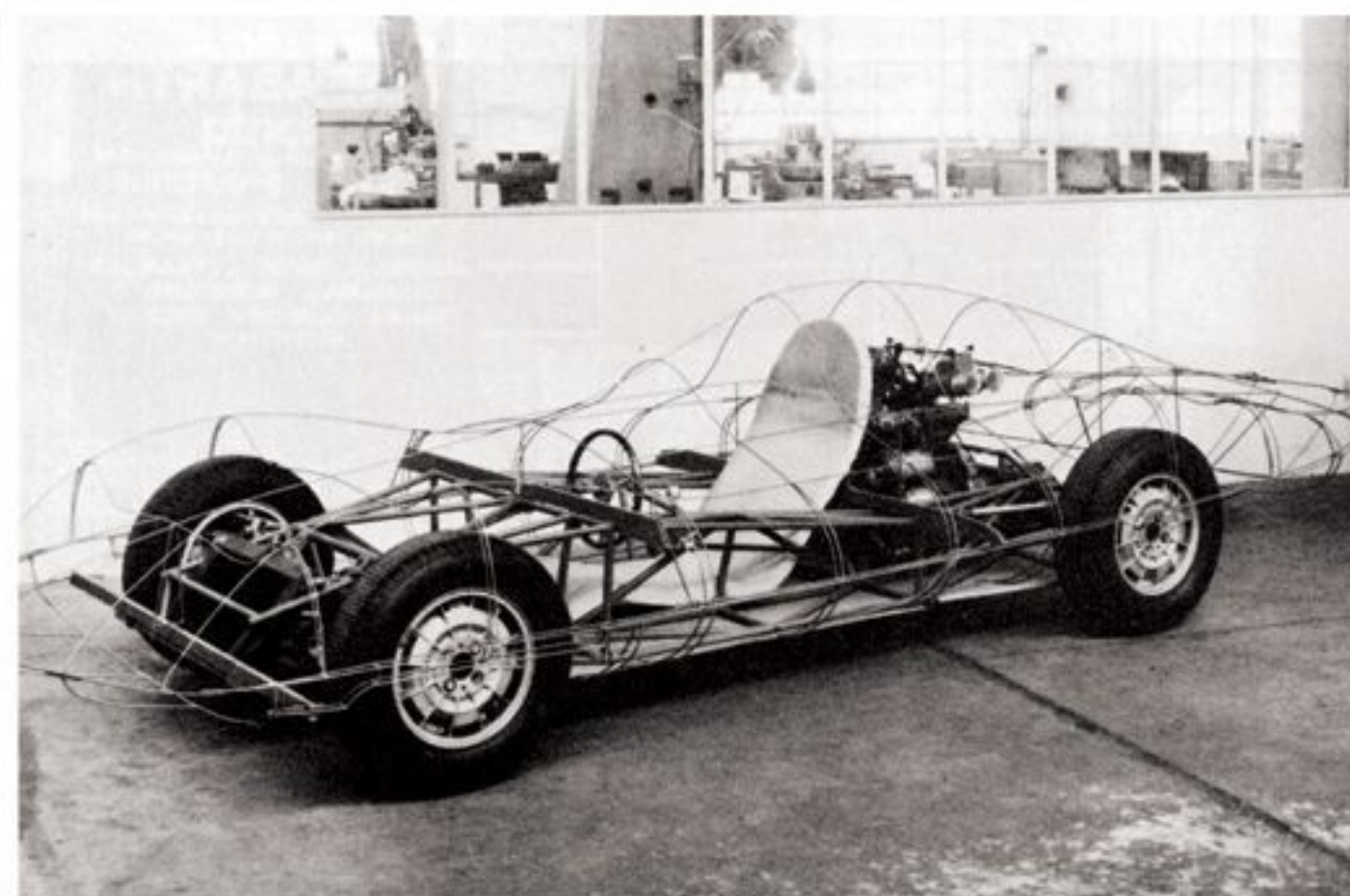
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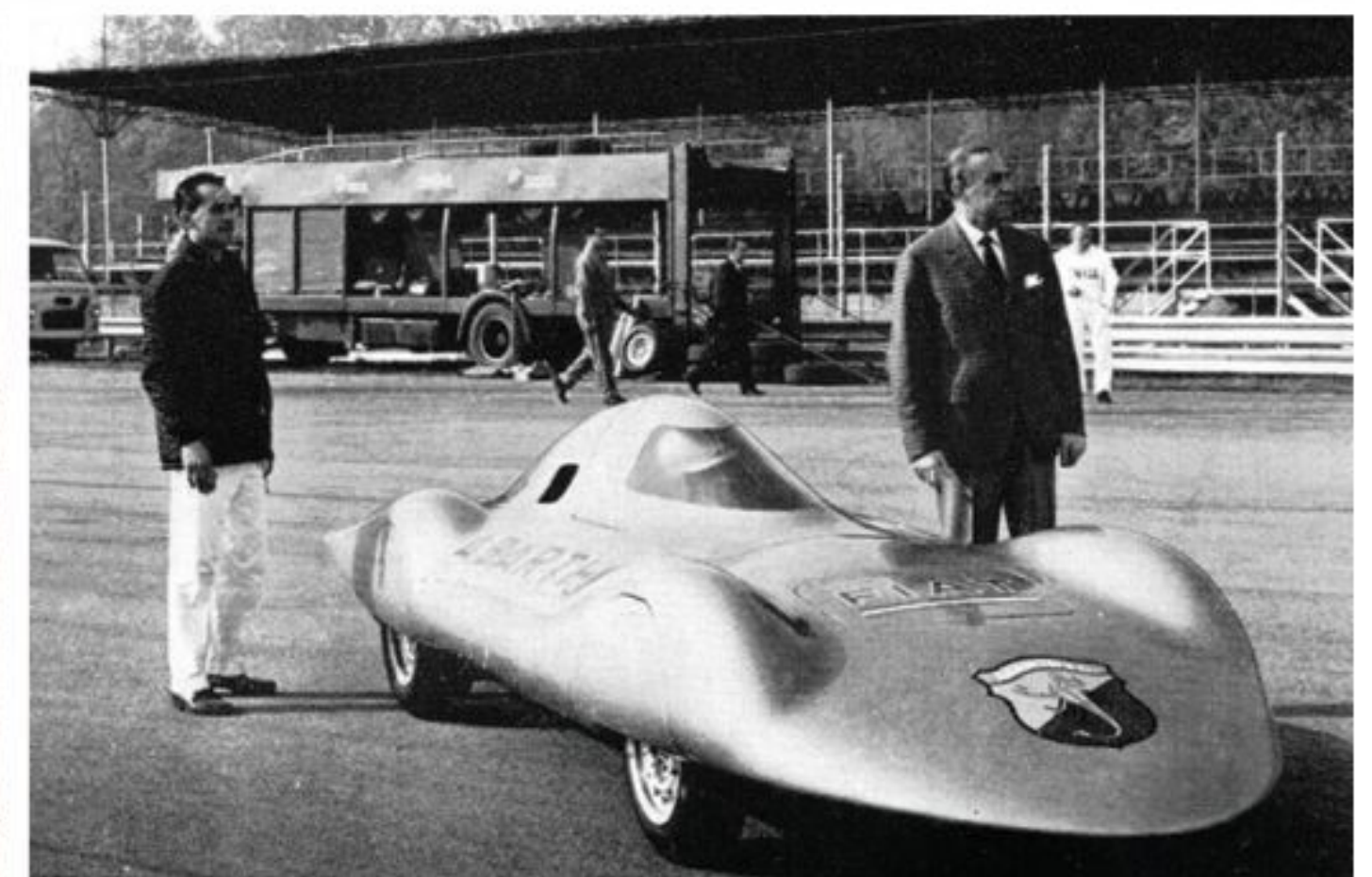
The second record car by Abarth originally used an Alfa Romeo engine, but Fiat objected.



1958, 1960 and 1965 Abarth Pinin Farina record cars gathered in the late 1960s.



The last Pininfarina Abarth record car still under construction in the Abarth plant.



After a five-year hiatus Pininfarina built another single-seater record car.

this goal, the Alfa Romeo Giulietta engine was the perfect choice, to be both reduced to 1100 cc and enlarged to 1500 cc. The car was built on an original chassis, with the engine placed in the unconventional (for the time) rear-mid position. Everything was ready for the debut at the 1957 Geneva Motor Show, but Fiat management didn't like the use of an engine from a competitor. Consequently, Abarth was forced to create a second car in a couple of weeks, almost identical to the first one but powered by the Fiat-Abarth 750-cc unit.

The Abarth-Pinin Farina 1100 was the protagonist of six records in May 1957, ending after six hours at an average of 192 km/h. A later attempt with the same car ended with a dramatic crash, and the presence of a second car became a lucky circumstance. The latter was able, in July the same year, to set 15 records in the 750 class over 72 hours, covered at an average speed of 165 km/h. In October the same car set three more records and led to the debut of the new Bialbero (twin-cam) engine.

1958 AND 1959

1957 was also the year of the debut of the all-new Fiat Nuova 500, maybe the most iconic Italian car of all time. Abarth started immediately to work on the new model, and speed

records were again the best advertising for the updated 500. While a seven-day record was being set with a production sedan, which definitively laid the foundation for the collaboration between Abarth and Fiat, a new Pinin Farina one-off was ready for the 1958 season.

Built on a tubular frame, this tiny yellow car started on September 27, 1958, with the goal of setting a 100,000-km record. After 10 days of running nonstop, the car ended its attempt because of bad weather, without reaching the ambitious target but setting 17 records in its class. Its average speed over 20,000 kilometers had been 120.7 km/h.

The same car was on the track again two weeks later, setting six records with an upgraded engine at over 150 km/h, and in August 1959 with five more records, always in the 500-cc class, exceeding 100 mph (160 km/h) for 12 hours. In 1958 more records were set also by the 750-cc car from 1957, while the Abarth-Alfa was again victim of a crash.

1960

For 1960, the works focused on a new goal: a world record over 10,000 miles, to be set with a new 1000-cc car. Built on a similar tubular chassis, the new car was again bodied by Pinin Farina, and it was tested in a first session with a 750-cc



After its restoration was finished, the Lopresto team together with the Swiss owner returned to the Monza track.

engine. In this configuration it set four new records reaching 214 km/h in a distance of 200 miles.

On September 28th the car was aiming for a new world record in a 72-hour period with the 1000-cc engine, but after three days a violent storm made the car unusable. Umberto Maglioli, the driver at that stage, was forced to push the car all by himself for almost an hour to reach the coveted goal. This heroic conclusion led to a successful result, with eight records including the world record in 72 hours, which was made even more sensational thanks to the unlucky turn of events.

Despite its successes, the career of the streamlined record cars seemed to reach an end with that legendary 1960 session. In 1963 a production Fiat 2300S Coupé tuned by Abarth set four records, but no new purpose-built cars were built until 1965.

THE SWAN SONG IN 1965

Abarth had spent years focusing on speed records over long distances, but by 1965, new international rules led to a completely new world of acceleration records, and Abarth wanted to put his name on them too. It was also an easy way to reach Abarth's goal of 100 records. Four cars were built for the 1965 season: two open-wheel F2 units, a two-seater OT 1450, and a new Pininfarina (now as a single word) single-seater with a design recalling the similar cars from the '60s. It is still a mystery whether this car was ready years earlier but was never used for a record attempt, or whether it was a new project with the same philosophy.

The Pininfarina single-seater was able to set two records in the 750-cc class (500 meters and ¼ -mile with standing start). For many years this car has been wrongly identified as the 1960 car. Its latest owner, a Swiss collector, has commissioned the Italian Lopresto team to refurbish the car.

The new owner started a significant preservation project for the car once it was in his hands, taking advantage of the experience gained by Lopresto on cars in similar condition.

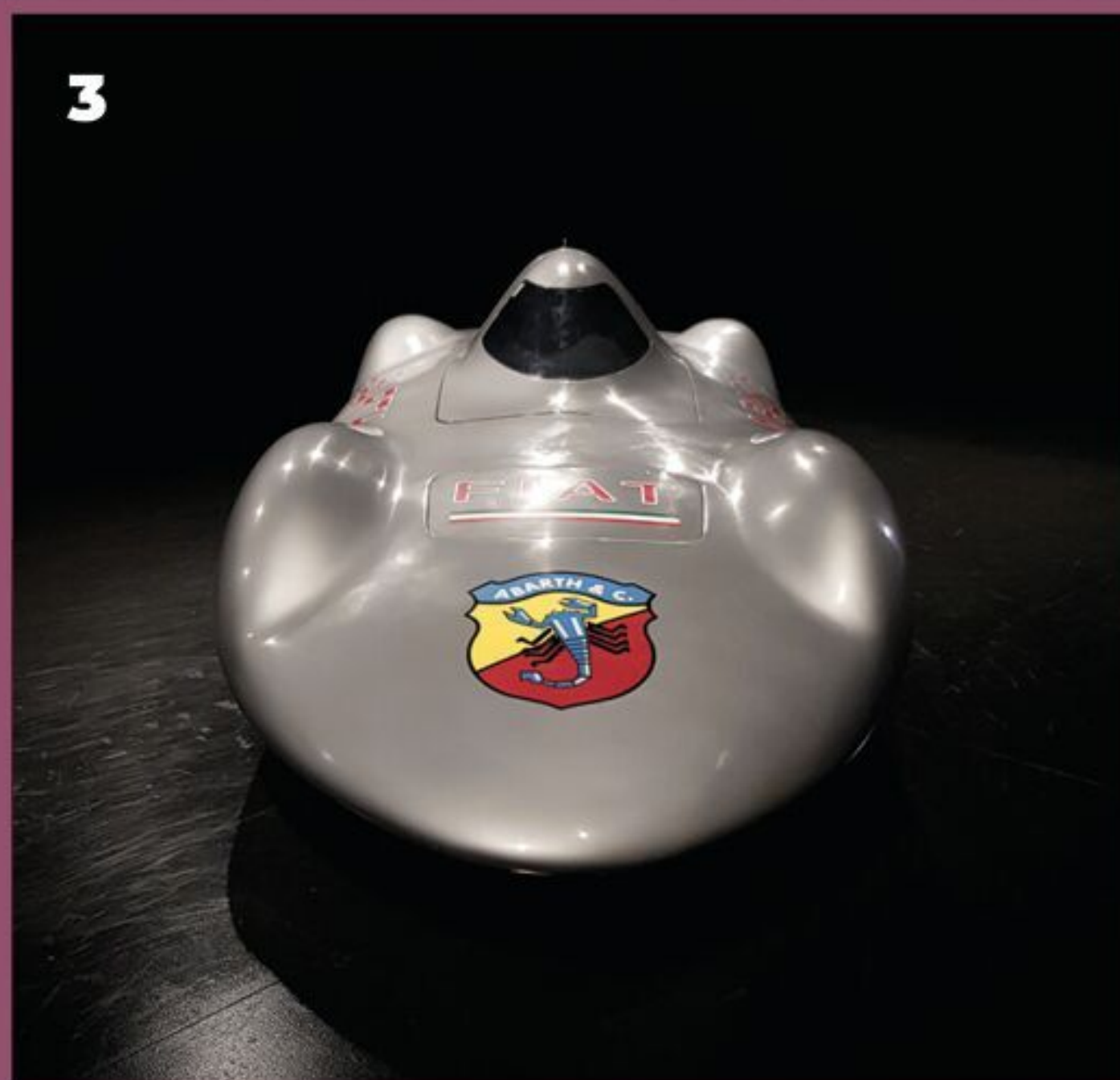
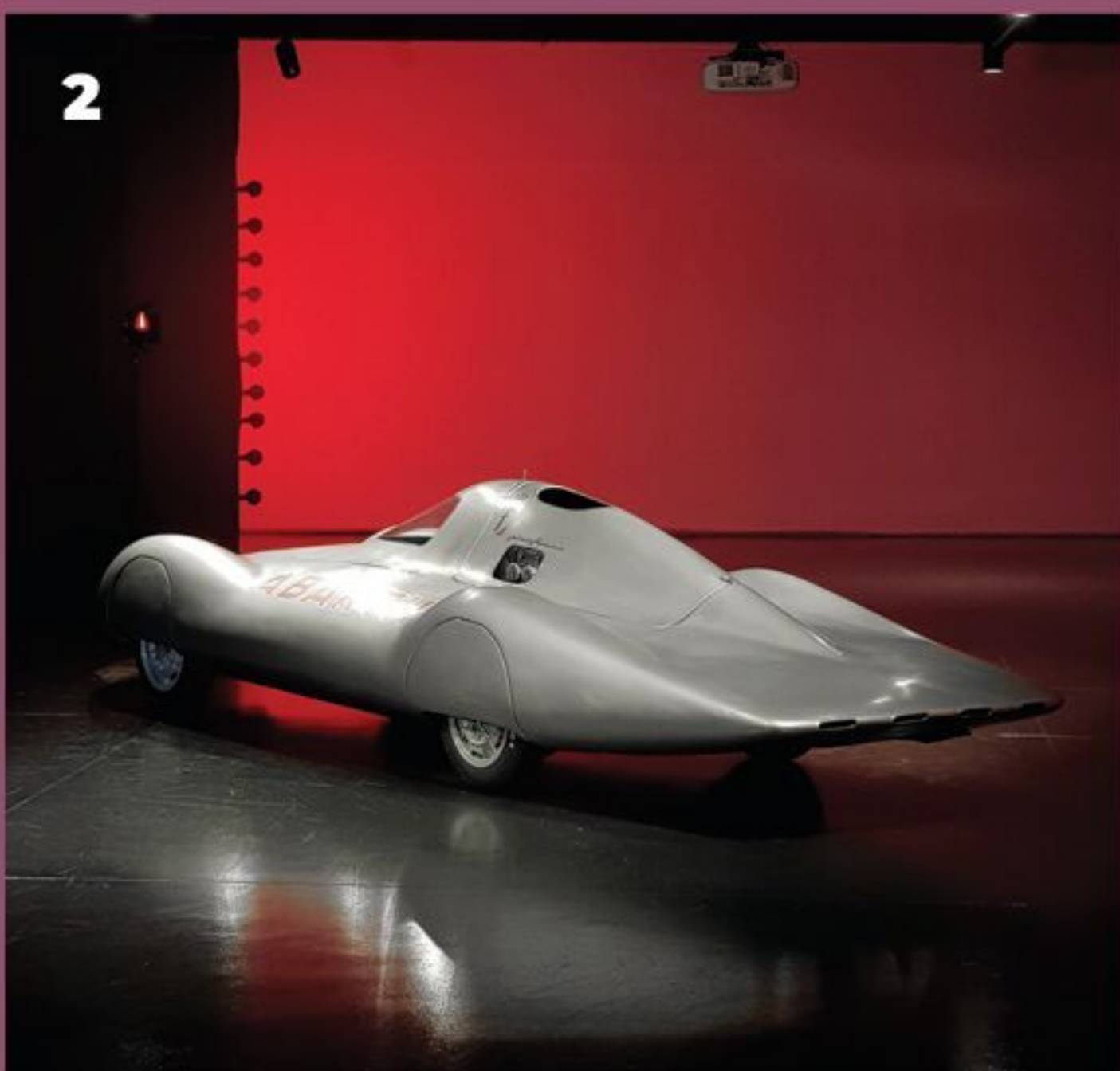
RESTORATION

