

The official newsletter
of: Revs Institute
Volunteers

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*Thank You to
this month's
contributors:*

- Bill Vincent
- Whit Turner
- Joe Hauser
- Whitney Herod
- Joe Ryan
- Chip Halverson
- Tom Dussault

TAPPET CLATTER



Volume 29.4

December 2023



Chairman's Notes

By Chip Halverson

As we close the year I wanted to share some exciting, upcoming things at Revs. We are expecting three new exhibits in the coming year showcasing a very rare model on loan that complements two existing display cars and a recently obtained automobile known for its futuristic technology and styling.

The third display will be an educational, live-action exhibit much like the hand painting of the 1919 Delage completed on the third floor mezzanine. This popular display taught the exacting detail that artisans supplied over 100 years ago to these cars. Skills still valuable today in the hands of our talented restoration specialists.

You will be hearing much more about these cars with Volunteer training so we can share information about these displays with our guests in the near future.

Also, for the new year, a series of one-hour specialty tours will be kicked off. The first two are currently under development for early in the year.

(Continued on page 2)

Chairman's Notes... continued

(Continued from page 1)

These will be more narrowly focused than our general two-hour tours. The goal will be to present the collection so that guests who have been on a general tour will hear different content from a different perspective. Specifics to be announced shortly.

Finally, I would like to wish you and your families a very Merry Christmas and a Happy New Year!

Chip Halverson

Membership Report

By Tom Dussault

As we approach the end of another year, we review those new members brought on board during 2023. The Membership Committee interviewed fifteen potential new volunteers. Thirteen were approved. Two resigned shortly after beginning training with their mentors. During 2023, we have brought onboard eleven new volunteers; six Station Guides and five Stewards. The two newest Stewards will attend Orientation in early December. We will welcome them to Revs Institute in the January issue of *Tappet Clatter*.

One of the best ways of recruiting is among the many guests who visit the museum each day. Please keep some Revs Institute volunteer business cards in your wallet to hand out to anyone you believe may be a good prospect. Please see Whitney or a committee member for a supply of cards. And please don't forget that we have opportunities as Stewards for those young people who do not have the time to learn the collection but wish to serve while earning volunteer hours towards their degree. Many of you have been doing this all along and we appreciate it. And we ask that Docents and Tour Assistants continue to explain the volunteer opportunities to tour members who seem well suited to the role. We really appreciate your help! Have a wonderful holiday season.

TAPPET RIVIA

By Joe Ryan

This section is devoted to questions about the Miles Collier Collections cars or cars of the same period. Some of the questions might be a bit (very) obscure or (impossibly) tricky. Test your knowledge and *have fun!*

The trivia questions for this month's issue of the Tappet Clatter are a mix between the 1937 Delahaye and a 1948 Tucker.

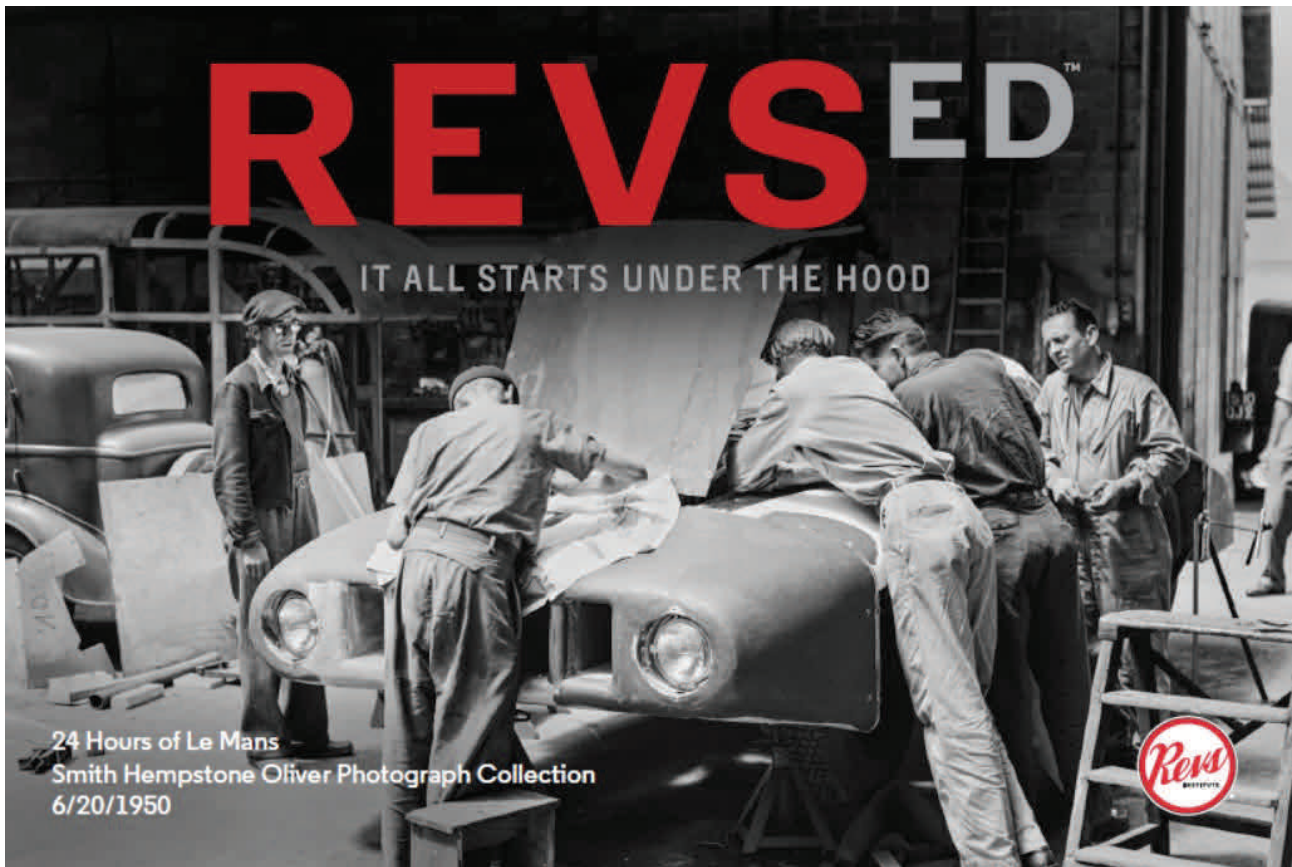
1. **Question:** The 1937 Delahaye Type 135 Special Roadster is without question one of the most beautiful cars ever designed throughout the Art Deco period. What automobile manufacturer encouraged Emile Delahaye to enter the luxury car market?
2. **Question:** What four features in the 1937 Delahaye were patented by Figoni & Falaschi?
3. **Question:** Was the 1948 Tucker the first automobile with a center headlight?
4. **Question:** Was the 1948 Tucker center headlight legal in all 50 U.S. states?

