The official newsletter of

The Revs Institute Volunteers

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Thanks to this month's contributors:

- Chip Halverson
- Whitney Heron
- Mark Koestner
- Joe Ryan
- Max Trullenque
- Morris Cooper

Inside this Issue:

TAPPET CLATTER

Volume 26.8 April 2021

Chairman's Notes

So I can't believe how fast time flies lately, especially this past year!

I just want to say "Thanks" to you all for giving me the opportunity to serve as Chairman of the Revs Volunteers for two terms. I have enjoyed working with and the interaction that I have had with many of you.

I have served on several boards and I must say that you all are quite active and engaged! You made my job much easier because of that.

The past two years have been quite a challenge, I must say. We have seen many changes, as you know, and I must extend a thanks to my Board members who have been so supportive. The hard work is greatly appreciated.

A special thanks to Eric Jensen who graciously stepped up to fill in for me when I had to take a leave of absence in my first term.

I will remain on the Board this year and look forward to serving under the direction and leadership of our new Chairman, Chip Halverson.

All the best!

Mark Koestner

Volunteers' Annual Meeting

By Eric Jensen

Traditionally, the March Volunteers' Meeting would be held in the lobby and the volunteers would gather around and chat beforehand. The meeting would be gaveled to order by our Chairman, the recent election results would be revealed, and a speaker would then present an interesting subject.

This year we still followed that script, but over the online meeting site, Zoom. In this brave new reality, for now, we must adapt for the safety of our members, the staff and your Volunteer Board of Directors. The meeting venue was different but the format was maintained. While we don't get to socialize both before and after the meeting, we can reach volunteers that may not be in the area at the time of the meeting, or able to attend for some reason. That is a positive change on which, I believe, we all can agree.

The annual volunteers meeting was held March 26th at 10:00 am over Zoom. Our guest speaker was Larry Webster, Vice President of Content at Hagerty. The topic was; Are Millennials interested in cars and collecting? As it turns out, they are!

Larry Webster on Zoom, Revs Institute Picture

As a group, Millennials are reaching their 40s and some measure of economic success. Much like earlier generations, they covet the cars of their youth. These would be cars from the 1990s like a Honda CRX, Toyota Supra or Subaru WRX. They also have interest in cars that can now be purchased inexpensively that are still interesting. Larry has an employee in that age group that owns a Model T Ford, a car readily available for less than $10,000 in today's market. Those lower cost collectors cars in driveable condition are attractive to this group because of the experience of owning and driving the cars. As a group, the Revs Institute Volunteers can understand that passion.

Reaching the Millenials is another matter entirely. Their communication link is their phones and the social media apps on those phones. Hagerty has a team dedicated to regularly posting articles to your email, on social media sites like Facebook, Spotify, Snapchat and others as well as several video series on YouTube.

To finish the meeting, Mark announced the election results. Chip Halverson, Michael Bensing were re-elected and Mark Kregg is our newest Revs Volunteer Board member. Congratulations to each of you.

Your New Volunteer Board of Directors

By Eric Jensen

From Left to right; Chip Halverson, John Wharton, Mark Koestner, Roc Likov, Eric Jensen, Jack Sprague, Steve Smith, Michael Bensing, and Mark Kregg, Whitney Heron Photo

The Revs Volunteers Board of Directors met April 2nd to elect the board's officers for the upcoming year. Chip Halverson was elected to the Chairman's office replacing our chairman of two seasons, Mark Koestner. Your *Tappet Clatter* editor, Eric Jensen, was elected to the position of Vice-Chariman replacing Chip. Michael Bensing is retained as board Secretary as is our Treasurer, Jack Sprague.

TAPPET TRIVIA

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 obscure or tricky. Test your collection knowledge and *have fun!*

1. In what year did Oldsmobile offer the first mass produced automatic transmission?
2. What percentages of exotic fuels are now used in the Mercedes W154 ?
3. What was the first motor vehicle to install seat belts?
4. When was the first land speed record set? How fast was it?

The answers are posted later in the issue.