When we inspected the car, we found it to be in an outstanding state of originality. The original paint was cleaned and polished, while an expert artwork restorer was entrusted to manage the many areas where the paint was cracked or detached. With careful intervention, all these flaws have been fixed and protected, while preserving the patina and the original look of the car. Some small damage on the front and rear has been repaired with the help of a dedicated cream, used to freeze and protect the paint while welding the metal below. The seat was still 100 percent original. The padding was replaced to provide the right support for the original upholstery fabric, which was simply cleaned. The engine was completely disassembled to check every component and then rebuilt to be fully functional. A final test of the assembled car was carried out on the most suitable location: the Monza high-speed oval! Its amazing design makes it look fast even when standing still, and the preserved patina of the original paint adds even more fascination to the last heir of a legendary breed of record cars. Altogether, Abarth set 15 new records between 1965 and 1966 with the abovementioned cars. Aside from the Alfa Romeo-powered car, every other Bertone and Pininfarina record car survives today.

For a more detailed story of Abarth's record era, with direct testimony of the protagonists, see AISA monograph number 21, *I record italiani: la stagione di Abarth*, available at www.aisastoryauto.it. ♦

RACING BUGS

Speed



1: The last Abarth Pininfarina record car was used in 1965.

2: For many years this car was confused with another monoposto from 1960.

3: A Fiat 600 engine was the basis for the powertrain.

4: Driver does not have a lot of space inside.

5: Altogether Abarth set 113 international records!



TURBULENT

Speed

LOTUS 56B

AN ALTERNATIVE POWERTRAIN IN FORMULA 1

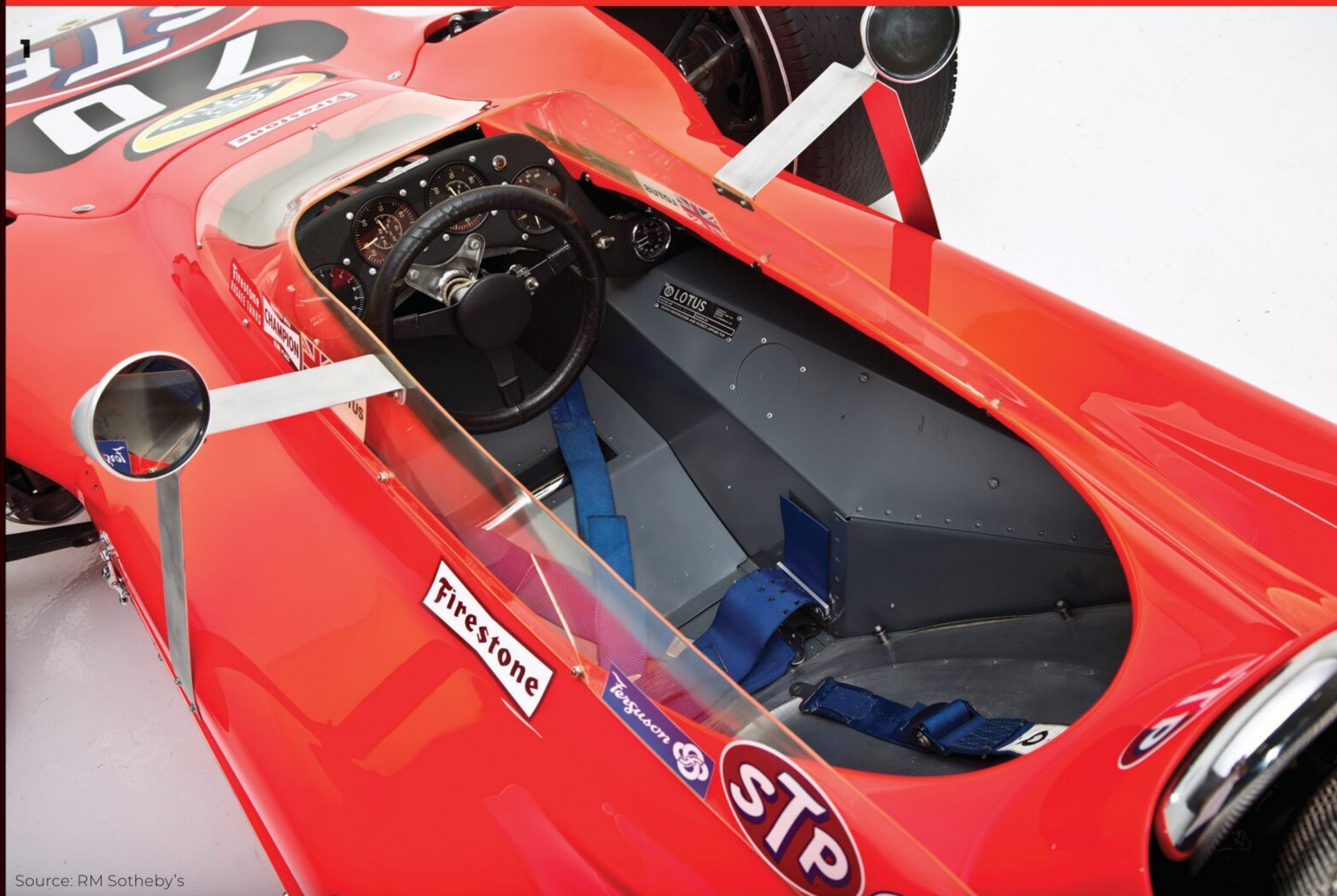


An „X-Roy” image of the Lotus 56 shows the layout of the gas turbine engine.

Source: Roy Query



The Lotus 56B is the only single-seater racing car powered by a gas turbine jet engine ever to have competed in Formula 1 (as of this writing). **Graham Carl Arnold** witnessed the world-debut outing of this truly revolutionary racing car in 1971. Here, he traces the background, development, and ultimate failure of this unique type of Formula 1 racing car.



Source: RM Sotheby's



Source: RM Sotheby's



Source: RM Sotheby's

1: The cockpit of the car.

2: Lotus 56 Indianapolis. This is chassis No. 56-3 as driven by Graham Hill at the 1968 Indianapolis 500-mile race.

3: A closeup showing the instrument panel.



Source: RM Sotheby's

Rear end of Graham Hill's 1968 Indianapolis contender.

INTRODUCTION

Since the birth of the horseless carriage toward the end of the 19th century, many different types of propulsion have been tried and tested for both land and air vehicles.

Although ultimately it was the reciprocating internal-combustion piston engine, fed by different types of fuels, that got the upper hand for land vehicles, there has never been a shortage of experiments by inquisitive designers and engineers who, over the years, have experimented with electricity, steam, solar power, hydrogen, water, and (compressed) air (see our opening story, *Speed with Volt and Watt*).

It was an English engineer and inventor, Frank Whittle, who set out to develop jet propulsion and is credited with the invention of the turbojet engine utilizing a gas turbine in 1937.

INITIAL EXPERIMENTS

The Formula 1 Lotus Type 56B was a revised version of the Lotus Type 56, which had initially been designed in 1968 as a car to suit the American type of oval

banked-track events, especially the Indianapolis 500-mile (805 km) race.

However, we should briefly go back in time to 1965 when Jim Clark, that very multi-talented Team Lotus Formula 1 racing driver, became the first ever non-American racing driver to win the Indianapolis 500-mile race in a Lotus-Ford Type 38. This was also the first ever rear-engined car to take the checkered flag at the same venue.

After an epic victory in a style of racing so different to that in Europe, could the late chairman of Team Lotus Colin Chapman already have his ever-effervescent mind working overtime on the design of a new contender? After all, Indianapolis is the most prestigious and well-known motor race in America and one of the most prestigious in the world.

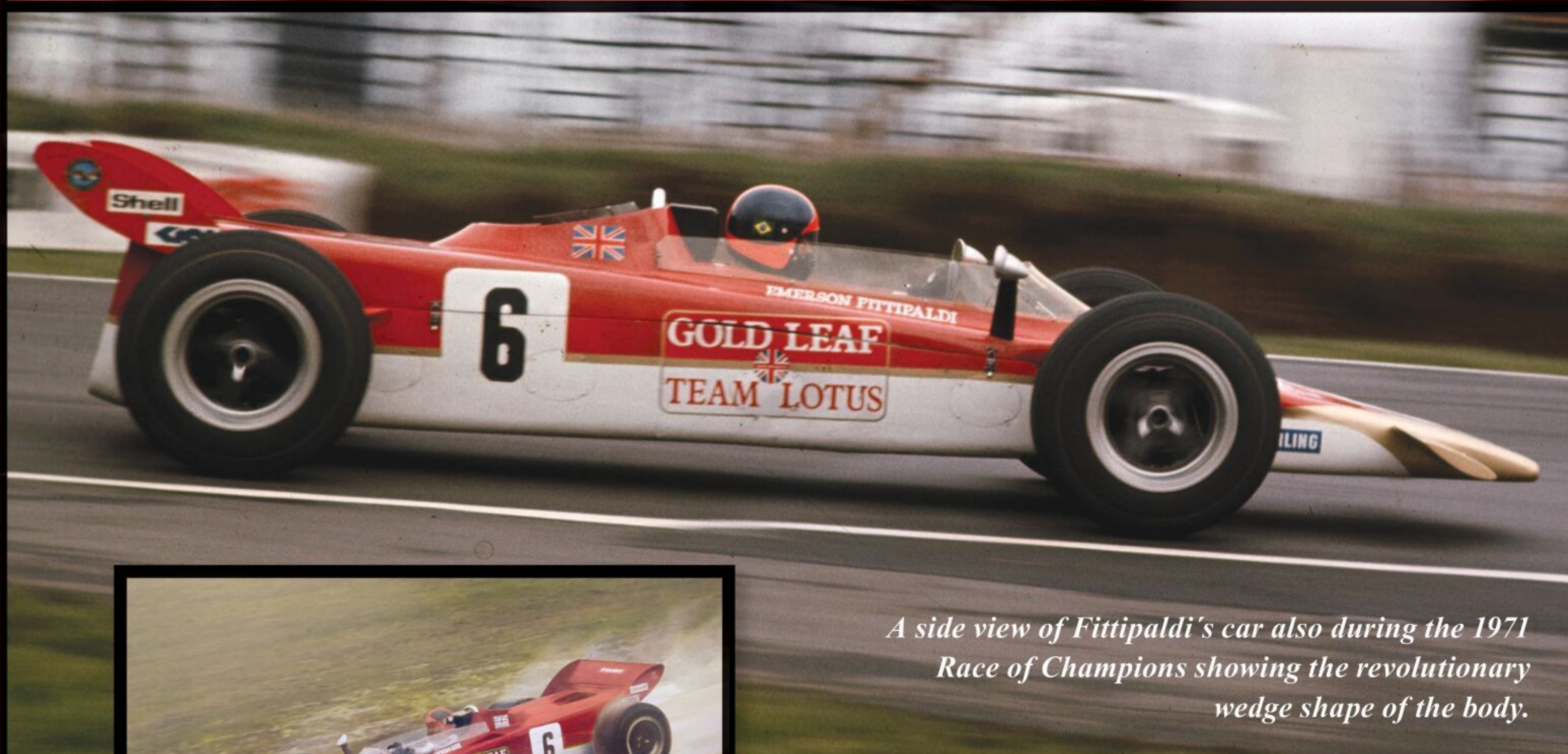
Of course, we will never know. However, another set of later events certainly did prompt Chapman's mind into building cars specifically for this race, and turbine-powered.

Enter Anthony "Andy" Granatelli, the American businessman who was chairman of STP Corporation, producing the

well-known STP Oil Treatment additive – and owner, entrant, and sponsor of individual cars and teams of cars. He had secretly been building his own contender for the 1967 51st International 500 Mile Sweepstakes race.

Onlookers were in disbelief at what they were seeing at its unveiling. There in front of them was a wedge-shaped body with the driver's cockpit situated on the right-hand side of a backbone chassis and a suitably modified Pratt & Whitney ST6B-62 gas turbine engine in a pontoon on the left-hand side. This was a never-before-seen side-by-side configuration for driver and engine in a single-seater racing car. It was called the STP-Paxton Turbocar. The car also came with a modified version of the Ferguson four-wheel-drive system developed by the Paxton division of Studebaker, which STP owned, hence the "Paxton" part in the name of the car.

As many motorsport aficionados may remember, Rufus Parnell "Parnelli" Jones, who was contracted to drive the car, had dominated the race from the start. He was only seven and a half miles



A side view of Fittipaldi's car also during the 1971 Race of Champions showing the revolutionary wedge shape of the body.



An originally b&w photograph of Emerson Fittipaldi at the 1971 Brand Hatch race, which has been later hand coloured by the author's father.

Source: Author's collection.

from the checkered flag and victory on the car's inaugural outing when a bearing race in the transfer box broke and he had to retire to the pits, leaving the victory in the hands of A.J. Foyt, who was at the wheel of a more conventional reciprocating, piston-engined Coyote-Ford. Although the STP-Paxton Turbocar lost the race, it certainly succeeded in shaking up Indy-car racing.

Granatelli had unwittingly sparked the turbine-era revolution, although it, together with four-wheel drive, was eventually going to be a blind alley as regards technical innovation for the future.

A somewhat similar configuration was used by racing driver Smokey Yunick in his Hurst Floor Shift Special in the 1964 Indianapolis 500 race, although the engine was mounted amidships.

This was a bittersweet debut for the STP-Paxton Turbocar, but undeterred, Granatelli turned to Colin Chapman and his Team Lotus to build a racing car that was based on the same concept for the following year's 500-mile race sponsored by STP.

AND THUS WAS BORN THE LOTUS TYPE 56 TURBINE-ENGINED CAR.

Change had always been frowned upon by the governing body of the sport, the United States Auto Club (USAC), due, in no small part, to the deep sentiment of conservatism that was prevalent in the USA up until that time and which also affected the USAC, its members, drivers, and team entrants.

Thus, no sooner had the 1967 Indy 500 run its course than rule changes were hastily instigated by the Board of Directors of the USAC to try to curb the performance of these revolutionary turbine-engined cars and make them uncompetitive, or it might be more appropriate to say "less competitive," and at least to attempt to equate their performance with that of reciprocating engines. The major change introduced was to reduce the permitted inlet area for turbines.

The Lotus Type 56 project was first discussed at the Nürburgring during the 1967 German Grand Prix, held on August 6, according to a Gold Leaf Team

Lotus Racing for Britain press release issued in 1968. The press release continued by saying that serious development work did not commence until October of the same year.