The answers appear later in this issue

Events Calendar

Event	Date	Info or contact
Vintage Brass Rally Tour	Dec. 4 @ 2:00 pm	Sign up on VicNet
Burns & McDonnell Reception	Dec. 12 @ 5:00 pm	Sign up on VicNet
Members Meeting	Dec. 15 @ 11:00 am	Sign up on VicNet
Lely Presbyterian Tour	Jan. 5 @ 10:30 am	Sign up on VicNet
Estero Newcomers Club	Jan. 12 @ 10:30 am	Sign up on VicNet
Naples Newcomers South	Jan. 12 @ 1:30 pm	Sign up on VicNet
Volunteers and Staff Banquet	Jan. 20 @ 5:30 pm	RSVP to Jan. Evite

For a full list of daily tour groups and events, go to the 'Calendar of Events' on VicNet.



24 Hours of Le Mans
Smith Hempstone Oliver Photograph Collection
6/20/1950

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HOW: -Small class size
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-Revs Institute Instructors

WHY: -Gain knowledge and confidence
-Meet like minded car lovers
-Have fun!

WHERE: -Revs Institute in Naples, FL



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revsinstitute.org/visit/register-for-classes/

Engines 101 Learn how engines work, how to use hand tools, and ultimately what makes an engine GO.

Engines 102 Perform diagnostic testing on all the major engine systems, including the starting, charging, ignition and fuel systems; then make the repair.

Brakes 101 Remove, inspect, and reinstall components, then flush and bleed the fluid in the hydraulic system.

Steering & Suspension 101 Remove, inspect, and reinstall all components. Learn how to evaluate tire wear and the importance of wheel alignment.

Electrical 101 Learn how all electrical components receive the proper voltage through specific wires at the push of a button.

Metal Fabrication 101 Learn how to design, cut, bend, and fasten sheet metal to construct a finished product.

Velocity Invitational

By Eric Jensen

This year's Velocity Invitational was held at Sonoma Raceway in California's wine country. It describes itself as;

The Velocity Invitational is a motorsports and lifestyle event dedicated to celebrating and experiencing the finest of vintage motorsport.

Given that description, of course some cars from the Miles Collier Collections would attend. Two familiar cars getting a lot of track time this years were the Porsche 917 PA and the Ferrari 250 LM (the Volunteers have missed you both!).

The 250 LM racing in the *production sports car class 1963 to 1969* had a tremendous battle with a Lotus 26R in races both days. An early win for the Lotus on day one set the stage for a second battle on day two. Gunnar Jeannette got by the Lotus with a masterful pass in the closing laps. The little Lotus was nipping at the Ferraris taillights at the checkered flag handing the 250 LM the win by only a fender. That was some great racing. The first days racing highlight action is available for viewing on Goodwood's YouTube site linked [here](#). The highlight pass on the day 2 livestream starts [here](#).

Again the Porsche 917 PA bested the field in the Can-Am race group in the hands of Gunnar Jeannette.