Roads Scholars at Road Atlanta, 2021

*T*he Miles Collier Collections Porsches recently got a chance to go out and play at Michelin Raceway Road Atlanta March 9th and 10th with a group called the Road Scholars. In attendance was the 917K, 917PA, 908LH, 907K and RS61L While not a spectator event, Revs Institute posted these great pictures on social media to share with as many enthusiast and history buffs as possible. An especially great treat was seeing the Porsche 917K on track.

Revs Institute Photos

What is it about French Cars?

By Morris Cooper

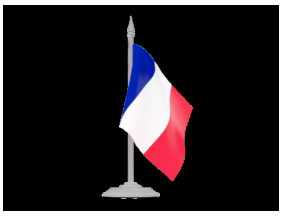

Photo Courtesy of Revs Institute, Peter Harholdt

Some people love cars from France. Others consider this affection to be a serious character flaw.

Jay Leno has often said that his DS21 Citroen is the greatest car of the 20th century, and it remains one of his personal favorites to drive. And can any of us at Revs Institute doubt the visitor popularity of the strikingly beautiful Delahaye?

So let me briefly share with you some of the history, background and the distinctive Gallic character of the early cars from the French Republic.

Why France?

At the start of the automotive age, a few lonely gentlemen in Britain experimented with light steam carriages. Although they were the first real motorists, they hardly ventured from home.

During the 1890s in Germany, the primitive Benz proved to be the ideal vehicle for moving around the fashionable spa towns of Baden Baden and Weisbaden, but were of little use outside of town.

In 1894 what we would now call a car rally took place between Paris and Rouen. A committee had been formed to organize a race from Paris to Bordeaux and back, a remarkable distance of 732 miles. This was the world's first long distance road race. It was won by Emile Levassor of Panhard & Levassor.

(Continued on page 6)

French Cars.....*continued*

(Continued from page 5)

Incredibly, Levassor made such good time getting to Bordeaux, his co-driver was not there to relieve him. Even more astonishing, Levassor turned around and drove back to Paris by himself, making the round trip in 48 hours. Consider that accomplishment on solid tires and the state of the roads!

Levassor instantly became a national hero in France when he crossed the finish line in Paris, and essentially created a new industry overnight. Panhard, Peugeot, De Dion and others were suddenly swamped with orders from fashionable Parisians.

Photo Courtesy of Bing Maps

A Consequence of Geography

On the western edge of the fashionable 16th arrondissment of Paris lies a beautiful public park called Bois de Boulogne. It is two and a half times larger than Central Park. On the far side of the park were the industrial suburbs, but the Bois was no more than a few minutes carriage ride from the nearby fashionable residential areas, such as Faubourg St. Honore.

During the 1890s the park had been the place where the wealthy and stylish took their lessons in riding a bicycle. Later, they learned to ride their horseless carriages there. If a problem arose, a mechanic or instructor could easily be summoned from across the Bois. And this gave rise to the merger of the two principal interests of affluent Parisians - "le sport" and "le high-life." (No, I did not make this up.) These are actual French language terms - obviously adapted from English - just like the current French usage of "le weekend," instead of the French-Canadian "fin-de-semaine."

English vs French

The approach to motor cars was entirely different in the two countries. Early motor cars in France, and the fashionable lifestyle which accompanied them, were based in Paris.

The English automobile pioneers were, by contrast, all over the country. Their car industry was based in the Midlands, where bicycles were made.

It is often said that early English motoring was a combination of cycle shed and country house. In those days the typical upper-crust Englishman was a fanatic for fresh air. Cycling was good for the health. It was perfectly suited for the English temperament – just like a cold bath. The imported cars were dismissed and regarded as a form of cycling for the handicapped.

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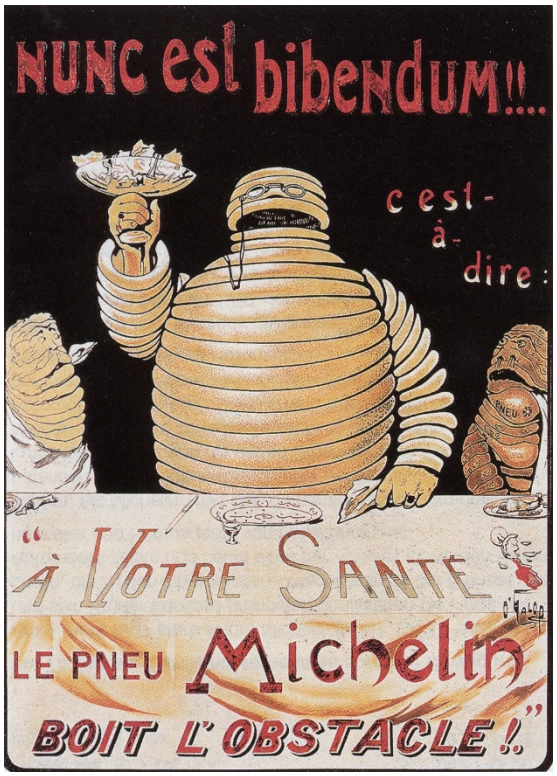
French Cars.....*continued*