Officially unveiled at the Speedway in April 1968 (although some printed sources quote the last week of March), the Lotus Type 56 was radically different from the previous year's STP-Paxton. It featured a striking and distinctive wedge-shaped body, which was soon to become the norm for single-seater open-wheel racing cars providing substantial, aerodynamic anti-lift. In fact, the very successful Lotus Type 72, introduced in 1970, featured similar bodywork and went on to win the Formula 1 Constructors' Championship three times in 1970, 1972, and 1973, and the Drivers' Championship in the hands of Jochen Rindt in 1970 and Emerson Fittipaldi in 1972.

The Type 56 was powered by a modified version of the Pratt and Whitney PT6 turboprop gas turbine engine, mid-mounted, produced by the Montreal-based Canadian manufacturer of aircraft



The characteristic rear end of the Lotus T56B driven by Emerson Fittipaldi during the 1971 Race of Champions in which he retired with broken suspension.

Fittipaldi at the 1971 Italian Grand Prix, where he finished eighth place. Note the black and gold livery of the World Wide Racing entrant for this race.



Source: LAT Images

engines, United Aircraft of Canada. Power from the gas turbine engine was transmitted to a four-wheel-drive system through a centrally mounted transfer drive unit containing a torque-splitting differential.

Unfortunately, the debut of the STP Gas Treatment Special in American oval track racing didn't get off to a very good start. In qualifying for the 1968 Indy 500 race, Lotus and BRM driver Mike Spence tragically died in the hospital from severe head injuries following a crash into the wall, which caused one of the front wheels to be ripped off the car and with horrendous misfortune, flew back to strike him on the head. He had been driving his teammate Greg Weld's car after Colin Chapman had asked him to try to determine why Weld couldn't get up enough speed in the car.

For the race, three cars were allocated to Graham Hill, Joe Leonard, and Art Pollard to drive. However, for the second time running, fortune once again was to elude the STP turbine team and Andy Granatelli. Hill was out after 111 laps of

the 200-lap race when his car threw a wheel after the front suspension broke, and then after 188 laps both Pollard and Leonard coasted to a halt on the track with fuel-pump driveshaft failures. Once again, the turbine cars had been within sight of almost certain victory. This was the last appearance of the Lotus turbine cars at Indianapolis.

DEVELOPED FOR FORMULA 1 RACES

However, this disastrous outing for the T56 Indy cars in America didn't deter the legendary Colin Chapman, C.B.E., B.Sc. Eng., Chairman of Lotus, from considering the possibilities of using a similar type of gas turbine powerplant in Formula 1 racing. Design work commenced in August 1968 by Maurice Philippe, the Lotus chief designer, and Chapman himself as technical designer to produce a revised version of the Type 56. It was to be known as the Type 56B, designated T56B on its identity plate, although it remained very similar in overall design and concept to the original Indianapolis cars. It wasn't

until 1969, however, that only one chassis was completed, due to changes in policy for the Lotus Formula 1 program.

Also, due to contractual commitments and the necessity to modify the gas turbine power unit to meet the Formula 1 equivalence specification in force at that time, there was no power unit coupled to this first chassis.

Thus, the project was put on the back burner while development time was dedicated to the four-wheel-drive Type 63 for Formula 1. The chassis was left lying around unused in the Team Lotus workshop until the beginning of 1971 when the proposal for the Type 56 Formula 1 car was reconsidered. Lotus, in collaboration with Pratt & Whitney engineers, initiated a program to modify the gas turbine engine to comply with the then current Formula 1 regulations and install it in the Lotus chassis.

The chassis was very similar in construction to that of the original Type 56 Indianapolis cars, but general accessibility was improved and certain structural details were simplified.

It was a monocoque type, fabricated mainly from 16 s.w.g.2 sheet aluminum alloy with two main side sponsons containing the four Firestone Racesafe rupture-proof bag-type fuel cells, giving a total capacity of just over 60 gallons of aviation kerosene fuel supplied by Shell Mex and BP. An advantage of this type of fuel was that it was far less inflammable than petrol and thus represented a significant safety factor in case of accident. The downside was that, as a consequence of the much higher fuel consumption of the turbine engine compared to a reciprocating-piston engine, the Lotus 56B was laden with more fuel and thus weight.

Due to the weight distribution of the four-wheel-drive car, the layout for the suspension, both front and rear, including the inboard mounted spring and damper units, was identical, consisting of double links with rocker arm extensions of the top wishbones operating the spring and damper units.

Power for the T56B was provided by a Pratt & Whitney STN6/76 turboshaft engine which had been widely used in helicopters, railway locomotives, boats, and stationary power plants. It was mounted amidships behind the driver, and substantial modifications had to be made to comply with the Fédération Internationale de l'Automobile (FIA) Formula 1 regulations of the day equating turbine engines to piston engines. These modifications were made by Pratt & Whitney and included the removal of an axial compressor stage and a reduction in the area of the high-pressure nozzle.

Basically, the engine consisted of two parts: the gas generator at the back and the power turbine at the front.

Mounted at the rear of the chassis was a recording clock to monitor the number of hours that the Pratt & Whitney engine had run. It had a life of 1,000 hours.

The axles were of the spiral bevel type and, like the suspension, were the same both front and rear. The axle housings and tubes were cast in magnesium alloy, and the inboard Girling E-type brake calipers were mounted on lugs on the axle tubes with ventilated discs of 10.5 inches

in diameter both front and rear mounted inboard but outside the monocoque tub with short drive shafts to the hubs.

Steering was by means of a specially developed cam-gear rack-and-pinion system.

There were only two pedals for the driver: a brake pedal for the left foot and an accelerator or throttle pedal for the right foot, as the transmission was permanently engaged with the power turbine and operating in a similar manner to a fluid coupling in an automatic transmission. The accelerator pedal was linked directly to a fuel-metering unit mounted at the rear of the car, which controlled the flow of kerosene to the injector nozzles. A reverse drive arrangement was provided.

Fifteen-inch-diameter Lotus road wheels were fitted to the car and shod with Firestone racing tires employing the latest racing compounds and tread patterns.

The bodywork was manufactured in two sections: a nose cone and a main section extending from the front wheel center line to the rear extremity of the car. Both sections were molded in glass reinforced plastic by the pattern shop of Lotus Developments.

COLIN CHAPMAN DECIDES TO ENTER THE T56B IN FORMULA 1 RACES

Since the inception of modern-day Formula 1 racing with the first race that counted toward the World Drivers' Championship, the British Grand Prix, held at the Silverstone circuit in England on May 13, 1950, both the cars and their powertrains have come a long way. Many technical innovations have been tested over the years, some successful and some not so. However, all the powertrains have remained faithful to the internal-combustion engine, albeit in many different configurations and capacities but with one thing in common, they have all run on (high octane) racing fuel/petrol.

However, 1971 was to change all that. Enter a revolutionary powerplant running on aviation kerosene and never before seen in Formula 1 competitions.

The first racing appearance in Formula 1 of the Lotus T56B was hindered by various delays at the beginning of the year, and it was not until the Daily Mail Race of Champions held at the Brands Hatch Circuit, near Fawkham in Kent, England, on March 21, 1971, that it finally made its first appearance.

Although this race did not count for the Formula One World Championship, Colin Chapman, in a Gold Leaf Team Lotus Racing for Britain press release dated March 18, 1971, said that he was delighted to be able to give the British public the opportunity of seeing this revolutionary car first.

He continued by saying, "The Daily Mail Race of Champions is an ideal race in which to give the still-experimental car an outing prior to deciding whether to contest all the major Grands Prix." History shows that only a few races were contested, as we shall see later, and of those, only three counted towards the 1971 Formula 1 World Championship.

The car, chassis no. 56B and carrying race number 6, was entered by Gold Leaf Team Lotus, sponsored by the tobacco company John Player and Sons, in their familiar colors of the then current World Champions, red, white, and gold, and was driven by the Team Lotus number-one driver, 23-year-old up-and-coming Formula 1 star and two-time future world champion, Brazilian Emerson Fittipaldi.

The 1970 Formula 1 Constructors' championship was won by Lotus and Jochen Rindt became the first driver posthumously to win the Drivers' Championship driving a Gold Leaf Team Lotus 72.

It was certainly a last-minute decision by Colin Chapman to enter the T56B in the Race of Champions, as Emerson Fittipaldi was down to drive the Lotus 72 in the entry list for the race which appeared in the British Racing and Sports Car Club's official program for the event.

The race was won by Clay Regazzoni in the SEFAC Ferrari 312B/2. The 56B was never in the picture, and it finally expired unceremoniously with a broken left rear suspension after 33 laps.



Dave Walker driving the T56B during the 1971 Dutch Grand Prix.

After Colin Chapman made the decision to continue running the 56B in Formula 1 races during the rest of the year, the next two appearances of the car were also non-championship Formula 1 races, at Oulton Park and Silverstone. Luck still eluded the car in both races.

The T56B was next entered in the non-championship Jochen Rindt Memorial Trophy race at Hockenheim in June and was entrusted to Australian driver Dave Walker, but it was withdrawn during practice due to engine maladies.

The next three appearances of the car were in Championship Grands Prix, but once again victory eluded the team and only Fittipaldi was able to finish in a lowly eighth position in the Italian Grand Prix at Monza at the beginning of September. This time the car was racing in the gold-and-black color scheme of World Wide Racing, a Lotus subsidiary company, to avoid any legal wrangles with the Italian authorities if the car had been entered under the Gold Leaf Team Lotus banner as the investigation into Jochen Rindt's tragic accident the previous year was still in full swing.

To round off a very disappointing year

not only for the T56B but also for Team Lotus as a whole, a week after the Italian Grand Prix the turbine car was entered for the 14th round of the 1971 Rothmans F5000 Championship, held on the Hockenheim circuit in Germany where it finished in second place to Frank Gardner's Lola-Chevrolet T300 F5000 car.

This was to be the last ever outing in official competitions for the turbine-powered T56B.

RESULTS NOT FORTHCOMING

Four-wheel drive and turbine technology was a very expensive failure and a dead end technology-wise for Colin Chapman and his Team Lotus. The T56 and T56B spawned the Type 63, which was developed more or less parallel to the turbine cars, but together with other Formula 1 cars that were developed with four-wheel drive, they ultimately ended in failure.

AFTERMATH

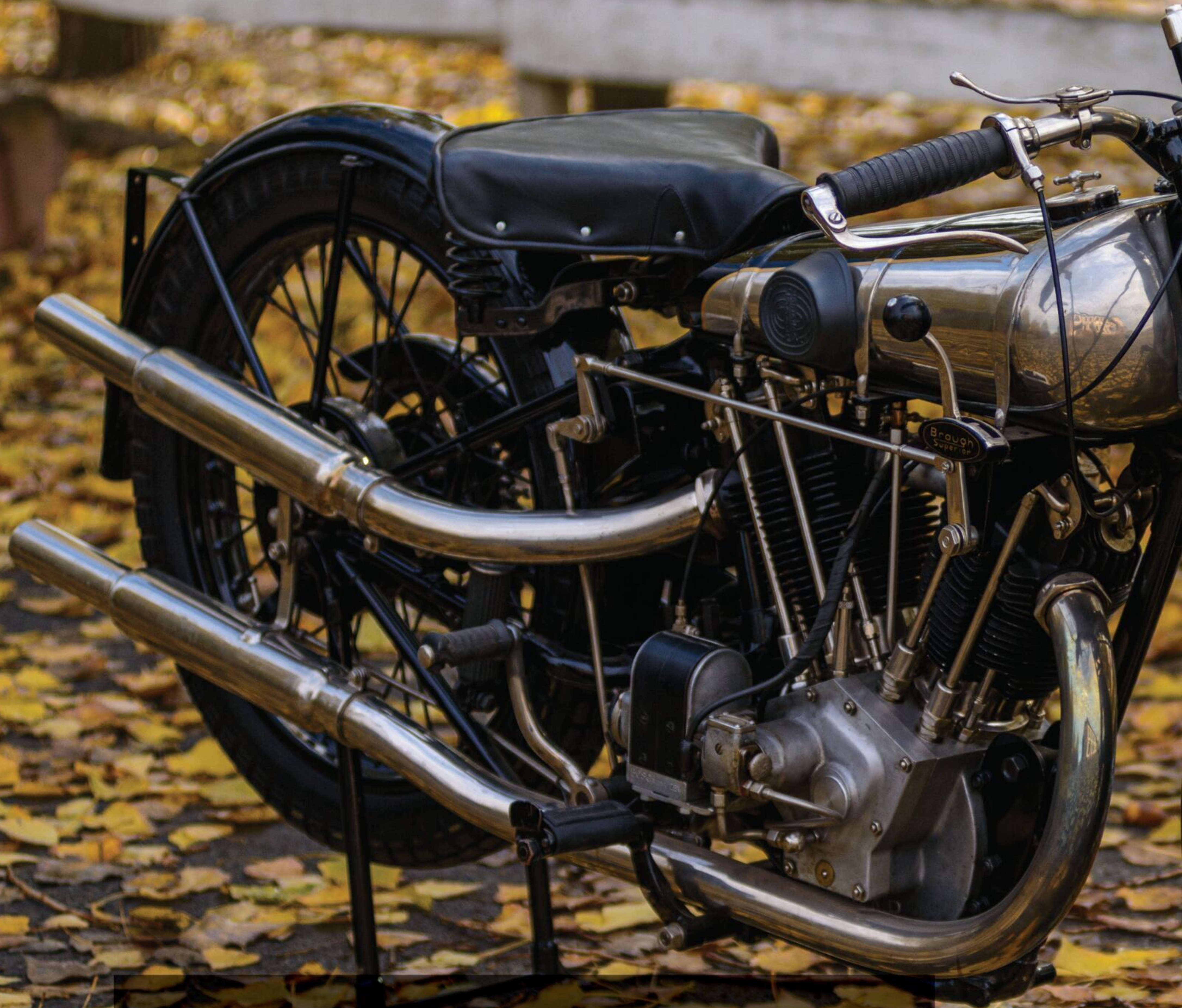
At the end of the 1971 racing season the T56B was laid to rest, and Team Lotus concentrated their efforts on the

Type 72 which, it might be said, inherited the characteristic wedge-shaped body of the turbine cars and achieved the Constructors' Championship in 1970, 1972, and 1973.

The only racing car powered by a gas turbine engine of any class or category that has had the honor of winning a race, at the time of this writing, has been the Howmet TX sports prototype. In fact, it won two rounds of the U.S. SCCA National Championship in 1968. ♦

FURTHER READING

- Alan Henry: *The 4-Wheel Drives. Racing's Formula for Failure. Donington Monomarches* published by Macmillan Leisure Books, 1975.
- Doug Nye: *The Story of Lotus. 1961-1971 Growth of a Legend*. Motor Racing Publications, 1972.
- Various articles from contemporary issues of *Motor Sport* magazine from the 1960s and 1970s.
- Various Gold Leaf Team Lotus Racing for Britain press releases.
- British Standard Wire Gauge (often abbreviated to Standard Wire Gauge or S.W.G.): 16 s.w.g. = 0.064" / 1.626 mm



The owner of Collection Horsepower fantasized about Brough-Superior motorcycles since his childhood. Now he has a collection of over 300 motorcycles with seven representing the “Rolls-Royce of Motorcycles.” **Dr. Pál Négyesi** was on hand to pick one. Photographs: **Máté Boér**

**BROUGH SUPERIOR
SS100 PENDINE, 1927**

DREAM COME TRUE

1: Even the handlebars were tailored to customers' requirements.



It is too early, says the owner of Collection Horsepower when I ask him about the possibility of opening up his collection to visitors. However, readers of Rare & Unique Vehicles will have a chance to sample the collection, as we are going to introduce some of the highlights.

Visiting the collection is an experience in itself.

It is located half an hour from Debrecen, a Hungarian city, which lies 200 km to the east of Budapest. There is a castle adjoined by a huge stable. The doors are decorated with wrought iron bars, so you immediately feel you are back in the 19th century. And then you feast your eyes upon rows and rows of motorcycles – all made before 1930. The collection is mostly of British origin: there are around 40 Sunbeams alone, with Rex-Acme, Excelsior, Ariel, AJS, and countless other brands represented. The owner is a die-hard enthusiast, not just a collector: he can talk about magnesium alloy heads, screws, and valve control for hours. But today we are focusing on a motorcycle which was chosen to accompany our article on Eric Fernihough.

He used two special Brough Superior motorcycles for his world record attempts from 1936 to 1938, built by the company to his specification. Here we introduce you to another fine racing Brough Superior.

HISTORY OF BROUGH SUPERIOR

George Brough was the second son of William E. Brough, who had been in the motorcycle-making business from 1902.