*Rami Garcia Photos
Courtesy of Revs Institute*



*The Tappet Clatter Staff
wants to wish everyone
Happy Holidays
and a Wonderful New Year
filled with inquisitive
Revs Institute Guests!*

Eric Jensen

Photo Courtesy of Revs Institute



**20% VOLUNTEER DISCOUNT
ON ALL
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Cars and Coffee

By Eric Jensen

CARS & COFFEE | NOV 2023



The fall 2023 Revs Institute Cars and Coffee has come and gone. While the event was a bit smaller than the spring event, the turnout was still very strong. It is quickly becoming a “go-to” event for car enthusiasts and their families. Lots of interesting cars, some arriving before the sun came up!

276 guests came into the museum and, if my observations were any indication, the gift shop was very busy. It was a very successful day!



Photos Courtesy of Revs Institute

Bertha Benz

Renaissance Woman, Automotive Icon, & The First Automobile Driver

By Joe Hauser

Bertha Benz was an unusual 19th century woman. Not only did she have an interest in science and technology, but she pointedly defied the widely held belief that women were only qualified to raise children. She was, in fact, a renaissance woman who was gifted with intelligence, curiosity and analytical ability – and, perhaps even had a bit of a chip on her shoulder.

To understand what Bertha was up against, you just need to read this following quote from a 19th century science journal: “Scientists were in agreement that the lighter brain of women was logically unable to absorb and process as much information. Moreover, thinking too much was harmful to their childbearing ability.”



Bertha Benz

The Implausible Marriage of Bertha Ringer and Carl Benz

Bertha Ringer was attractive, clever and socially accomplished when she reached a marriageable age (“match’ time!) And given that she was from a wealthy family, there was a long list of suitors. However, as fate would have it, during a coach excursion organized by the “Eintracht” club in June 1869, Bertha and her mother became acquainted with Carl Benz.

Benz was a brilliant visionary and Bertha was captivated by his personality. Because Carl was raised by a single mother (his father died when he was two), he respected women, and talked with them as equals, which was quite unusual in the Victorian era.

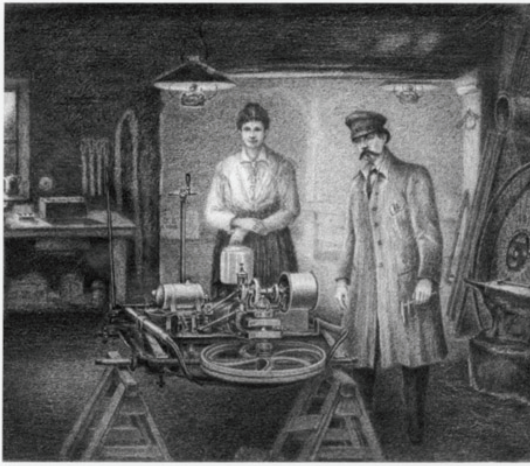
Bertha was thrilled to be talked to, without the condescending tone that was normal with the other men she met. Carl was also impressed because she showed an interest in science and technology. However, because Carl was penniless, Bertha’s father strongly voiced his unhappiness with her choice, warning her that poverty is difficult; “You can’t live on dreams.” Bertha was not deterred, and actually funded Carl’s new company before they got married.

Bertha was strong-willed, enthusiastic and had complete confidence in her husband’s engineering genius. Bertha was not only Carl’s wife, but she was his business partner as well, which was quite unusual in that era. She was the sounding board for his ideas and often assisted Carl with mechanical problems.

(Continued on page 9)

Bertha Benz...continued

(Continued from page 8)



Bertha and Carl in the workshop

As Carl would say later in life, she gave him the courage to continue, even in the darkest of times - which was often in the years leading up to his patent in 1886 of the three-wheeled Patent Motorwagen.

Carl's Perfection and the Need to Profit

Once Carl received his patent, he continued to work hard at improving the technical capabilities of his Motorwagen and Bertha continued to watch and encourage him. Even though Carl was a mechanical visionary/genius, he was a lousy businessman, and certainly not inclined to market his invention. Month after month, Bertha watched Carl make

one improvement after another. These improvements resulted in an upgraded Model 2 Patent Motorwagen, and then, after more improvements, the Model 3.

Bertha was anxious to show the world what Carl had created and she also wished to profit from all their hard work by selling a few Motorwagens, as until now, all the cash-flow was negative. However, these discussions always ended with Carl "wanting to fix one more thing!"

After months of coaxing, Bertha decided to take matters into her own hands. She came up with a plan to demonstrate the potential of Carl's invention. She would drive from their house in Mannheim to Pforzheim, where her mother lived; a remarkable distance of 106 kilometers. She rightly reasoned that this would be a newsworthy story that would produce invaluable publicity for their little known invention.

She also reasoned that Carl would not approve of such a risky adventure, so she devised a secret trip to accomplish her aims. She also made the smart decision to take along her two oldest sons, Eugen and Richard even though they were just 13 and 15 years old, because she knew that they could be invaluable in overcoming any obstacles encountered on this first-ever journey of a self-powered automobile.