(Continued from page 6)

English motorists were far more conservative and restrained than their counterparts on the continent, and preferred to be inconspicuous. While closed cars appeared in Paris by the mid 1890s, the engines of the day could not cope with that extra bodywork in hilly England. The English hated the decadent and fun-loving French "boulevardier," driving himself around to his "private occasions" without his indiscreet coachmen, in his "motor brougham" or "closed coupe"

The Michelin Man -- Bibendum



The discovery of the pneumatic tire was largely responsible for the cycling boom of the 1890s. Everyone using the road immediately owed a huge debt to the Michelin brothers for the comfort of the ride.

Michelin had what is considered to be the most famous slogan in advertising history: "Le pneu Michelin boit l'obstacle…" (Translated: "Michelin tires drink up the obstacle..").

The now famous poster image of the Michelin Man (made entirely of tires) shows him drinking up a glass of broken glass and nails (left) while raising his goblet and proposing the toast "Nunc est Bibendum" (Latin for " Now let us drink").

The obvious implication is that Michelin tires will easily take up any road hazards.

The Michelin Man - later called Bibendum - remains one of the world's first and oldest trademarks.

While we are on the subject of tires, it is interesting to hear how many of our visitors remark on the existence of two spare tires on so many of the collection's early sports and racing cars. Early tires were fragile, but we tend to forget that all the horses on the road, and workers' hobnail boots meant there were a lot of nails lying about to create punctures. Our docent guides often point out the unique "nail catchers" on the rear wheels of the Mors, upstairs in Revs. More often than not, the front tire kicked up a nail, which then resulted in a flat rear tire.

And in case you have not noticed, Bibendum has lost about 200 lbs in modern Michelin ads, compared to 100 years ago. He must have embraced a strict diet.

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French Cars.....*continued*

(Continued from page 7)

Roi des Belges

We owe some thanks to King Leopold II of Belgium for comfortable car seats. In 1896, the 61 year old King had complained to his "friend," 22 year old ballet star Cleo de Merode that seats in his motor car were never as comfortable as those in her salon. So she suggested that he have her chairs copied. The fashionable Paris coachbuilders Rheims & Auscher complied, and the result was the first "Roi des Belges" body. This set the style for touring cars for many years thereafter.

French 1903 De Dietrich, Roi-des-Belges body

These individual seats were not only very comfortable, but their round shape and curves coincided with the Edwardian ideal of "a fine woman," and the design characteristics of "Art Nouveau."

The Car Poster

The City of Light, Paris, was responsible for the popularity of the car poster. Baron Haussmann's new Paris of wide boulevards also resulted in that traditional Paris trademark; those little round kiosks called "collonnes d'affiches" (meaning columns for posters) which were installed to receive them. Then, as now, pretty, well-dressed girls were featured to sell everything, including cars. In these early years, automotive styles were changing rapidly, and last year's model looked hopelessly outdated.

Social Class and the Early Automobile Age

From our modern perspective, and our current belief that the car was a tool to advance the position of the working man in the early 20th century, we find it hard to reconcile the fact that the European working class at that time viewed the automobile as a tool of reactionary repression.

Early automobiles were a plaything of the aristocracy in pre World War I European society. The politics of early French automobile pioneers like De Dion were typical of his aristocratic contemporaries, and were openly contemptuous of the vast societal changes that the automobile age would soon bring to Europe and America.