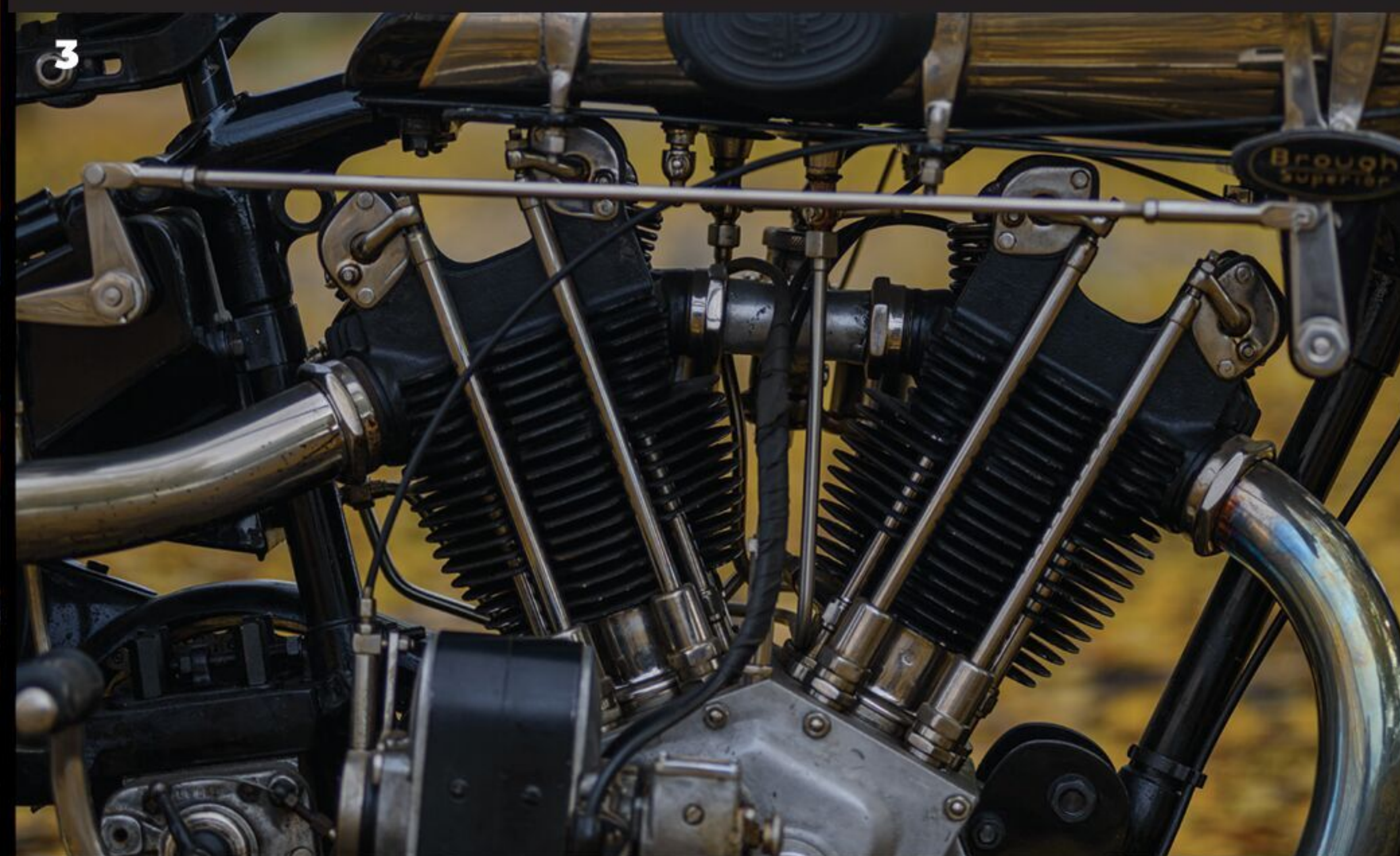
His Brough motorcycles were trendsetters before World War I with flat-twin engines. George himself raced these motorcycles with considerable success. But as years went by, the elder Brough wanted to stick with a proven formula, while his son wanted to try a radically new direction. His idea was to build a modern, stylish motorcycle powered by a large capacity V-twin: something like a Harley-Davidson but with extraordinary attention to handling and quality control to go with the power. In a sense, George wanted to build bikes that were in some respects like Harleys and Indians, but aimed at the “Rolls-Royce” top end of the market.

George took out his share from the family business and set up his own company in Nottingham in 1919. George Brough’s desire to improve on the motorcycles built by his father, William, led him to the name Brough Superior. Legend has it that George Brough did not think up the name himself. It arose from a discussion over pints in a pub, when someone suggested: “Why not call it a Brough Superior?” Upon hearing the news, his father stated, “I suppose that makes mine the Brough Inferior!”

The first production Brough Superior, featuring a 986-cc overhead-valve V-twin JAP engine, Sturmey Archer three-speed gearbox, and Enfield Cush Hub, was exhibited at the 1921 Motor Cycle Show at Olympia. In 1923 the SS80 was introduced to the public powered by a side-valve, V-twin JAP engine. H.D. Teague, editor of The Motor Cycle magazine, referred to the Brough Superior as “the Rolls-Royce of Motorcycles” after road testing an SS80.



2: Every Pendine came with a guaranteed top speed of 100 mph (161 km/h).



3: This Pendine is equipped with a JAP KTOR four-cam racing engine.

The slogan was adopted by George Brough and used in subsequent advertising. Rolls-Royce was not happy about this slogan, but a visit to the premises of Brough Superior was convincing enough that the objections were dropped. Competition success was fundamental to the development of the marque, and in 1922 George Brough lapped Brooklands at over 100 mph (160 km/h) on “Spit and Polish,” a prototype for the SS80. Following an accident it was rebuilt and renamed “Old Bill” and, widely campaigned by George, became one of the most famous racing machines ever. In 1924, highly regarded tuner and racing motorcyclist Bert Le Vack developed the Val Page–designed overhead-valve JAP V-twin and used it in a Brough Superior motorcycle to set a new World Speed Record of 118.98 mph (191.47 km/h) at Arpajon in France.

With the new SS80’s performance threatening to put the overhead-valve Mk I in the shade, it was decided to completely redesign the latter. The result was the legendary SS100, which benefited from Le Vack’s development work. First shown to the public at the Olympia Show in 1924, the SS100 employed an entirely new overhead-valve 980-cc JAP V-twin engine. A frame of duplex cradle type was devised for the newcomer, which soon after its launch became available with the distinctive, Harley-Davidson–influenced Castle front fork patented by George Brough and Harold “Oily” Karlake.

And just in case prospective customers had any doubts about the SS100’s performance, each machine came with a written

guarantee that it had been timed at over 100 mph (160 km/h) for a quarter of a mile – a staggering achievement at a time when very few road vehicles of any sort were capable of reaching three-digit speeds.

Each SS100 was assembled to meet individual customer requirements using the best components available, and rarely were any two exactly the same. In addition to the aforementioned JAP engines, Enfield hubs, and Sturmey Archer gearbox, Brough developed Harley-Davidson forks and had his own version made by the Castle Fork and Accessory Company. Each motorcycle was assembled twice. The first assembly was for fitting of all components, then the motorcycle was disassembled and all parts were painted or plated as needed, then the finished parts were assembled a final time. Every motorcycle was test-ridden to ensure that it performed to specification and was personally certified by George Brough.

The Brough SS100 was offered in three main models: the SS100, the SS100 AGS “Alpine Grand Sports,” and the SS100 “Pendine.” All were fitted with JAP engines up until 1936, when Brough progressively made the switch to Matchless engines. The last Brough Superior motorcycles were built in 1940. Altogether it is estimated that around 3000 units were produced.

THE BROUGH SUPERIOR SS100 PENDINE

The Pendine was for those who loved racing. It was named after the Pendine Sands beach in Wales, which provided a



1: The V-Twin engine required two exhaust pipes.

2: Huge front and rear drums provided decent stopping power.

3: Original sub-frame and fuel-tank have been kept, while a new frame was constructed to the original specifications and dimensions.



Brough' has patented his modified Harley-styled Castle front forks together with Harold Karlake.

hard and almost perfectly flat surface that was better than many of the roads of the 1920s. Pendine Sands was used as the track for car and motorcycle races and speed trials from 1922 onward. It was also the site used by Sir Malcolm Campbell for his successful World Land Speed Record attempt in his 350-hp Sunbeam record car, “Blue Bird,” in which he attained 146.16 mph (235.22 km/h).

The SS100 Pendine made its debut in 1927 and was normally fitted with a rigid frame (no rear suspension), lightened for racing, typically with no lights, and with the JAP KTOR 8/45-hp engine, a four-cam racing unit with bevel-drive magneto. The car incorporated numerous other modifications to make it more suitable for competition purposes. Each Pendine model was guaranteed to achieve 110 mph (178 km/h) in a quarter-mile.

COLLECTION HORSEPOWER'S PENDINE

This Pendine was offered for sale by Bonhams in 2018. It features a genuine, original Pendine engine with the number 7124/SD, which was installed in a newly made and unmodified frame constructed to the original specifications and dimensions, and numbered in a special series by the

Brough Club. It is fitted with an original circa 1927 Brough Superior fuel tank and base subframe (both numbered 1656), purchased from Dave Shotton, who obtained these parts in Brisbane, Australia, in the 1960s. The gearbox is an original Sturmev Archer three-speed heavyweight unit made in the mid- to late 1920s and of exactly the same type fitted by Brough. With the exception of the frame and mudguards, all other major components are correct period parts, many of them original Brough. The Pendine was built in its current form by Simon Miles between 2008 and 2010. ♦

SOURCES:

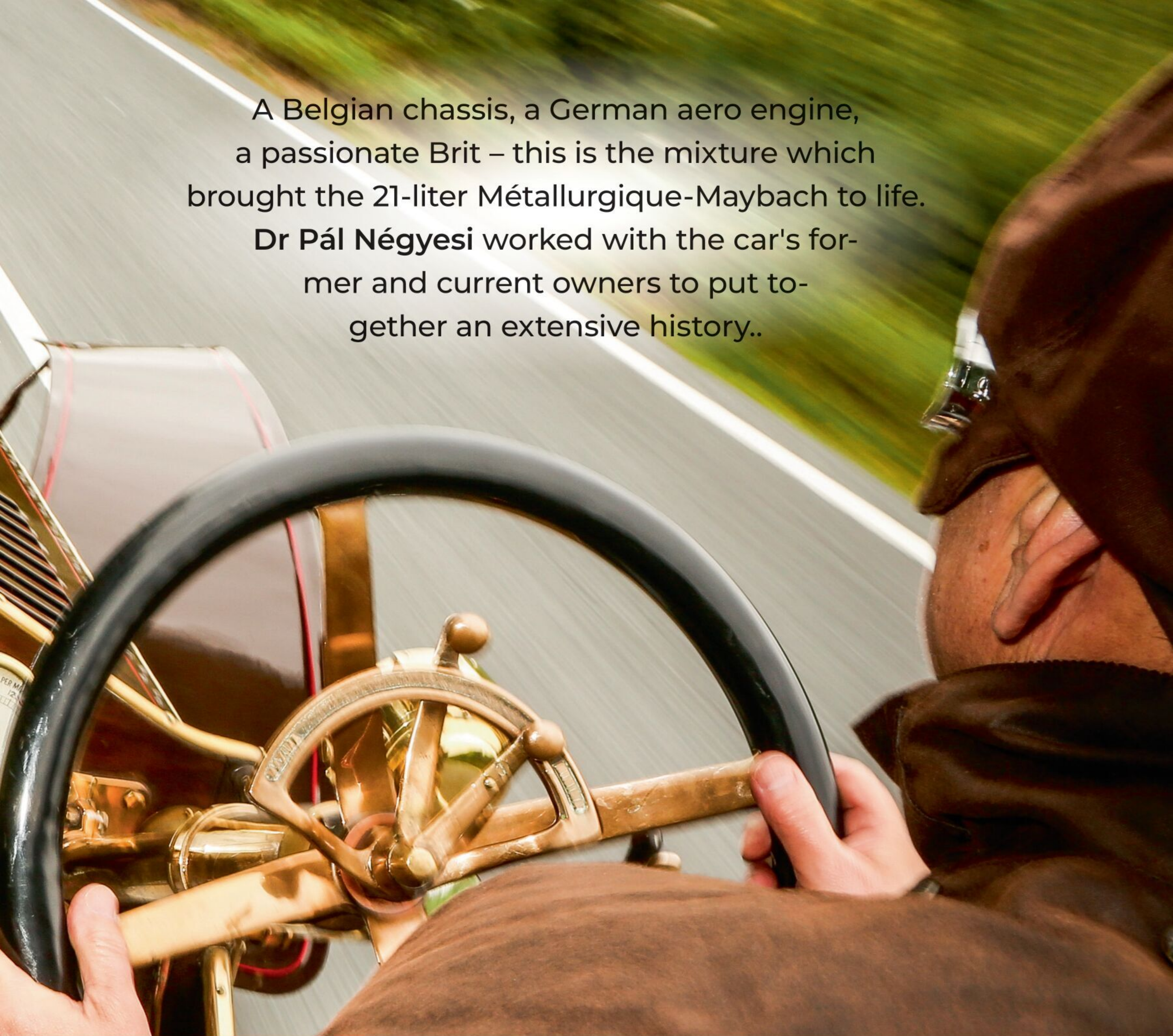
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<https://www.broughsuperiorclub.com/history/history-of-brough-superior-motorcycles>



TENDER TITAN

Collectors corner





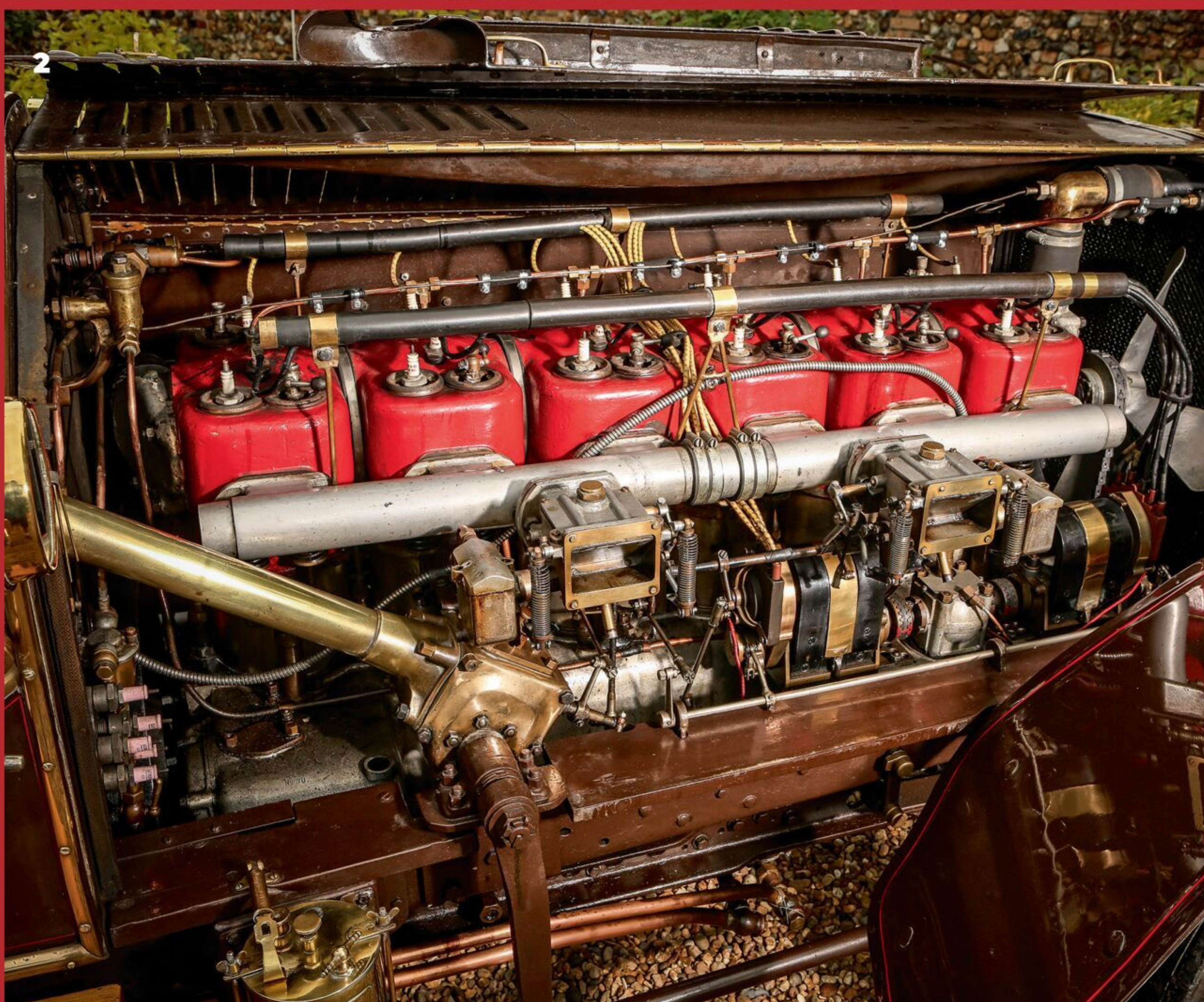
A Belgian chassis, a German aero engine,
a passionate Brit – this is the mixture which
brought the 21-liter Métallurgique-Maybach to life.
Dr Pál Négyesi worked with the car's former
and current owners to put together an extensive history..