The First Long Distance Journey in a Horseless Carriage

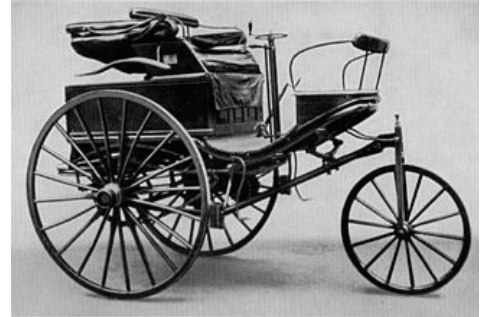
At dawn on August 5th in 1888, Bertha and her two sons pushed the Benz Patent Motorwagen Model 3 down their driveway. Not wanting to wake Carl, they moved out of earshot before they started the car. Bertha had left a note in the house, which assuredly shocked Carl when he got up to find Bertha, the boys and his Patent Motorwagen gone.

(Continued on page 10)

Bertha Benz...continued

(Continued from page 9)

To say this excursion was a bold undertaking on Bertha's part would be a huge understatement. In 1888, there were no road signs or road maps! Streets in the modern sense did not exist (although she was able to drive on several miles of paved Roman roads between Ladenburg and Heidelberg). In rural areas, there were only dirt roads with two deep ruts from the wheels of the horse carriages. To make matters worse, the center front wheel of the three-wheeled Motorwagen had to bump along over turf dug up by the horses' hooves.



Benz'Patent Motorwagen Model 3

Very early in the trip, they discovered that Carl's new automobile needed another gear, because it could not climb the steep hills that they encountered. This is where the boys earned their keep. They got out and pushed the car up the hills while their Mother steered.



The first-ever gasoline filling station at Weisloch today, with the monument to Bertha Benz and her journey

Another early complication occurred when Bertha realized that they needed fuel. Because Carl had not planned on taking any long trips, there was no fuel tank, just a large carburetor bowl. So, Bertha had to stop at an Apothecary (or, Pharmacy, to us) in Wiesloch and buy several liters of ligroin (an ether-like cleaning fluid). This Apothecary still exists and is now preserved as the "First filling station".

Besides the fuel tank, another critical missing item on Bertha's car, was a radiator! The engine heat was removed by a total-loss evaporative cooling system. This meant that her boys had the chore of periodically finding water to replenish the engine reservoir.

About one third of the way into their trip, the chain drive needed fixing, so they stopped in Brauchsals and had a blacksmith repair it. As well as being the driver, Bertha acted as mechanic on the drive, fixing several problems "on the spot." The time she spent in Carl's workshop, while simultaneously raising five children, gave her the background to be able to fix all the mechanical problems that occurred on this remarkable trip.

When the fuel line clogged, she used her hat pin to clean out the hose. When there was an electrical short in the ignition system, Bertha took off her garter and wrapped it around the bare wire.

(Continued on page 11)

Bertha Benz...continued

(Continued from page 10)

Bertha also found that the steep downside of the hills quickly wore out the primitive wooden block on the brake. To eliminate this, Bertha stopped at a cobbler in Bauschlott and asked him to nail leather on the wooden block, thus fashioning the first brake lining! With her fortitude, mechanical ingenuity and the occasional push, Bertha and her boys completed the trip and arrived in Pforzheim just before dusk on the same day. She notified her husband about her successful journey by sending him a telegram. Three days later Bertha and the boys returned to Mannheim following a different route, which had fewer hills.

A Marketing Triumph!

In each of the 45 towns that Bertha passed through during her round trip, large crowds of people surrounded this strange and noisy machine. Local newspapers reported on the event and word spread throughout Germany (and eventually around the world) about the crazy woman who made a long, impossible trip in a Benz horseless carriage. With this secret trip, Bertha had achieved her goal. The public now knew of the vehicle's reliability and the Benz Patent Motorwagen was the talk of every town.

Bertha's audacious journey proved that gasoline-powered vehicles were here to stay. In fact, single-handedly, Bertha had changed the perception of the automobile as a toy with no value, to a functional transportation tool. This led to untold publicity for the Benz Company (as well as other gasoline engine vehicle manufacturers).

Carl Benz's Model 3 Patent Motorwagen then made its debut at the 1889 World's Fair in Paris which also featured the new Eiffel Tower. Bertha and Carl were able to sell about twenty-five Motorwagens in the next four years. Eleven years after Bertha's trip, Benz became the largest auto company in the world, selling 572 units in 1899.

Aftermath

The story of Bertha Benz's first long distance trip has been told repeatedly for over 130 years. There are detailed articles of her trip on a myriad of websites, including a documentary movie and a couple of short films about the trip. Both Daimler.com and MercedesBenz.com have detailed articles on Bertha and her contribution to the development of the automobile. Of the many websites, the most avid is "Bertha-Benz.de". This site is run by volunteers who lobbied the German government to have the Bertha Benz Memorial Route declared a Scenic Route.