(Continued on page 9)

French Cars.....*continued*

(Continued from page 8)

We also tend to forget that the huge and geographically widespread popularity of the modern bicycle in the late 1880's and 1890's did more to bring about the emancipation of women than any technological development in history. This is an important theme that (in this writer's opinion) should be mentioned in our docent tours of the bicycles in Automobility.

The Jazz Age

It did not take long after the war ended for the French motor industry to re-invent itself to satisfy the urgency for freedom and mobility emerging from wartime restraint.

The undisputed star of the 1919 Paris Salon was Marc Birkigt's Hispano-Suiza H6. Built in Paris, it was technically the most advanced car in the world; adapting design techniques for the inline 6 developed from the firm's largely aluminum 200 hp V-8 which had been used in the thousands of British and French single-seat fighter planes during the war, including the SPADs and the famous "Stork Squadron" - the "Escadrille des Cigognes."

The H6 had brakes on all four wheels, which few cars had in that era, but those brakes were servo-assisted like all modern braking systems today. The imposing and tall radiator was capped with the flying stork mascot, recalling the Escadrille. The Stork and the Spirit of Ecstasy for Rolls Royce are the two most famous car mascots of all time.

In the early 1920s leading up to the famous Exposition des Arts Decoratifs in 1925, cars enjoyed an artistic life of their own, as well as becoming fashion accessories. The female figures in the advertisements of the time grew taller and thinner until they were almost twice the actual height of any living woman. The Rubenesque ideal was gone. The "slim, boyish figure" became the ideal image, bringing with it a boy's freedom of movement and behavior. Hemlines rose from ankle to knee, and for the first time in history, civilized women exposed their legs. The world, as we well know, was never the same.

Charles F. Kettering's Electric Starter

Was it Really the First?

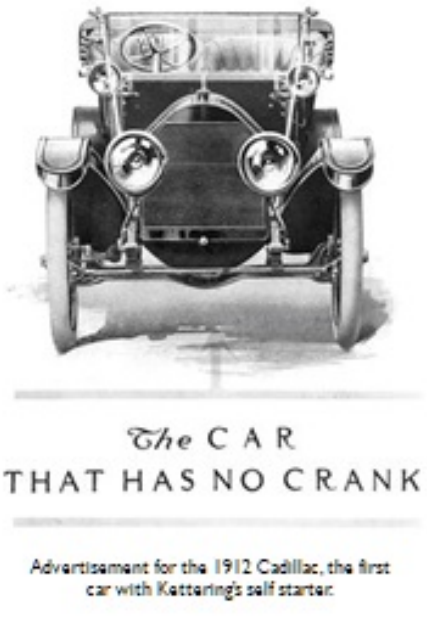
By Eric Jensen

Charles F. Kettering

Many of us learned that Charles F. Kettering developed the first electric self-starter for automobiles and that it was first applied to the 1912 Cadillac. Is this really true? As is the case with many other inventions, the claim of being the "first" is not always entirely accurate.

Charles F. Kettering was born in Loudonville, Ohio in 1876. His early careers ranged from teacher to telephone lineman. Kettering was educated at The College of Wooster and The Ohio State University, earning an engineering degree in 1904. That degree brought him a job at National Cash Register in Dayton, Ohio. In only 5 years at NCR, Kettering earned 23 patents for such inventions as the electric cash register and an easy credit approval system; the precursor to credit cards.

In 1907, Kettering was urged by his co-worker, Edward Deeds, to work on improving the automobile. Along with other co-workers at NCR, Kettering started work on an improved ignition system for gasoline engines in his spare time, eventually leaving NCR to create Dayton Engineering Laboratories Company; later known as Delco. Kettering invented an improved spark ignition system which generated an order for 8000 units from Cadillac in 1909, launching Delco on a path to growth, greater innovations and eventual purchase by General Motors.



Advertisement for the 1912 Cadillac, the first car with Kettering's self starter.

Kettering was urged by Cadillac chief, Henry Leland, to create an electric starting system that could be fitted to Cadillac automobiles. A good friend of Leland's, Byron Carter, had stopped to help a stalled motorist and suffered a broken jaw when trying to start the stalled car. Carter later died of pneumonia as a result of those injuries. From that tragedy came Leland's request. The result of which was Kettering's patent for an improvement to the electric automobile starter system filed June 15, 1911, with the United States Patent Office. The patent was granted in 1915 and assigned patent number 1,150,523.