MÉTALLURGIQUE-MAYBACH

EDWARDIAN MONSTER



Photo: Mark Ballard



1: Adrian Goding, current president of the Veteran Car Club is wrestling with the car at Prescott Hillclimb.

2: 21-liter engine produces 1000 lb-ft (1355 Nm) of torque at 1000 rpm.



1: Wonderful Klaxon horn has been added by Fitzpatrick.



2: Ignition switches are original



3: Well-worn upholstery from epic continental adventures.



4: Pedals include two brakes.

When you sit down in the armchair driver's seat [of the Métallurgique-Maybach], grasp the thick-rimmed steering wheel, and look around, the car establishes an immediate moral ascendancy. There are four pedals, for instance, and only the accelerator is where you would expect to find it; the next one along is a transmission brake, but this was rendered powerless when it was found that harm could come to a young Métallurgique from its use. The third and fourth operate the clutch and brake respectively, which puts a premium on driving cross-legged.

"Then there are enormous handbrake and gear levers on the right and two smaller ones with quadrants in the middle of the steering wheel for the hand throttle and the advance and retard of the twin Bosch magnetos. When we could postpone the ordeal, no longer we took to the driver's seat with mingled feelings of alarm and inadequacy, pressed the clutch, which is not harder than many modern cars, and offered the gear up to the left-hand forward slot of the gate. It refused with a loud grating noise; the proper technique is to press the pedal to the end of its travel, which brings in a clutch stop to arrest the motion of the gearbox input shaft. The pedal has a long travel, we

decided some time later when we were still feeling delicately for the point of engagement. The clutch resembles an ordinary brake, and when the internal expanding bronze shoes reach the drum, the take-up is not fierce... The gearchange isn't inherently difficult. What is difficult is moving everything in the right direction."

This is how Motor started its road test in 1964. Fifty years later, Mick Walsh from Classic & Sportscar sampled the car and said, "The steering is hard work at low speed, but the worm-and-nut action lightens with pace, and the 50:50 weight balance provides neutral handling with a bias to understeer if foolishly pushed too hard. The ride is impressive, the long springs and Hartford dampers soaking up even the worst bumps."

We can also add the experience of Adrian Goding, chairman of the Veteran Car Club, whose godfather, Brian Moore, owned the car in the 2000s: "I was told to handle it carefully. But I still locked it up on the way up to Prescott."

The car in question is known as the Métallurgique-Maybach, an aero-engined racing car with enormous torque and great history.

HOW IT ALL STARTED

Though the car has been part of the British classic-car scene for many decades, its origins go back to the other side of the pond: the original 1907 Métallurgique chassis, no. 577,



Photo: Gerhard Paumann

Brian Moore and Adrian Goding had a great day out at the Nürburgring in 1995.

a stock 60/80-hp model with a four-cylinder, 9895-cc engine, was commissioned by David Bruce-Brown, a young American millionaire and passionate racing driver. The Belgian-built chassis was quite advanced for its day in using shaft instead of chain drive. However, the Métallurgique was not powerful enough. Bruce-Brown died in a racing accident in 1912, and the Métallurgique was shipped back to Europe, where Ernest Eldridge, a renowned British racing-car driver, became its custodian. Eldridge was a noted persuader of vast aero engines into motorcar frames, in the early 1920s achieving fame at Brooklands first with his 21-liter Isotta-Maybach, then with the 21.7-liter Fiat Mephistopheles with which he broke the Land Speed Record at 235 km/h (146.01 mph) in 1924.

According to research conducted by Douglas Fitzpatrick, it was probably Eldridge who bolted a 1910 Maybach AZ airship engine into the chassis in around 1919 on commission from a certain W. Cole of Brundall, near Norfolk. It appears that Cole and his brother ran the Eastern Daily Press, a daily newspaper. In order for the 1.37-meter (!)-long, 21-liter engine to fit, the chassis had to be lengthened ahead of the dash bulkhead by some 45 cm. This join can be plainly seen, and the operation seems to have been very well carried," noted Douglas Fitzpat-

rick. Still, the car remained relatively compact, "The chassis even now having only a 3.2-meter wheelbase." The whole car weighs around 1.8 tons, distributed virtually 50/50 front to rear.

DISCOVERY BY DOUGLAS FITZPATRICK

It seems Cole died before the car had a chance to show its potential, and the family decided to put it into storage, where it collected dust for decades. And then in April 1950, Douglas Fitzpatrick received a phone call. As he later recalled: "After the Second World War, I determined to have a Veteran car of my own. I had no aspirations to the Dinosaur class, for as far as I knew, they were just about extinct . . . One never-to-be-forgotten day in April 1950, the telephone rang. It was a local farmer who knew about my interest in Veteran cars. There was a very rum-looking car in a shed in some property he had acquired, and was I interested? . . . I pricked up my ears and drove round to see it, but I wasn't prepared for the sight that took my eye when he opened the door of the shed. Even Aladdin, when the door of the Mountain Cave rolled open to display the treasures and jars of spilling gold within, could not have gone through a greater emotional crisis than I, when I looked into the shed and saw — the Monster. And it was of a species that I couldn't even recognise.

TENDER TITAN

Collectors corner

Fitzpatrick and Majewski prepare to fire up the car in the 1960s.





1: Single rear seat is intended for mechanic.

2: The Maybach-Metallurgique appeared in the legendary Chitty Chitty Bang Bang movie with its wings and seats removed.



“It stood on four flat, depressing-looking 935x135 tyres. It had a magnificent, long, flat, much riveted bonnet with two central hinges about six inches apart, but from then rearwards it was not so good, for it had obviously, like so many Edwardian cars, been brought up-to-date in the immediate postwar period by unsuccessful merging of the body dash to the bonnet line... The upholstery was buttoned but had evidently gone too far for restoration... I opened the bonnet. It was a splendid sight. Six of the largest cylinders I had ever seen . . .”

Fitzpatrick towed the car home. As the car was dismantled, he discovered that it was a Métallurgique and its overall condition was good and had high-quality workmanship. However, the car’s rebuild took five years largely because persons unknown had fitted a new back axle of about 2.25:1, which was in awful condition and it took a lot of time and effort to sort it out.

“In the meantime, La Mét had found her way to Panelcraft of Putney. I had removed the two-seater body, which was in a very deteriorated condition; the bonnet and dash being things of beauty, I left them, and Panelcraft made a new floor and three handsome bucket seats. The third seat, which occupies the space previously occupied by the boot of the two-seater body, is mounted on the 10-gallon oil tank, engine lubrication by dry-sump,” summed up Fitzpatrick. The rebuild greatly benefited from Gerry Majewski, a former German POW who’d worked on a local farm and stayed on to help Fitzpatrick. During restoration, a distinctive 1907-style 22-gallon radiator, custom made by Delaney-Gallay, was fitted.

THE CAR ROARS BACK TO LIFE

The great car’s 1950s gearing offered speeds per 1000-rpm engine revs of 32 m/h (20 mph) in first gear, 66 km/h (41 mph) in second, 96 km/h (60 mph) in third, and 130 km/h (81 mph) in top. “One Sunday morning in November 1955, under the enthusiastic guidance of Mr. H.S. Fry of Panelcraft, La Métallurgique was pushed into the deserted Putney High Street. Deserted, that is, save for a few V.S.C.C. members who had come to witness the awakening of the Monster after its 35 years’ slumber. After a two to the top of Putney Hill . . . the car was pushed down the other side, with me on board, wondering what was going to happen. I let in the clutch, there was a road, and I was off . . . It is difficult to imagine what a take-off is like, even in second gear. Second (2.5:1) represents 66 km/h (41 mph) per 1000 rpm, which is far higher than the top gear of any car except another Monster. ... Even in second gear, it is propelled eight feet (244 cm) forward per explosion [so] one feels just hurled along.”

In 1957, the Veteran Car Club of Great Britain examined the Métallurgique and provided a Certificate of Dating.

From then on, Fitzpatrick with his ever-loyal German mechanic ventured all over Europe, on occasion going as far south as Athens. “It’s just like motorcycling,” said Fitzpatrick to Doug Nye, who road-tested the car in 1981. Over the years La Mét has been hill-climbed, sprinted, and circuit-raced, and even

today it holds a Class A standing-start 500-meter record. When Ken Hughes started production of the legendary movie Chitty Chitty Bang Bang, the racing scenes employed many Edwardian car owners for authenticity. Fitzpatrick was tempted out and with wings and rear seat removed, it battled with a Napier and a group of replicas.

For many years the 21-liter Maybach engine breathed through a pair of two-inch SU carburetors, latterly replaced by two massive-as-original Brooklands “rat traps.” Its six huge cylinders are each individually water-jacketed and clamped to a massive aluminum crankcase. Each cylinder has a T-shaped combustion chamber, with two inlet valves to one side, two exhausts to the other. Their respective springs, tappets, and pushrods are exposed beneath the heads on either side.

Starting was a well-rehearsed producer, with Majewski enlisted to turn over the engine with a fourth tommy bar while Fitzpatrick intently watched the flywheel to line up the timing marks for top dead center on number-two piston. The mags and trembler coil were switched on with the bar removed, and the engine instantly clattered into life. Great care has to be taken that the switches are off before turning the engine over, as Majewski discovered in Munich after the car stalled. When the 21-liter unit kicked back, it launched him across the road and into a cyclist.

BRIAN MOORE TAKES OVER

Brian Moore, former president of the Veteran Car Club of Great Britain, met Fitzpatrick on several occasions. The Métallurgique had always interested him, and after Fitzpatrick’s death in 1986, the famous machine remained at Sheringham Hall until it turned up for auction with Christie’s at Beaulieu in 1988: “We went down to buy it, but the car was withdrawn.”

Two years later, the Métallurgique turned up at the same company’s Monaco sale, and Moore secured the car over the phone for GBP 242,486 (around €346,400 then which translates to around €589,000 today).

The crankshaft failure which caused the withdrawal from the first auction was traced to the mounting bolts of the small flywheel which had all sheared. The enormous torque which La Mét delivers was driving through a small flange which was intended only for an airship propeller. Brian Moore designed a new rear section of crankshaft which was grafted on with a larger output flange and the problem was solved..

Following the tradition of Fitzpatrick, the Moores continued to drive the Métallurgique to events. Highlights have included a run to Germany for an Edwardian demonstration at the Old-timer Grand Prix.

After the death of Brian Moore, the car was put up for auction again. Today the Métallurgique-Maybach is part of the Sammlung K collection in Germany. ♦

SLEEPING BEAUTY

Speed



LAST BEFORE THE WAR

LANCIA ASTURA CABRIOLET

BY PININ FARINA,
1938/1947



Just this summer this Lancia Astura participated in the 2021 Pebble Beach Concours d'Elegance, where it completed the road tour without fault and took First in Class in a highly competitive grouping of European open coachbuilt cars. Its story involves two aristocrats and a world-famous car designer.



Interior was recently restored.

First owner was Mussolini's son-in-law, Count Galeazzo Ciano.



THE LANCIA ASTURA

The original Lancia Astura, which was unveiled in 1931, became one of the most important models for the Italian company in the 1930s. The Astura, together with the Artena, marked a switch from a system of model designation that used letters of the Greek alphabet in favor of one using Italian place names. The move was in keeping with the nationalistic spirit of the age. One of Lancia's most important models, the Astura was powered by a new version of the narrow-angle V-8, which was previously used in the Lambda. It was enlarged from 2.6 to 3.0 liters on the Astura Series III in 1934, when the model also gained hydraulic brakes and became available in both short- and long-chassis forms. The Series IV featured a platform chassis with a longer wheelbase, and it became the flagship of the brand.

Unlike the Lambda, the Astura featured a separate chassis rather than a stressed unitary body. While arguably a step back technologically, this allowed Italy's finest coachbuilders to work their magic on the otherwise brilliant platform. The Astura was used extensively as official transportation by Italian government departments.

CHASSIS NO. 413195

As one of the last Asturas built, chassis number 413195 is a long-wheelbase fourth-series example, wearing elegant one-off cabriolet coachwork by Pinin Farina. Apparently it was ordered by Count Galeazzo Ciano, Benito Mussolini's son-in-law and his right-hand man as the chief propagandist in the fascist government. Ciano was a very complex character. He became Foreign Minister during World War II, but when he argued that Italy may not be on the winning side of World War II and participated in a coup against Mussolini he was stripped of his post and executed in 1944.

It seems Ciano never got hold of this Astura, which sat in the Pinin Farina workshop through the end of the war. Afterward, when vehicles such as the Vespa scooter were the

only affordable means of motorized transportation in Italy, coachbuilders went out of their way to find clients.

In 1947, Pinin Farina completed the striking body for 413195, debuting it on their stand at the Turin Auto Show the same year. Pinin Farina designed a fully enveloped body that was years ahead of its time. The lack of excessive trim or finicky grille designs is in stark contrast to many early postwar cars, and the car exudes quiet elegance. It is finished in black, with black wheels, blackwall Michelin tires, and finely restored brightwork.

It was apparently purchased by noted art collector and French aristocrat Baron Napoléon Gourgaud, where it lived a gentle life as part of his Paris museum. In 1971, Philippe Charbonneaux and his son Hervé purchased the Lancia from the Gourgaud collection and displayed it at their museum near St. Dizier. The collection still exists as the Musée Automobile Reims-Champagne, and a film on its website from 1972 momentarily captures the Astura, appearing remarkably sound and in original condition at the time – albeit a bit dusty.

It is understood that the next owner was Marco Gastaldi, who acquired it from the Charbonneaux collection in 1977 when its engine was rebuilt.

The Astura changed hands again in 1992. Its new owner, Carlo Montorfano, commissioned Mario Galbiati for a major restoration: the engine was overhauled, a new clutch fitted, the brake drums and linings replaced, and the front shock absorbers renewed. The interior was left untouched. Under Montorfano's custodianship, the Astura has amassed an impressive collection of concours awards at venues including Lugano, Bagatelle, and Berne, where it was judged Best in Show in 2005. A mere 10,000 kilometers after the restoration's completion, the Astura was on the auction block and sold by Bonhams in 2007. Recently the interior was restored, with burgundy leather true to original specifications and providing a perfect contrast to the understated livery. ♦



The latest iteration of the narrow-angle V-8 engine powered the Astura Series IV.

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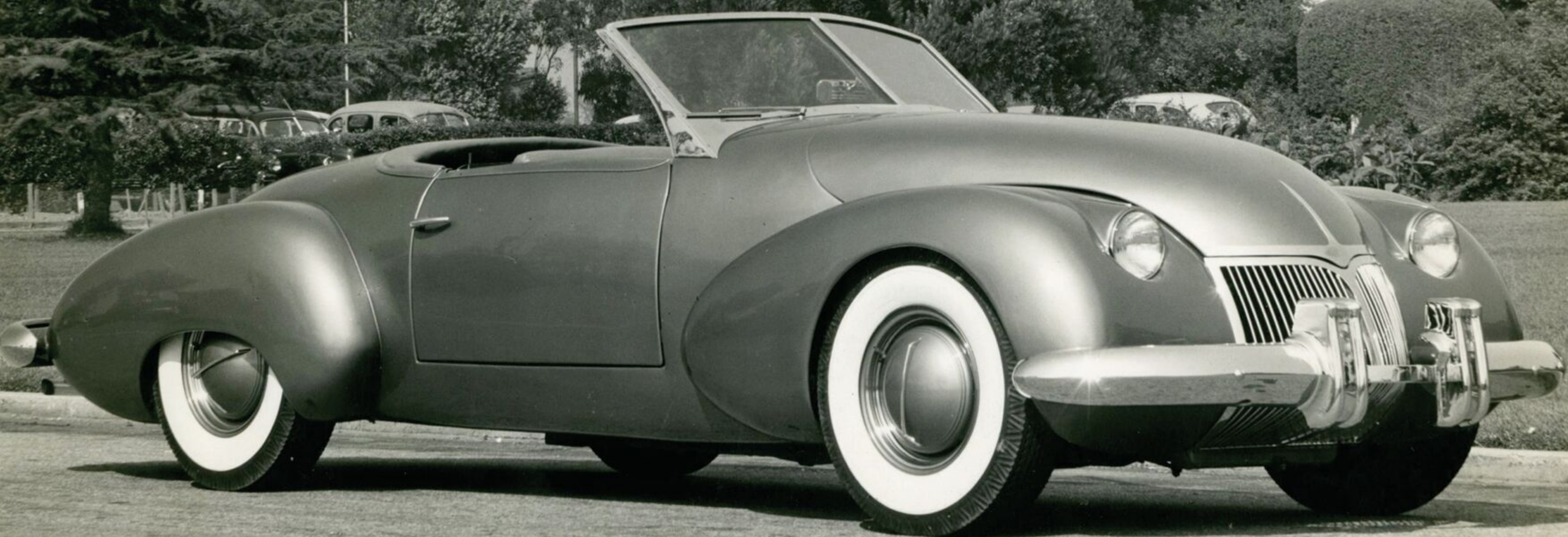
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AVAILABLE 1938 LANCIA ASTURA CABRIOLET

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**KURTIS OMOHUNDRO
COMET ROADSTER**

TALE OF THE COMET...