After this first-ever road trip, Carl Benz validated Bertha's role by saying "She was much more courageous than me, and went on a decisive trip for the further development of the motor carriage." Our view today, however, is that the world's FIRST real automobile driver was a woman, a remarkable woman named Bertha Benz.

Sebring, IBM and Briggs Cunningham

By Whit Turner

We all know Briggs Cunningham was multi-faceted and multi-talented. But a computer jockey? To the right is a picture of Briggs Cunningham sitting at the console of the IBM RAMAC 305 computer watched over by the President of Sebring International Raceway, Alec Ulmann. Read on for the rest of the story.



IBM Archive Photo

The 1960 12 Hours of Sebring was a tumultuous event and marked with controversy. Ulmann, the founder and president of Sebring, had decided to make Amoco the exclusive fuel

provider for the race. The Ferrari factory team already had a fuel agreement with Shell Oil. Porsche had a similar deal with British Petroleum (BP). Because of this, both factory teams refused to participate in the race. Ulmann flew to Modeno Italy to try to convince Enzo Ferrari to change his mind, but to no avail.

As a solution, Ferrari shipped their factory race cars to importer Luigi Chinetti to race under his North American Racing Team logo. So now the Ferraris could race as a private entry, not under the factory banner.

That solution was not available to Porsche as they did not have a private team in North America. Porsche's workaround was to "lease" two of their race cars to Swiss driver, Joakim "Jo" Bonnier.



The Jo Bonnier #42 Porsche entry and eventual winner of the 1960 Sebring 12 Hours.

Jo entered two RS-60 Spyders as a private entrant with some help from Porsche factory mechanics. The mechanics were allowed some holiday time around the race date since the factory team would not be attending. Coincidentally, all chose a Florida holiday during that break.

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Sebring, IBM and Briggs Cunningham...continued

(Continued from page 12)

Since factory drivers Graham Hill and Hans Herrman were technically "unemployed" due to the boycott, they also decided on a Florida holiday! Oliver Gendebien was lined up as Herrman's co-driver for the race.

Then the FIA ruled that some of the open GT cars could not compete with cut-down windshields and had to have something resembling factory spec. Same for the minuscule luggage compartments. This caused a last minute scramble for some of the teams, making hasty modifications for compliance. This affected Denise McCluggage's O.S.C.A., and the Birdcage Maserati of Rees Makin, among others.



Denise McCluggage and Stirling Moss

Into this chaotic mix came International Business Machines. IBM was publicizing its brand by bringing computers to popular sporting events. They had previously provided systems to score the 1960 Olympic Winter Games and wanted to use Sebring as a showcase for auto racing. The idea was to provide real-time stats for Timing and Scoring (T&S) and Ulmann, ever the promoter seeking good publicity for his race, was on board. IBM flew some 50 technicians to Sebring and shipped one of its one-ton 305 RAMAC computers to the venue. The computer was installed in 2 spare pit bays, one of which was sealed off and portable air conditioners were installed to keep the behemoth cool in the Florida heat.

The IBM 305 RAMAC had been introduced in 1956. It was the first computer system with a rotating disk storage unit. The storage unit had fifty 24 inch rotating platters and moving read/write heads. This provided a storage capacity just under the equivalent of 5 Megabytes. To put this into perspective, a modern smartphone would have a memory capacity 12,000 to 25,000 times larger and fits into your pocket.

IBM sold or leased over a thousand of the systems until 1961 when production ended. It was one of the last computers to use vacuum tubes! Its first use in the automotive industry was at Mopar, Chrysler Motors parts division in 1957, for parts and inventory control.

Joe Lane, the track's chief of T&S, was highly skeptical that IBM could pull it off, and he was proven correct, at least at first. The computer system was spitting out nonsensical results during trials, so Lane and his team had their stopwatches, clipboards and paper ready for the main event.

(Continued on page 14)

Sebring, IBM and Briggs Cunningham...continued

(Continued from page 13)

As it turned out, IBM was able to correct the glitches and got the computer to post accurate stats, but it was not without some angst. The 12 Hours of Sebring in 1960 became the first major race to be scored by computer!

There were a few significant events that occurred during the race. The fifth lap was witness to a tragedy. The Lotus Elite driven by Jim Hughes lost control and struck and killed photographer George Thompson. The Lotus then rolled and killed Hughes. The C1 Corvette of John Fitch and Briggs Cunningham lost a wheel, rolled several times and was destroyed. The track was so hot that tires were wearing out at a record pace and some 90 spectators had to be treated for heat related illness. Many of the entrants' cars were retired due to mechanical failures. The controversies along with low crowd turnout prompted some auto journalists to wonder if this might be the last Sebring. The winning drivers pocketed \$3,000.



Briggs and John Fitch's 1960 Corvette C1 after losing a wheel. Sebring International Raceway

This brings us back to the photo of Briggs at the console of the RAMAC with Alec Ulmann leaning over. It was strictly a publicity shot and Briggs had little to do with



In another publicity shot, the winning Porsche RS60 team of Oliver Gendebien and Hans Herrmann were photographed, along with Ulmann in the center posed behind the RAMAC console.