So was it the first electric automobile starter? No, it wasn't. The invention is much older, quite obscure, and initially unsuccessful in the rapidly advancing automotive world *of the 19th century.*

(Continued on page 11)

Kettering's Electric Starter ....*continued*

(Continued from page 10)

First, a little background information to advance the discussion. For readers not familiar with the direct current electric motor, it is a design that when attached to an electrical source, like a battery, can turn a wheel or spin an engine. That same motor, when driven by an engine, can be used as a generator to drive another electric motor or charge a battery. This is a dual-purpose device referred to as a motor-generator in the following discussion.

A rather obscure English automobile, the Arnold (right) may actually be the first car with an electric starter. Little more than 12 Arnold autos were built in Branbridges, East Peckham in Kent in England in 1896 by Arnold Motor Carriages. One of these twelve cars was said to have been fitted with an electric starter by its owner, a Mr. R. W. Dowsing of Ealing, an electrical engineer who patented that electric starter. Little information can be found of this device but it is claimed to also have also been used to boost the engine's power for hill climbing.

Another example is the Armstrong prototype automobile produced in 1896 in Bridgeport Connecticut, USA by Harry E. Day. The Armstrong was a gas-electric hybrid car. A motor-generator was mounted as the flywheel of the two cylinder engine and, much like the Arnold, could be used to start the engine, boost power when needed, and charge the car's batteries. Only one car was produced but was a fully operational automobile.

The third example of an early car with a self starter is the 1900 Lohner Porsche (left). Two engines were each attached to generators that powered one of the two wheel mounted electric motors and charged a battery bank. These generators could also be used to start each engine using the electrical power from the batteries.

(Continued on page 12)

Kettering's Electric Starter ....*continued*

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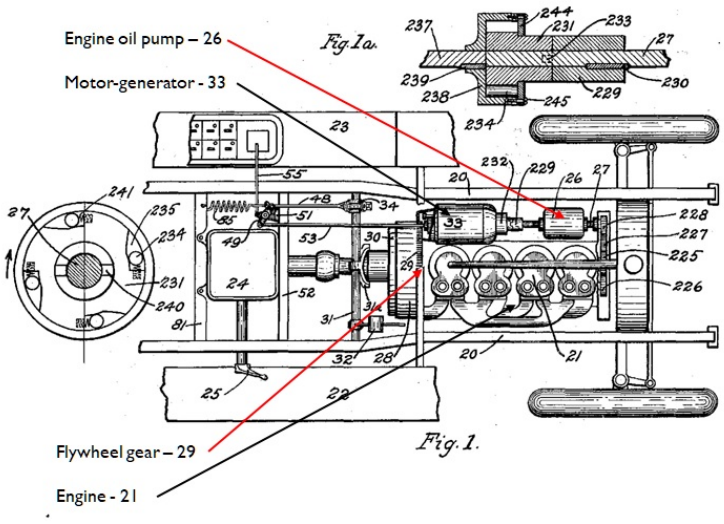
So Kettering was not the first to develop an electric automobile starter, but the design he created for Cadillac was smaller, lighter and more economical that any of the three predecessors.



Drawing from U.S. Patent No. 1,150,523, Notations by Eric Jensen

The system Kettering created consisted of a motor-generator, a storage battery and a foot-operated system to initiate the start. The motor-generator was mounted alongside the engine. One end was driven by the engine off the backside of the oil pump; also mounted alongside the engine. The opposite end of the motor-generator was linked to the engine's flywheel.

When the starter pedal was pushed, the motor disengages from the oil pump driven side with a device known as an over-running clutch that only allows torque in one direction, to a small gear engaging a much larger gear on the flywheel.

When starting, the motor spins at a high RPM driving the large flywheel gear; spinning the motor much more slowly but with much more torque so the engine will start. When released, the gear disengages with the flywheel and is driven directly by the engine as the over-running clutch engages and drives the motor-generator at engine speed. The motor-generator now charges the battery for the next start and for any other electrical items in the car such as lights or the ignition.

The key advances in Kettering's design allowed a much, much smaller motor-generator to be used to both start the engine and provide electricity for the automobile. The pedal start was used for a few decades until this, too, was electrified with a push button or key switch. Most modern cars now separate the starter and generator (alternator) functions into two devices.