Conceived in 1945, lost for decades, the two Kurtis Omohundro Comet Roadsters represent a missing link in the Frank Kurtis story. Their styling, a derivative of an American sports car that Kurtis built before World War II, had an evolutionary influence on the Kurtis Sport Car that followed. Ken Gross delved into the story.

A **VERY** talented California-based builder of racing and roadgoing cars from the 1930s through the early 1960s, Frank Kurtis was known for his innovative Kurtis-Kraft Indy 500 roadsters, race-winning sprint cars, and stylish little midget racers. He briefly manufactured the versatile Kurtis Sport Car, a precursor to the production four-seater Muntz Jet. The Kurtis Sport Car was followed by a series of brutalist Kurtis KK500 roadsters. Based on Kurtis's successful Indy race-car chassis, the KK500 was available as a limited-production complete car or as a kit, where buyers supplied engines ranging from Ford and Mercury flathead V-8s to Cadillac and Chrysler OHV Hemi V-8s.

Frank Kurtis designed the first Comet in 1947; the second car was built in 1948. But until recently, very few people knew much about either car.

FRANK KURTIS

Born in 1908 as Franjo Kuretić, Frank Kurtis, whose father was a Croatian blacksmith, first demonstrated his keen sense of style and craftsmanship in the 1920s, working in the body shop at prestigious Don Lee Cadillac in Los Angeles. On the side, he bought used cars, customized them, and sold them for a profit. Don Lee, who controlled the entire Cadillac franchise for Southern California, hired Harley J. Earl to design and build stylish custom coachwork for wealthy extroverts and Hollywood celebrities, along with eye-catching re-bodied trucks that helped promote their owners' businesses.

Kurtis's work soon attracted Earl's attention and his eventual tutelage. In 1927, when Harley Earl moved to Detroit to start General Motors' Art & Colour studio, Frank Kurtis became the Lee shop foreman. Like so many businesses trying to weather the depths of the Depression, the Lee shop suffered a loss in custom work. To support his growing family, Kurtis left to start his own small body shop.

Business was tough, but Kurtis was industrious and not too proud to use his prodigious metal-forming ability to build truck bodies, trailers, and flashy custom roadsters from wrecked production cars. In 1933, he got a break when he built a special hood and grille for a track roadster. That opened some doors, and soon he was fabricating race cars for California's growing racing community. Racing was good business. Frank built the cars, the racers crashed them, and he rebuilt their mounts.

Faded photos from the early 1930s show exciting cars at LA's infamous Legion Ascot Speedway with Kurtis's distinctive heart-shaped grilles, built for the Atlas Chrome Plating Company. He made a brief foray to Detroit in 1934 at Harley Earl's request, but Earl was touring Europe when Frank arrived. History might have been altered immeasurably if Frank Kurtis had been hired at GM. After a series of mundane jobs in Michigan, Kurtis returned to a better-paying position at Don Lee Motors in 1935.

Frank wrapped up the uncertain 1930s working for the Hollywood Trailer company, then for Howard "Dutch" Darrin and Joel Thorne, and he later went back into business for himself with racing clients like Lou Fageol, Rex Mays, Ted Halibrand, Kelly Petillo, Fred Frame, Roy Rissing, and Charlie Allen. Midget racers became Kurtis's specialty, but after he visited the Indianapolis Motor Speedway in 1939, he became well known to the Indy racing fraternity as well.

In 1940, Hughes asked Kurtis to build a custom roadster utilizing the race car's detuned Miller Ford V-8. Frank's first sports car, it artfully combined a handmade hood and a boattail body, with reworked Chevrolet fenders and a rakish vee'd windscreen. A surprisingly modern-looking design, with a pancake hood and molded fenders, it was a harbinger of things to come.

Frank Kurtis weathered World War II with his usual mix of skill and creative inventiveness. He built children's toys, including 5,000 scooters, but the project that would point to the future was a



1: A publicity photo taken in 1948.



2: Paul Omo-hundro with his Kurtis-Omohundro Comet in 1948.

lovely little pedal car he constructed for his then 11-year-old son, Arlen. Midget racing became a mad craze in the late 1940s, and Frank Kurtis was in the forefront of it all.

By the late 1940s and into the 1950s, Frank Kurtis was busy producing winning midget race cars on a rudimentary assembly line. In 1949, Kurtis's advertising proclaimed he was the "World's Largest Manufacturer of Racing Cars." Over time he won the Indianapolis 500 five times as a constructor, from 1950 to 1955, and a Kurtis finished second in 1952. In 1953, some 24 of the 33 competitors were in Kurtis roadsters. Kurtis sold his last race car, an Indy roadster,

in 1962, having built more than 2,000 competition and roadgoing cars in his lifetime.

There's a distinctly parallel track with Kurtis sports cars. When World War II ended in 1945, automotive magazines for car buffs were still a few years away. Enthusiasts were just beginning to consider sports cars made in America. Frank Kurtis foresaw an opportunity and he began building his own new roadster, really an early Sports Custom, on a Buick chassis in 1941. The war stopped its construction, and before he could complete it, another hitherto widely unknown project came to the forefront – the Comet.

THE KURTIS-OMOHUNDRO COMET

If you search for our feature car, the second Kurtis-Omohundro Comet, in either of the two excellent books on Frank Kurtis (see the end of the article), you won't find it. George Damman's Encyclopedia of American Cars has a rendering of the Comet, and a short paragraph. Three photographs of this car appeared in Dan Post's California Custom Car Photo Album of 1947, with a caption that stated it was "proposed as a change-over body for discriminating Ford owners." Strother MacMinn, a noted auto designer who taught at the Art Center School in Pasadena, photo-



1: The Comet as it was found.

2: The first phase of restoration targeted chassis, drivetrain, and the superstructure that held body in place.

graphed the Comet on the streets of Los Angeles, in 1947. After that, the car all but disappeared.

HOW IT WAS FOUND AND ITS EXCITING PAST FEW YEARS MAKE AN INTERESTING STORY.

The Kurtis-Omohundro Comet is owned by Geoff Hacker of Tampa, Florida, a tireless researcher whose specialty is the discovery and presentation of highly unusual cars. Hacker’s “Undiscovered Classics” website helped uncover countless long-forgotten, hopelessly obscure, but fascinating and clever limited-production cars.

Paul Hardwicke Omohundro Jr., born in 1915, owned the Comet Company in Los Angeles, specializing in drop-hammer stamping and foundry processes to make metal parts. In the late 1940s, he started the Paul Omohundro Company in Paramount, California, specializing in reinforced plastics. Omohundro and Kurtis knew each other well. Omohundro’s company was stamping out aluminum bodies in volume for Kurtis’s midget race cars and would later supply fiberglass panels for the Kurtis Sport Car. The long-forgotten Comet project fits neatly in the middle.

Frank Kurtis designed the Comet and lent the design to his business partner,

Paul Omohundro, and the prototype was built on a stock 1940 Ford chassis with a 112-inch (284.8 cm) wheelbase. Geoff Hacker interviewed Tom Omohundro, Paul’s son, who said that his dad wanted to sell complete Comet sports roadsters, but he didn’t want to build a chassis. So Paul Omohundro met with Ford Motor Company officials in 1944 or 1945 to see if he could obtain complete Ford chassis in order to build his own cars. Ford wouldn’t cooperate.

Paul Omohundro was not discouraged. He issued a press release in 1946 stating that the Comet would debut in 1947. “Designed by Frank Kurtis and offered by the Comet Company of Los Angeles,” the release read, “the Comet was designed to fit any stock Ford chassis, the body combines aluminum panels and steel bracing with a result that reduces body weight from the original Ford by fifty percent.” The release further noted that “a wide range of lacquer finishes and upholstery material will be available for putting the finishing touches on the sports car.” The Comet sports roadster was going to retail for \$3,450. A brand-new 1947 Ford DeLuxe V-8 Tudor was \$1,288. The release stated that the buyer had to obtain the “donor” Ford chassis and deliver it to the Comet Company, 13007 South Main Street, Los Angeles. In those days, \$5,000 would have been a lot of money. The lack of a chassis was the stumbling block, so the Comet project never came to fruition.

Our feature car, the second Comet roadster, is powered by a 364-cubic-inch 1948 Cadillac V-8, backed by a GM Hydra-matic transmission. Paul Omohundro used this roadster as his personal car.

In his quest to research the story of the Comet, Geoff Hacker talked with Phil Fleming, who recalled seeing both cars in Bloomfield Hills, Michigan, in 1953 and 1954, where they were owned by Sam Cornell, and driven by his nephew, Kent Walker. They were referred to, at that time, as Kurtis-Krafts. It was Phil Fleming’s love of these two cars that led to his finding and keeping photos. And that led to a friendship with Geoff

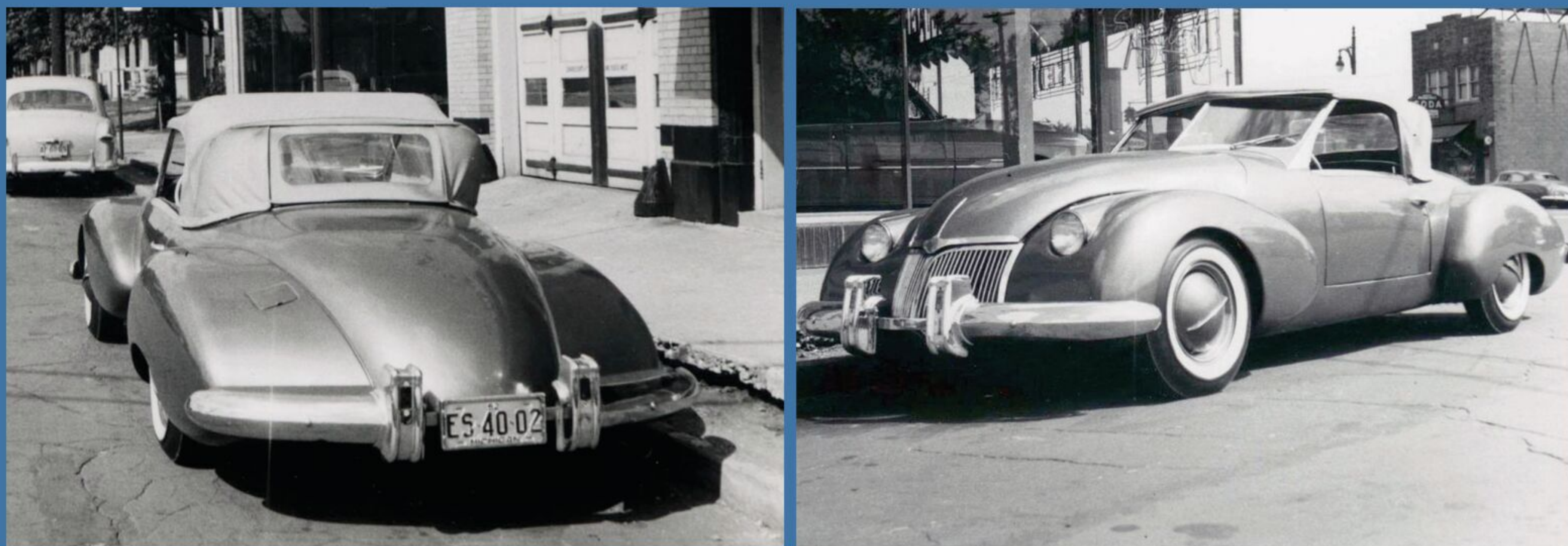


3: The interior of the Kurtis was leather throughout and late 1940s Stewart-Warner instrumentation – all still in place when the car was found.

4: Car was largely intact.



These photos were taken in 1952 by Herbert Roy Jaffe, a young automobile stylist in Detroit Michigan. The car was owned by its second owner, Jim Neidy at that time.



Hacker, who was inspired by Fleming's stories to find both of the cars.

COMET NUMBER TWO

Comet Number Two was shown in a brief feature in the February 1949 issue of *Road & Track*, and it appeared again in *Motor Trend* in October 1950. Paul Omohundro offered it for sale in the September 1951 *Motor Trend* for the "best offer over \$2,000." This same car was offered for sale again in the August 1952 *MT*, this time by the Jim Neidy Hot Rod Shop in Detroit. No price was listed.

Hacker performed some additional restoration work and detailing on the first Comet, which is red, and since then it has had quite a public career. Geoff displayed it at the Tampa Bay Automotive Museum in Pinellas Park, Florida, and showed it at the Amelia Island Concours d'Elegance in 2009, and subsequently it has been on display at the Petersen Automotive Museum, the Sarasota Classic Car Museum, and the LeMay Museum in Tacoma, Washington, in 2012, after which it was entered in the Sports Custom Class at the Pebble Beach Concours d'Elegance where it was seen by Jay Leno, who featured it on his popular website, "Jay Leno's Garage."

Paul Omohundro, who commissioned this stylish roadster, also developed and supplied the fiberglass body panels for the Frank Kurtis Sports Roadster that

appeared on the cover of the first issue of *Motor Trend* in January 1949. Omohundro offered optional fiberglass front and rear fenders, hood, and trunk. The Kurtis Roadster thus became the first American sports car to have fiberglass panels on some but not all of the body.

After the Ford Motor Company would not supply Omohundro with production 1949 Ford chassis, the two partners changed direction. Frank Kurtis built his Kurtis Sport Car, which would later grow in size and evolve into the production Muntz Jet. Omohundro never entered the car business and instead became a successful producer of composite materials. Geoff Hacker believes Ford's reluctance to supply donor chassis led to Frank Kurtis's later decision to build his sports-racing cars with a unitized tubular chassis of his own design.

DRIVING IMPRESSIONS OF THE SECOND COMET

I drove the first Kurtis-Omohundro Comet, the red car, for an article in *Motor Trend Classic* eight years ago. The blue car, with its more powerful Cadillac flathead, would be somewhat similar in handling, although the heavier engine might cause it to plow a bit in corners. Either way, the Comet is a snappy-looking two-seater with an aluminum body that's slightly channeled over a 1940 Ford frame. Its curvaceous aluminum body panels,

designed by Frank Kurtis, evoke the custom roadster built in 1940 by Kurtis for Bill Hughes. The Comet's toothy grille is an evolution of the earlier design Kurtis did on a 1941 Buick chassis. The engine for our "road test" was a 110-hp 1949 Mercury flathead V-8 with Edelbrock high-compression heads and a single carburetor intake manifold. The suspension is stock Ford: a solid beam axle and a transverse, semi-elliptic leaf spring in front; and a live axle, again with a single transverse leaf spring, in the rear. These are the underpinnings of what was called a "boulevard" sports car, something more suited to cruising than competition.

As you might imagine, the Mercury-flathead-powered Comet, on a stock '40 Ford chassis, is really not a sports car. It's lighter and noticeably quicker than a stock '40 Ford (I own a '40 coupe), but the beam axles, lever shocks, and buggy springs aren't particularly effective for fast cornering. The '35 Ford wire wheels are not original; the car had disc wheels with small hubcaps when it was built. We gently drove the Comet around the picturesque Ringling Estate in Sarasota, Florida. Out of respect for its rarity, and the fact that it's not road registered, we took it easy. The flathead fires up easily and idles with a pleasant burble from the twin exhausts. The steering is light and lazy. Visibility through the handsome split windshield is expansive, and the



1: Dan Palatnik in Rio De Janeiro, Brazil created 3D renderings of the Comet.

2: Palatnik's renderings help understand how the car will look when restored.

3: Scale models of the 1947 and 1948 Kurtis-Comet are available through Esval Models.

bench seat is quite comfortable. A panel of Stewart-Warner instruments lets you know all that's happening.