Sebring International Raceway Photo

the installation or operation of the system. IBM marketers knew that Briggs had tremendous cachet with the public, having been named Time Magazine's Man of the Year in 1954, skipper of the winning boat in the 1958 Americas Cup, and his impressive auto racing history.

Much more on the race is available [here](#).

Video Treat

The IBM
RIMAC
305 Story



Lucas, Britain's Automotive Supplier

By Bill Vincent

Alright, I'm guessing you've heard all the jokes - especially if you've actually owned any British cars!

Joseph Lucas - The Prince of Darkness.

Joseph Lucas - Father of the intermittent wiper.

Why do the British drink warm beer? - They have Lucas refrigerators!

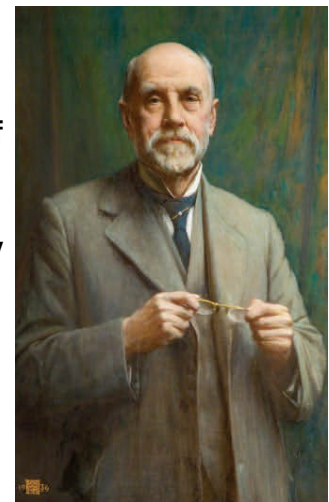
Why don't the British build computers? - Lucas hasn't figured out how to make them leak oil yet! (One of my favorites!)

Lucas certainly has carried the brunt of a LOT of ribbing over the years! But was it all really justified? After all it was the mainstay of British automotive electrical



components for years, supplying MG, Triumph, Jaguar, Aston Martin, Lotus, Rover, Rolls Royce, Bentley - pretty much EVERYBODY!

This electrical giant had very humble beginnings though. Joseph Lucas (*left*), the namesake who's the brunt of most of those jokes, started out selling paraffin oil from a cart in the 1850s. In 1860 he founded the company that would be Lucas Industries, which his 17 year old son Harry (*right*) would join in 1872.



Harry was one of six siblings and would really be the one who grew the company from first making plant pot holders and scoops and buckets, to the Lucas we all poked fun at as British car owners!

"KING OF THE ROAD"

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WILL NOT BLOW OUT.

These Lamps have proved themselves through six years' use, and their users need have no apprehension with regard to the proper illumination of the motor phase. The large size Lamps are fitted with two white lenses, making them adaptable for British or Continental use.

Standard	No.	Price	
Standard	430	Improved (Patent Pattern) ...	£1 8 0 each.
Standard	432	Improved (Patent Pattern) ...	1 8 0 "
Standard	434	All Glass ...	1 10 0 "
Standard	436	All Glass ...	1 15 0 "

LARGE SIZE.

Height, 10 in. (that adds 1 1/2 in.) Burner, 3/4 in. Position, Same as above. 2 in. Standard structure.

With a 1 in. red back light and 1/2 in. white lenses for motor phase and indicating light.

Standard	No.	Price	
Standard	430	Improved (Patent Pattern) ...	£1 8 0 each.
Standard	432	Improved (Patent Pattern) ...	1 8 0 "
Standard	434	All Glass ...	1 10 0 "
Standard	436	All Glass ...	1 15 0 "

Use GOOD Petroleum and Clean Dry Wicks.
Remove Lamp when working Car.

The management of the company fell more and more into the hands of Harry and, in 1880, Joseph Lucas received a patent for The King of the Road bicycle lamp (*left*) that made the company's name and fortune. It then became Joseph Lucas & Son in 1882.

So, in 1875 Lucas started making lamps for ships in. 1898 was when it became Joseph Lucas Ltd. In 1882, it then became Joseph Lucas & Son.

(Continued on page 16)

Lucas...continued

(Continued from page 15)

1902, the year Joseph himself passed away, the company started making electrical automotive components, like wiper motors, starter motors, alternators, horns, and lights. 1914 is when things really started to take off, as it was then that Lucas landed a contract to supply Morris Motors Ltd. Then in 1926 they acquired an exclusive contract with Austin.

Up into the 1970s you couldn't swing your ohm meter by its leads without hitting a Lucas component on a British car. Lucas was also a big supplier to the British military, too.

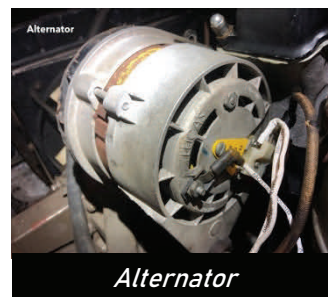
They were *everywhere*, supplying alternators/generators, voltage regulators, windshield washer pumps, and side marker lights that I think were on *every* British car ever produced (*with and without chrome trim*) - to name just a few!

But things didn't always go "swimmingly", as our friends across the pond would say. The company hung on through the 1926 UK General Strike and the 1931 Women's Strike - where 10,000 workers refused to work for a week - among other struggles! It was after World War I that the company expanded into the supply of brake systems, diesel fuel systems, and the growing aerospace industry.