The Comet is a delightful sports custom, a perfect boulevard cruiser for its time. Geoff Hacker insists that by virtue of its 1946 design, it's the first

documented postwar American sports car, and I wouldn't argue the point, even though the Comet never reached even limited production. Looking at Strother MacMinn's old photos of the Comet parked on the street in Los Angeles in 1947, this low-slung, curvaceous road-

ster must have turned plenty of heads, and judging from the crowds at our photo shoot, it still does. It's fun to speculate that if Ford had cooperated with Paul Omohundro, FoMoCo might have beaten the Corvette to market, instead of the other way around. ♦

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WHERE THE CARS HAVE NO NAME

KAISERSLAUTERN
"VW-PORSCHE" SPECIAL
1967–1968

PHOTOS: MÁTÉ BOÉR

*Obvious Porsche
influence mixed with
Italian styling cues,
with a very desirable
end result.*



Is it a Porsche? Is it an Italian exotic? It must be from France. Onlookers get easily confused when they are faced with the sleek yellow coupé, the latest item restored by Alexander Fritz for his Volkswagen Vienna Collection. **Dr. Pál Négyesi** had an exclusive opportunity to study the one-off Porsche-inspired sports car built by students of a German coachbuilders' school.





Even on a wet day Rudi Edinger's dream car is very desirable

“**M**R. Fritz, my name is Rudi Edinger. I have been a fan of your Volkswagen books for years. I have a car that I built myself and I think it would look good in your collection” – recalled Alexander Fritz on a rainy afternoon on the outskirts of Vienna. This is how his courtship with his latest restoration project started.

It's been a year since Alexander and I last met, when we had a chance to get acquainted with his Lindner Porscheli, a Volkswagen Kübelwagen-based Porsche-like car built in East Germany (see Rare & Unique Vehicles No. 4). He has been busy since then finishing a book on Kübelwagen specials, including a chapter on Kohlruss, an Austrian coachbuilder. In his spare time he worked on bringing this one-off coupé back to its former glory.

MEISTERSCHULE FÜR HANDVERKEHR

The 1920s saw a rapid development of the German automobile industry. Magazines such as the *Deutsche Fahrzeug-Technik* provided a theoretical background for the local coachbuilding industry. In 1925 the Meisterschule für Handwerkehr (Trade School for Craftsmen), which had been set up in 1874 in the German city of Kaiserslautern, added a *Karosserie und Fahrzeugbau* (Coachbuilding and Vehicle Construction) course to its curriculum.

Here students learnt every aspect of

vehicle development. Over the decades many craftsmen and engineers who went on to work for the German motor industry started here.

As a culmination of their education, students were encouraged to build their own car. In this way students learned about design, development, and, even more important, teamwork. Not to mention that their CVs were boosted by the fact that they could present their own car to their prospective employers.

Since the end of the 1920s when the first prototypes were built, hundreds of cars were finished in Kaiserslautern by small teams of students. It is almost impossible to put together the whole portfolio. Former students put together a website (www.mhk-automobile.de) where a small sample of the cars they built are presented. Alexander is also working on a book focusing on the prototypes from Kaiserslautern.

RUDI EDINGER AND HIS DREAM COUPÉ

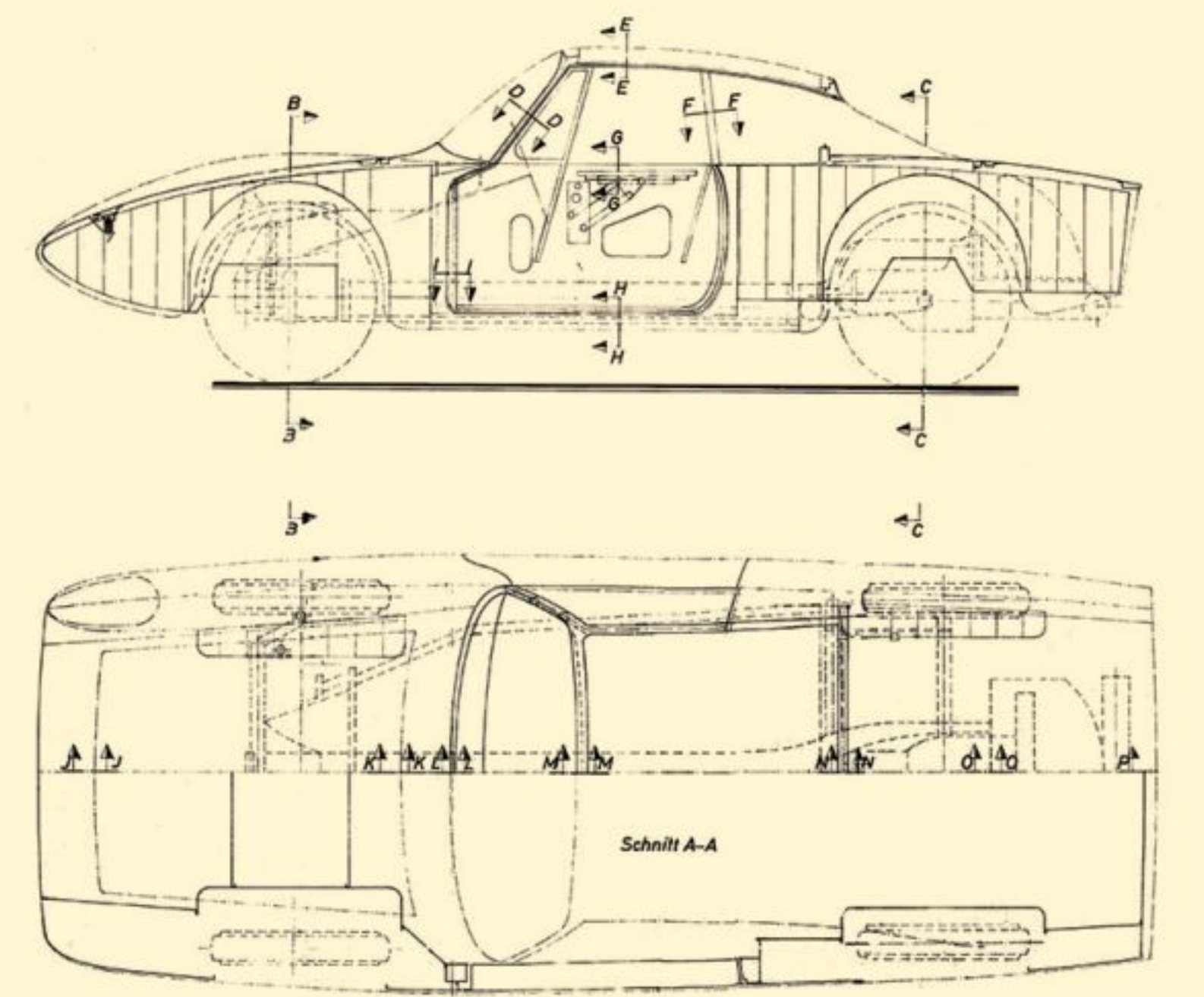
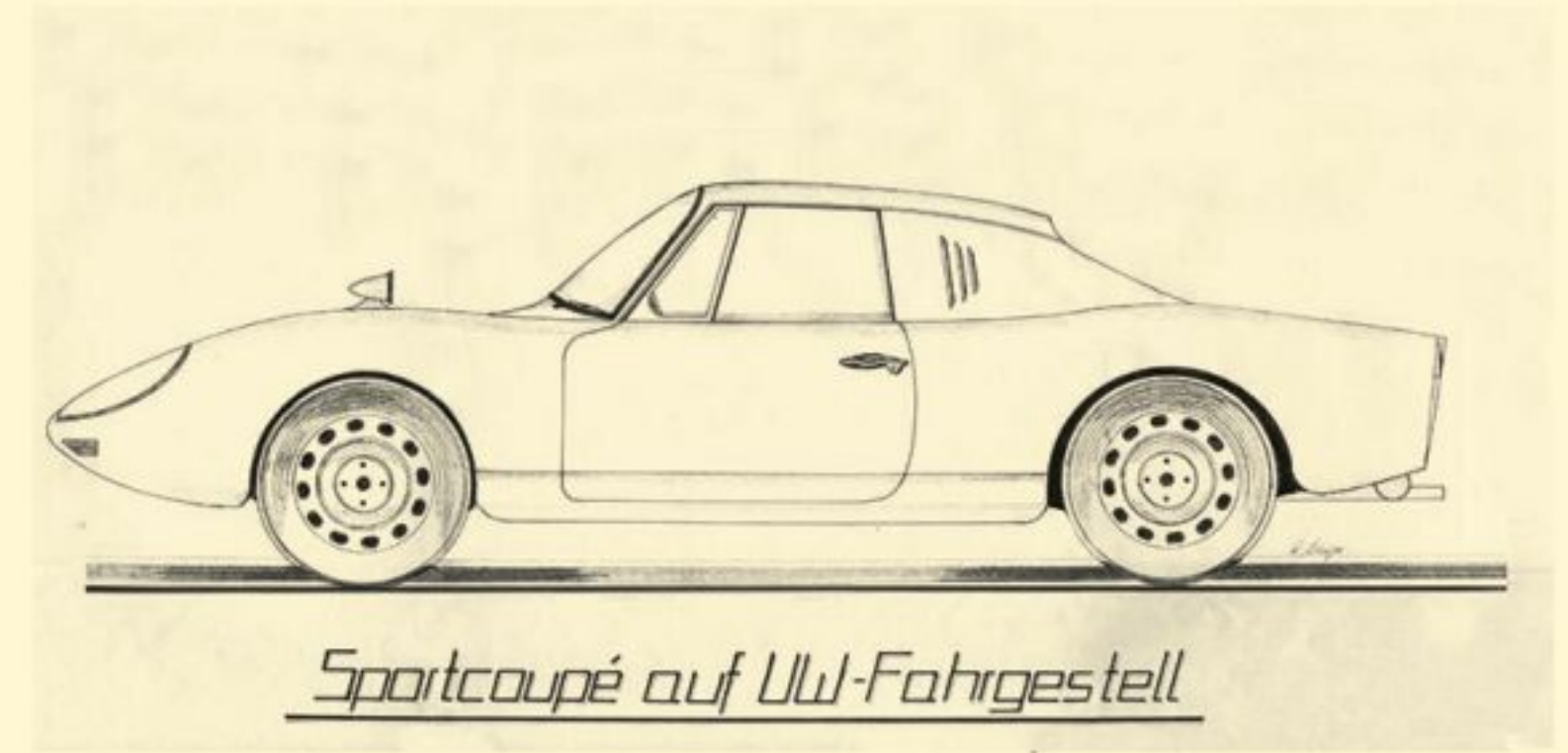
At the age of 84, Rudi Edinger is still keeping busy. But he found time to talk with us about his dream car, built 54 years ago: “I modeled it after the Porsche 904. Back in the 1960s, this sports car was the centerpiece of attraction for a lot of car enthusiasts, and I was one of them.”

Unlike a lot of others he fulfilled his dream by building a car which looks a bit like the Porsche, but it is even more rare. Rudi Edinger was a car mechanic in the 1950s working at various Volkswagen workshops. He was not happy with doing just repair work. He wanted to learn more, do more. So in April 1966, he enrolled at the Meisterschule and took courses in the body construction department. There were two semesters: during the first he learned about theory, and during the second he was able to do practical work on an object. Students worked in teams. There were about four or five groups in the same training course, each with five to six participants, engineers, and craftsmen. While engineering students drew up drafts and detailed plans, the craftsmen candidates fulfilled clearly defined tasks, which were assigned to them. For example, one team made the sills, the front fenders, and the hood. Another built the rear fenders and a tailgate, and yet another the frame of the windshield, the rear windows, and the roof, and so on. Students had to finance their own donor vehicle. Luckily Edinger had a crashed Beetle at home. After deliberations with team members, he agreed to volunteer his Beetle and also bear the costs of the project. The team agreed that he would keep the car once the group passed the test – something students rarely had the chance for.

A building project usually lasted from October to Christmas. Edinger's group commenced work in October 1967. A lot

Combination of Volkswagen Beetle running gear and wet cobblestone results in very careful driving.

Rudi Edinger's original drawings.



Interior features cassette player which has also been restored.



Rear lights were sourced from a Karmann-Ghia Type 34.



Car was built in sections then welded together.

1 Stock Beetle engine came from a wrecked car.

2 When you have a cassette player, you need the right cassette...

3 Headlights came from a Renault Dauphine, while covers were Porsche items, suited to the altered proportions.



of midnight oil was burned. "Preliminary drafts and the first sectional drawings had to be drawn quickly so engineers could start with detail plans. Sometimes I drew at the kitchen table until three o'clock in the morning, only to get up around five o'clock and commute to Kaiserslautern on my motorcycle," Edinger remembered. Sometimes he also borrowed a car and visited nearby scrap yards and Volkswagen dealers. A crashed Karmann Ghia Type 34 donated its windshield frame. The school provided 20 sheets of steel for the body. Sometimes ingenuity played a part: somebody spotted a Porsche engine cover cooling grille at a teacher's desk. Soon the teacher was distracted by a student while another snatched the grille. An original Porsche 904 headlight cover was procured from a Volkswagen dealer, which was also a Porsche sales outlet. However, the plexiglas covers were way too big for this design and had to be reshaped. Headlights were sourced from a Renault Dauphine.

Edinger and his fellow students worked feverishly. By June, 1967 the body was completed but it took another year for the whole car to be finished. After about 600 hours of work came the final test. School officials closely scrutinized every completed car, checking the doors and hoods to see whether those fit as intended, and whether the crank mechanism of the side

windows was functional. Fortunately, in the short construction time frame, these masterpieces did not have to be painted.

One day after his 30th birthday, Rudi Edinger held the master craftsman's certificate in his hands. Shortly afterward, he picked up his sports coupé. He had it painted in champagne yellow for 30 marks by painters' students at the school as "I was on good terms with the paint supervisor. We carried out the preparatory work and intermediate steps, such as the grinding, ourselves."

Due to family reasons, Edinger only drove his masterpiece for three years. Later it was stored in a barn, partially dismantled. Edinger's plans to restore it with his son did not come to fruition. But he found Alexander Fritz's books on the Lindner Coupé and the Colani GT fascinating and decided to hand over the car to him.

Fritz took great pains to restore the car properly. "Rust had crept in at really unexpected places. As the car was built in pieces and welded together, sometimes water leaked through the seams, which did a number on the bodywork." Having the original builder around was a great plus, so smaller parts could be identified. Restoration has recently been completed,

and Rare & Unique Vehicles was the first magazine invited to check out the results. It was a very windy and rainy afternoon on the outskirts of Vienna when Alexander Fritz showed up for the photo shoot. The car, which is identified just as a Volkswagen Eigenbau (One-Off Build) in its logbook, has a whiff of Italian exotics in its look combined with a Porsche feel. With the striking yellow paint, it immediately draws everybody's attention. I was extremely careful as the skinny tires, the Volkswagen running gear, and a tail-happy setup on the wet cobblestoned streets was not the ideal combination to sample the car's abilities. However, it was remarkably comfortable for my lanky figure.

The Volkswagen Eigenbau is a great demonstration of the craftsmen's capabilities and a testimonial for a great school. Recently, more and more Kaiserslautern "masterpieces" have come to light. A BMW-based coupé is being restored in Germany, while several have been unearthed in America. Apparently a Kaiserslautern-based Volkswagen dealer financed many project cars at the school, which then were shipped to America where his friend (who became a butcher there) sold off the finished pieces. Another story to be told in a future issue of Rare & Unique Vehicles. Stay tuned! ♦

Technical Data

VOLKSWAGEN "EIGENBAU" 1967-1968

ENGINE:

Four cylinder, four-stroke, flat

Bore: 77 mm • Stroke: 69 mm • Capacity: 1276 cc

Maximum power: 29 kW (40 PS) @ 4000 rpm

Maximum torque: 86 Nm @ 3000 rpm

DIMENSIONS:

Wheelbase: 2400 mm

Length: 4160 mm • Width: 1600 mm • Height: 1270 cm

Kerb weight: 820 kg • Tires: 165-15

Maximum speed: 128 km/h

THE FIRST PORTUGUESE CAR PRODUCED IN SERIES

SADO 550

Entreposto, a Portuguese industrial and commercial group, turned the adverse effects of the 1973 oil crisis to its advantage and developed an indigenous car with 70 percent local content. Teófilo Santos wrote a book on the car. He summarized the story for us.

Photos: Bernardo Lúció and archive.

*This is a second-generation prototype,
which has been on the road for 40 years.*

*Large rear glass helps identifying
the exact model variant.*





Entrepoto's assembly facility in Lisboa.

THE XIMBA PROJECT

Entrepoto began in the 1920s as an agricultural company. The name Entrepoto was first used in 1943 for a holding company. After World War II, Entrepoto ventured into the automotive business, first, in 1947, by distributing Mercedes-Benz and Peugeot vehicles and then, in 1967, by assembling and selling Datsun cars.

The 1973 oil crisis led to a drastic drop in sales, which prompted company leaders to approach the sector from a different angle – by developing an indigenous small car for the urban and suburban populations.

This is how the Ximba Project began in 1975. By 1978 the major parameters were defined. Four years later the Sado 550 was born.

DEVELOPMENT OF THE SADO

It was decided from the beginning that the car would have only two seats, as this was the only way to achieve really small proportions. The Ximba project was not to be a new family-size car, but rather it was aimed toward those families where only one or two people travel regularly, e.g. commuting to daily jobs. Its length was to be the same as the width of a "normal" car. This meant that the body would be truncated at the rear.

The first prototype had only three wheels due to the low power of locally built engines, as well as for cost reasons. Both 50-cc and 125-cc engines were tested, but these did not have suitable performance. For stability, the designers soon realized, four wheels were better than three.

The engineers tried various motorcycle units, mostly of Japanese origin, with capacities ranging from 125 to 350 cc, using both two- and four-stroke types. While performance was acceptable, the torque curve was not ideal for a car with a chain-driven transmission, and there were fuel consumption issues as well.

Eventually a passenger-car engine was selected: Daihatsu's two-cylinder, four-stroke AB20 engine. This 28-hp 547-cc unit was slightly more expensive, but it fit all the criteria perfectly. The body was made of polyester reinforced with fiberglass, which provided the small car with sufficient strength and rigidity.

After four years of intensive development and an investment of millions of escudos (the currency of the time), the first phase of the project was completed.

With the right engine, the specifications of the Sado had been defined. It took another three years for every component to be produced locally and thoroughly tested.



The first Sado prototype was tested at Estoril circuit.



Aerodynamics were tested by gluing yarn strips to the body.

PROTOTYPES

Eventually three different series of prototypes were built:

- The initial prototypes were narrower, with smaller tracks and a lot of prototype components.
- The second series featured a curved front windshield, higher doors lined with black nappa, an improved braking system, and running gear suited for different road conditions.
- The third generation was distinguished by a smaller rear window and better storage behind the seats. The larger rear window used on the earlier series gave a good view of the luggage compartment. On the outside, some aesthetic and aerodynamic details of the car were changed, such as rounding the edges and adding a small front deflector that incorporated the number plate. Inside, the dashboard was redesigned, and the doors were enlarged once more to make the access even easier. The inner linings were omitted. Mechanically, changes, although important, were not easily perceptible. Basically, this is the car that went into serial production. Most were white with black bumpers.

SADO 550

The Sado 550 was launched in 1982, priced at around 262,125 escudos (about EUR 1,307). Although initially successful,

with even a growing waiting list, production lasted for only two years. About 500 cars were built. Apparently, it was not profitable to build such a very small car. Today the car is almost unknown outside Portugal and has been mistakenly compared to quadricycles (see RUV No. 2).

FEATURES

It may not be beautiful, but the functional aspect overrides the aesthetics!

The body concept took into account the technical and economic limitations of series production, without losing the basic idea of a city car. Six elements can be distinguished. The central element was the passenger compartment itself, to which the front and rear panels were added, forming the mud guards (from the third series onward). The other three elements were the two doors and the hood. The passenger compartment was protected by a tubular steel safety structure integrated into the bodywork. The bumpers, and the support structure for the grille and the headlamps, were made of high-resistance polyester resin.

Inside, there was generous space for two people. The seats, of classic design, were lined in synthetic nappa leather. They were adjustable fore and aft, so it is easy to find a comfortable position. Access to the vehicle was good, but



Sado and Smart - same concept 25 years apart.

there is no door for the trunk, and placing larger items in the storage area behind the seats can be difficult. Although both seats recline forward, they do not lock in the reclined position. The dashboard is simple. In front of the driver is the instrument panel, while the whole of the right-hand side is taken up by a storage bin. The instrument panel includes a speedometer with kilometer totalizer, petrol gauge, water thermometer, indicators for blinkers, and five warning lights (third series), only two of which are active: insufficient oil pressure and battery charge.

In the center below the dash, there's a small console with an ashtray, an air and windscreen wiper button, a light switch, an ignition key, and space for a radio (third series).

The steering wheel is sporty, supplied by De Moura. It has three metallic perforated spokes, 14 inches in diameter, with a horn in the middle featuring the logo of the steering-wheel brand. The ring has an appreciable thickness and is covered with synthetic leather. On the steering column, there are three levers: on the left, the headlight high-beam and indicator selector, and on the right, the single-speed wiper.

The gear lever is short and mounted high, due to the tunnel over the gearbox and driveshaft.

The only form of ventilation is provided by the two longitudinally sliding windows. Still, it's easy to find just the

right amount of air to cool the occupants.

With a power-to-weight ratio of 17.86 kg/hp the Sado gets from 0 to 100 km/h in 19.2 seconds with a maximum speed of 100 km/h.

My general impression is that the Sado can easily keep up with the pace of big-city traffic, as it has a lively and elastic engine, the gear ratios are effective, and the steering is very direct. The short wheelbase gives it remarkable maneuverability. With rigid axles, both at the front and rear, the wheels are always parallel, which makes it turn very well. Parking is one of its great attributes, as it can be packed into tiny spaces. Short as it is, it can't be parked perpendicular to the curb, because its length somewhat exceeds the width of a normal SUV.

Soundproofing is far from satisfactory, due to engine and tire noise.

In spite of being an almost 40-year-old car, the Sado 550 still works, and its appearance makes us proud. It is an example of national automotive engineering, the only one conceived from scratch in Portugal. The Sado 550 occupied a particular place in the Portuguese market, used in fleets and by small distribution companies. It remains an excellent example of a genuine city car. ♦



1



2



3

1: Steering wheel was supplied by a Portuguese firm, De Moura.

2: After a lot of tests a Daihatsu engine was eventually chosen.

3: This Sado has been recognised by Fiva, the Portuguese Old Automobile Club and Museo de Caramulo as well.

4: Fuel filler is hidden behind number plate.



4



JOHN BRADSHAW

... ARRIVED IN LONDON over 70 years ago and subsequently wrote books and articles concerning mathematics and education. Columns and articles for motorcycle, car, and cycle magazines have always been written in his spare time. He was Chairman of the Ariel Owners Motor Cycle Club in the 1980s. After teaching in schools and then university, he moved to Malvern, UK, and established JRB Publishing. He continues to enjoy performing both on stage and on track, still having far too many projects on the go.



VINCENT DE ROSSI

... WAS BORN IN NORTHERN ITALY; however, he was raised and educated in Melbourne, Australia. As a consequence, he was deeply immersed in street-machine and street-racing culture. Motor racing runs through his veins, which led to an association in the early 1990s with the Simtek and Minardi Formula 1 teams. He is a voracious reader of anything car related, with a particular curiosity for documenting and researching its history. He currently works as a freelance journalist for several national and foreign publications and is a full member of the Society of Automotive Historians as well as a member of Automotive Historians Australia.

New authors in this issue:



GRAHAM CARL ARNOLD

... WAS BORN AND RAISED IN LEIGH-ON-SEA, England, in 1954, but has spent all his adult life in Spain. He developed a keen and genuine interest in motor vehicles at a very early age. He shares his home with a vast collection of books covering the history of motor vehicles, and manufacturers' brochures, which he started obtaining as a teenager. At the same time he was also building up a collection of "bumph" – press releases and photographs – given to his late father by a freelance motoring journalist. He has contributed articles to different motoring websites but still prefers the old-fashioned paper versions for writing: books and magazines. Now living in retirement in the southeast of Spain after a career in teaching, he dedicates his longed-for free time to researching and writing about a diverse array of motoring topics, marques, and models.



DR MARK MOSKOWITZ

... IS A RETIRED SURGEON, RACER, AND CAR COLLECTOR. He serves as Vice Chairman of the Board of Directors of The Motor-sports Hall of Fame of America and is a frequent contributor to multiple motoring publications. Dr. Moskowitz is a member of International Chief Judge Advisory Group and has been privileged to judge at multiple concours throughout North America as well as in Düsseldorf, Germany; Knokke-Heist, Belgium; and Delhi, India. He has served as chief judge at the Monticello Race Car Concours, the Trump Charlotte Concours, and the Miami Concours.



TERRY WRIGHT

... HAS BEEN RESTORING, WRITING about, and competing on two-, three-, and four-wheel machines for over 50 years. He lives in Sydney but spends most summers in a motorhome in Europe. His definitive history of the big-twin Cooper, *Power without Glory*, was published in 2015 and was Book of the Month in Octane magazine as well as receiving an Award of Distinction from the Society of Automotive Historians. *Speed Monarch*, a history of the absolute motorcycle speed record before World War II and the life of Eric Fernihough, is expected to be published late in 2022.



SARAH MORGAN-WU

SARAH MORGAN-WU has been involved in research, data-gathering, authorship, and publishing related to the history of automobile racing for more than 20 years. She and Jim O'Keefe have co-authored several books and combined their skills in private research and publication projects on specific historical race cars for individuals and institutions: including the history of Peugeot L45-01. Available for sale in 2022 from this duo will be a comprehensive history of all Duesenberg racecars; followed by a history of all of the Peugeot race cars.

JAMES O'KEEFE

JAMES O'KEEFE is an automobile racing researcher, statistician, and historian, who has honed and refined his encyclopedic knowledge of the sport for over 50 plus years. He is an award-winning author of several books and articles specific to racing in America prior to WW II. He curates and maintains an extensive personal archive of original source materials and images related to the history of automobile racing and partners with Sarah Morgan-Wu on specific vintage race car history projects for individuals and institutions. He is a leading authority on the great racing marques of Duesenberg, Miller, Frontenac, and Peugeot.



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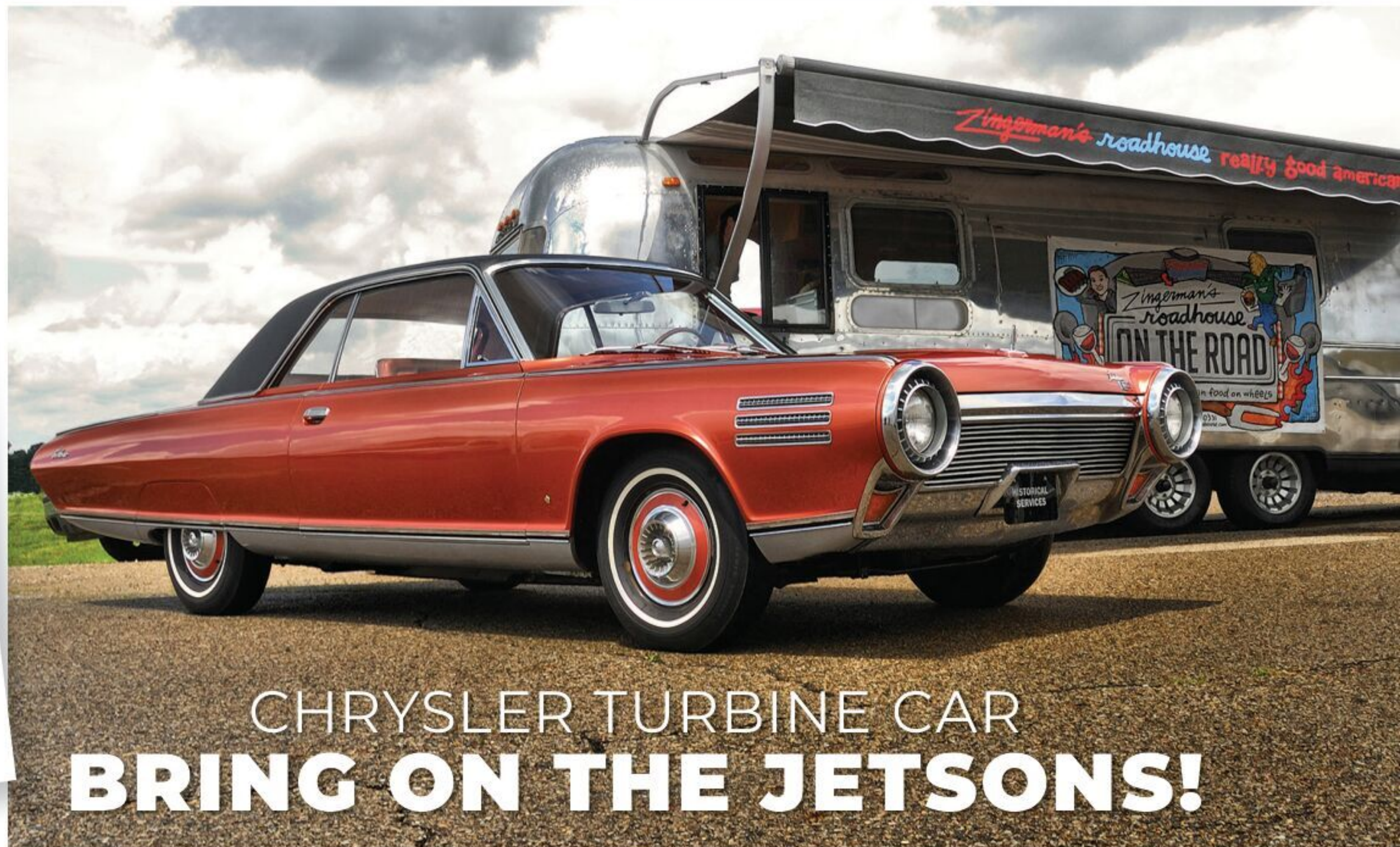
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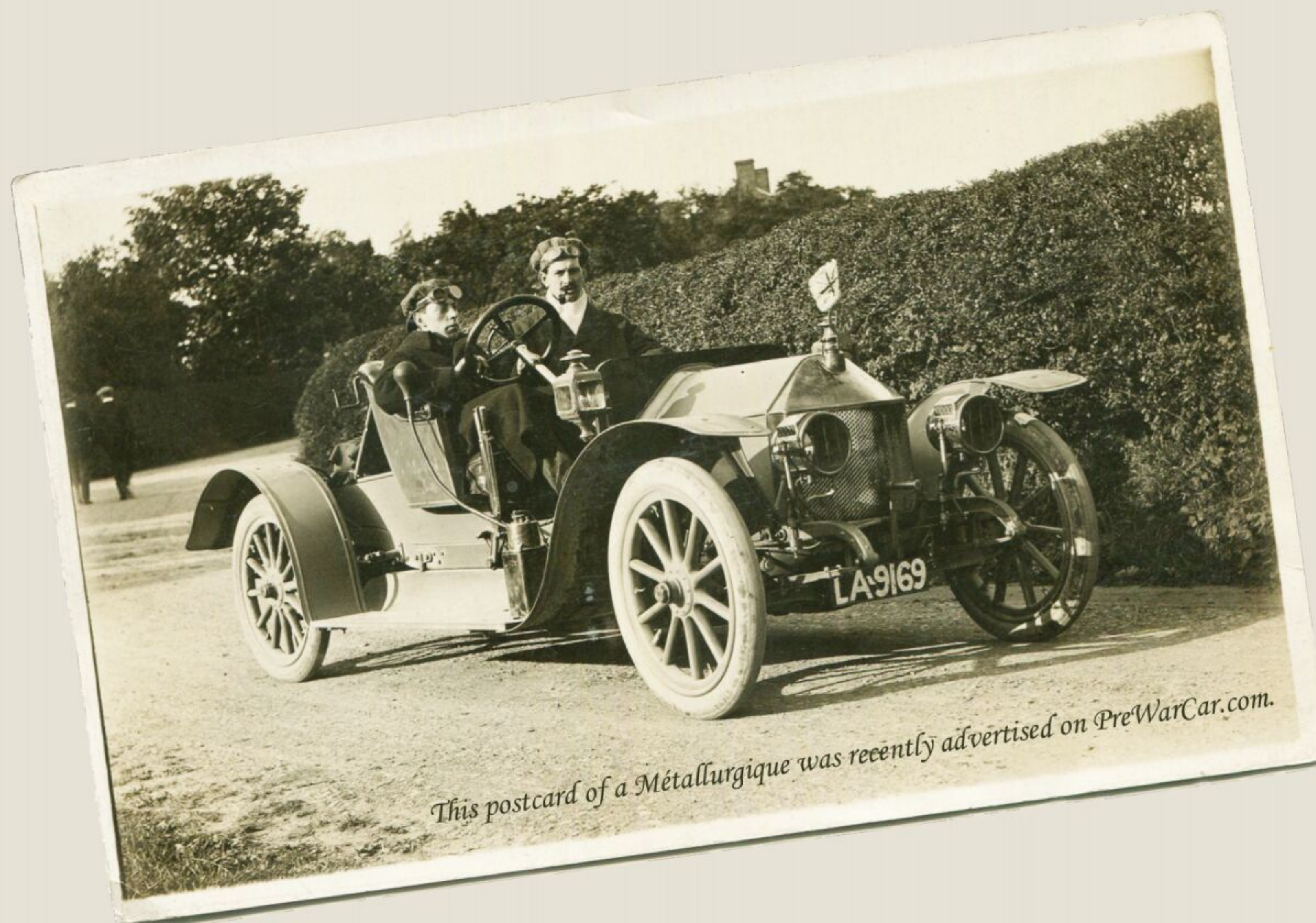


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