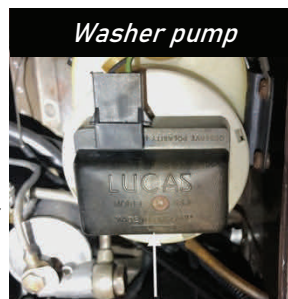
They grew to take over a number of their competitors and during World War II, they were hired by Rover for the combustion / fuel systems for the Whittle jet engine project. Around 1957, Lucas also built a semiconductor plant to manufacture rectifiers and transistors.

Lucas trundled along, supplying an ever changing British car industry that saw individual car companies getting absorbed into ever bigger companies, like BMC and then British Leyland - or sadly just dying off. Like the rest of the British auto industry, Lucas also suffered with ongoing labor and workforce issues that effected quality control and delivery. Many, it has to be said, were justified.

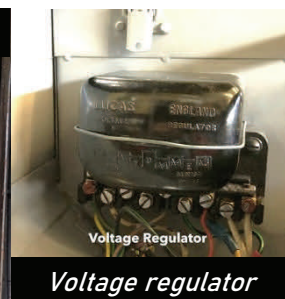
By 1976, the Lucas Aerospace workforce were looking at major layoffs. So Mike Cooley, a designer/engineer, lead a group to develop "The Lucas Pan" to cover that part of the company to produce "socially useful products" and save jobs.



Alternator



Washer pump



Voltage regulator



Side marker lights

Photos on this page courtesy of Bill Vincent

(Continued on page 17)

Lucas...continued

(Continued from page 16)

At the time it was considered “one of the most radical alternative plans ever drawn up by workers for their company and one of the most remarkable exercises that have ever occurred in British industrial history.” The plan was never put into place and Mr. Cooley (*right*) was eventually “allowed to pursue other opportunities” (corporate speak for sacked, let go, or fired) in 1981. But the impact of the plan did save some jobs.



I bring this part of the story up, because I think this is an example of - and a big part of how - Lucas became the impetus of all those jokes! There were just so many “distractions” that the focus drifted away from the products being produced, to all the surrounding turmoil. (*As did most of the British car industry!*) But that’s just the view of a “curmudgeon on a couch”, who grew up in a family of British sports car owners!

While Lucas’ Prince of Darkness moniker may ring true with many owners, note the Lucas ignition box proudly exposed on the B.R.M. Formula 1 car in the Revs Gallery. It fired those 8 cylinders up to 10,600 RPM for 20,000 racing miles. Proof Lucas could MAKE good electrics but had little control on how they were used.... I’m looking at you, original Mini, for placing the distributor behind a grill open to the rain!

In 1996 Lucas Industries merged with the North American Varity Corporation and the Lucas we love to tease was no more. There was a point though, where Lucas was, in England, what Delco was in the U.S., Bosch in Germany, Magneti Marelli in Italy or Nippondenso in Japan!

In its heyday Lucas owned:

CAV Ltd., which made fuel injection equipment for diesel engines.

Butlers Limited, which is a developer and manufacturer of motor vehicle lamps.

Girling, a maker of brake and clutch systems, along with shock absorbers.

Rotax, that was initially a motorcycle accessory company.

Aerospace, originally called Lucas GTE, to supply jet engine components.

Simms, a magneto supplier for aircraft and tanks.

Not bad for a company commonly known as the reason *not* to buy a British car!

Oh, and as a side note... One of Lucas’ more famous former employees, who is also known as the “Prince of Darkness”? None other than Ozzy Osbourne, the former front man/lead singer for the band Black Sabbath. Funny enough - HE’s still going!

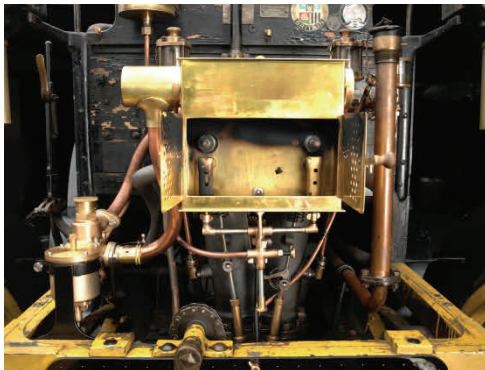
Thanks to Michael Birndorf and J.B. Welch for the use of their E-Jag and MGTC, for some of these pictures!

TAPPET TECH

Your Automotive Spark

By Eric Jensen

We take the lowly spark plug for granted in our modern automobiles. They last 100,000 miles these days and we don't think of them unless we see the yellow engine symbol on the instrument panel. Those of a certain age remember a time where spark plugs may be cleaned every spring and changed every fall, or about every 10,000 miles. Its name describes the function; spark plug, but when was it invented and why are there automobiles that had none at all?



*Peter Harholdt Photo Courtesy of
Revs Institute*

A trip to the Panhard et Levassor in the Automobility gallery will expose one such auto without a spark plug. The two "pilot light" devices clearly shown at the front of the engine (*left*) create the ignition once the rods that enter the engine get hot from the burners under them.

The 1908 Mors in Revs is another without spark plugs, but, the make-break ignition operates a bit like a spark plug. We've all seen the little spark when connecting jumper cables to a car battery. The Mors has metal parts inside the engine that are forced to touch to make that spark. If that touch inside the engine is timed

correctly, that little spark can ignite the air-gasoline mix inside the cylinder. Sealing those moving parts is an issue, which brings us to the spark plug.

The first commercially viable spark plug was invented by a Frenchman, Jean Joseph Étienne Lenoir in 1859 and was granted a U.S. patent in 1886.

The spark plug is simply an accurate space between two metal parts waiting for high voltage to be supplied to jump a spark across the gap. It consists of a metal shell and a ceramic insulator to keep the metal parts isolated so the spark only occurs at the tip. That ceramic insulator was invented by a Robert Bosch company engineer, Gottlob Honold, in 1901 that allowed high voltages to be used to make a much better spark.

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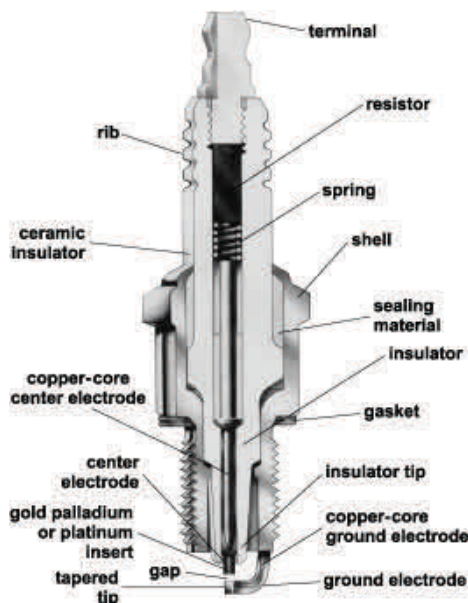
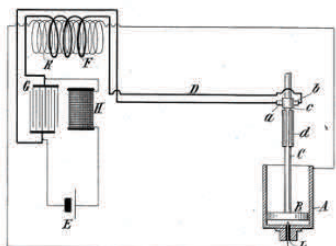
TAPPET TECH

Your Automotive Spark ...continued

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Higher voltage produces a stronger spark which, in turn, produces a more reliable explosion which makes more power from the engine. The high voltage is created by using a pair of coils of wire wrapped around an iron core (see below). Charging the coil with a 6 volt battery can create 10,000 volts momentarily to jump across the spark plug's gap. The timing is determined by the distributor or by a magneto. This was invented by Nikola Tesla in 1898 and is still used today!

In 1912, Albert Champion further developed the design of the spark plug to better dissipate heat and produce a



Spark plugs are more complicated than you might imagine!

more durable spark plug. Albert was granted a number of patents on the design his company, AC Spark Plugs, used in their products. That company was later sold to General Motors.

The Champion Ignition Company was not founded by Albert. It was a completely separate company that decided to start making spark plugs in the 1930s. It was simply coincidental but it deprived Albert from using his own name for his company.

Witnesses:
M. Haman Lynn
Edwin B. Stephenson

Nikola Tesla, Inventor
by Kern, Curtis, Rogers

Tesla's drawing for patent US609250

The lowly spark plug in today's automobiles has been updated with copper or silver and such exotic materials such as platinum or iridium. They come in thousands of variations for autos, airplanes, lawn equipment and more. The move to unleaded gasoline and better materials has led to a life ten times those sparkplugs of the past. It remains a very important part of the gasoline fueled internal combustion engine.

TAPPET RIVIA

By Joe Ryan

And Now The Answers...

1. **Q:** The 1937 Delahaye Type 135 Special Roadster is without question one of the most beautiful cars ever designed throughout the Art Deco period. What automobile manufacturer encouraged Emile Delahaye to enter the luxury car market? **Answer:** It was said that Delahaye's operations manager, Charles Weiffenbach, sought guidance from his friend and competitor, Ettore Bugatti, to seek his thoughts on improving the business. .
2. **Q:** What four features in the 1937 Delahaye were patented by Figoni & Falaschi? **Answer:** 1) Front fender design 2) Ultra-light, tubular seat 3) Disappearing convertible top behind the seats and 4) The windscreen that recedes into the body. .
3. **Q:** Was the 1948 Tucker the first automobile with a center headlight? **Answer:** No, the 1937 Delahaye and others pre-dated the Tucker with a center headlight. The 1948 Tucker center light would turn with the steering but was not the first to offer steerable headlights either.
4. **Q:** Was the 1948 Tucker center headlight legal in all 50 U.S. states? **Answer:** It was illegal in 17 states that had laws specifying no more than two (2) headlights on any vehicle in 1948. Tucker was to have provided a cover for those cars sold in states that did not allow the center light.

Contributions to the column are always welcome.



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To adopt a car or engine, contact: Brian Lanoway, Adopt-A-Car Chair
at blanoway@shaw.ca

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