While technically, Kettering did not invent the first electric car starter, he did invent an improved system that revolutionized the automobile. This allowed the electric automobile starter to ultimately be installed on every automobile from the finest Duesenberg to the humble Ford Model T.

Welcoming our Newest Volunteers

Kurt Blose

Joined March 2021

Full Time Resident

I grew up just outside Detroit, the son of an automotive engineer. I can still remember attending the Woodward Dream Cruise and the North American International Auto Show at Cobo Hall where I saw my first Ferrari; a blood red Ferrari F50. Since then my passion for automobiles and the stories they tell has grown exponentially.

I recently graduated from the University of Colorado with a masters degree in history, focusing on how everyday objects (such as cars) inform our understanding of the world. An avid Formula One fan dating back to the early Schumacher days, I have had the fortune to attend several US Grand Prix in Austin, Texas. In addition to indulging my passion for Formula One, I have been lucky enough to own a few sports cars along the way including a Subaru WRX, Mini Cooper S, and a Mazda Miata.

It will be a privilege to be working with the Revs Institute and I look forward to doing my part to bring historical narratives to life

Patty Halverson

Joined March 2021

Part Time Resident

Hi everyone! I'm Patty Halverson and I am the other half of Chip Halverson. I have 2 children, both married. Susan has 3 dogs and lives in Maine. Karen has 3 children and 4 dogs.

I got my interest in cars from years of either watching race cars or watching my husband, Chip, race cars. I am on his pit crew for refueling.

I have a teaching degree in Physical Education and really enjoyed coaching as well. I play a lot of golf but it's my 3 grandchildren that I really enjoy. I look forward to helping as a Revs Guest Services Volunteer and getting to know everyone.

Mary Pyatte

Joined March 2021

Full Time Resident

After a career of 34 years with Verizon, capped off as Operations Manager-Central Offices for the State of Rhode Island, I semi-retired to South Coast of Massachusetts. My husband, Tom Dussault, and I eventually relocated full time to Southwest Florida five years ago.

Our son, Nathan, still lives in Massachusetts. We lived on our coach for a couple of years until Hurricane Irma convinced us to find a home attached to the ground.

I volunteer at Naples Botanical Garden working for the collections curator keeping track of all trees and plants that are added to the garden. This has spurred my interest in gardening and we now have quite a diverse collection of bromeliads and pollinator attracting plants. We are members of Paradise Group although we recently exchanged our Porsche for a Mini Cooper. I look forward to meeting many new friends at Revs.

Welcoming our Newest Volunteers

Sev Onyshkevych

Joined March 2021

Full Time Resident

I'm semi-retired, living in Naples and have been a car buff since my days as an undergraduate at Princeton, when I was briefly lucky in the software business and ended up with a Ferrari 308GTsi before I had my driver's license. Since then I've been a fan and collector of Lotus, Porsche, BMW, Jaguar, etc. … Virtually all of them orange (Princeton's colors).

- Global career as a software and internet entrepreneur
- Still consulting with my own firm
- Serve on many corporate boards
- Lived in seventeen countries
- Traveling to 201 countries
- Toured many, many automotive museums
- Avid collector of maps, books, art, archeological relics and more
- Enjoy cooking and fine dining

I very much look forward to volunteering at Revs, which is indeed a special place

Bill Ullrich

Joined March 2021

Part Time Resident

I was raised in St. James on Long Island, NY. Married to my wife Judy. We have raised two wonderful daughters and are proud grandparents of two grandsons.

We are Florida residents and still have a home in Annapolis, MD., for over 45 years.

My degree is in construction technology from the State University of Farmingdale New York.

- Career in the fence industry
- President and partner in Anchor Fence, Inc.
- Started a consulting firm and retired the beginning of 2019
- Very involved in related associations, ASTM, CLFMI, AFA,

We love the water and "have to be by the water" and as such avid sailors for many years

When in high school customizing my first car a 53 Ford hardtop as well as having a 1918 Essex for a short time.

Dick Yerger

Joined March 2021

Full Time Resident

Born, raised and schooled in south east Pennsylvania.

Worked in the real estate law title insurance law for 40 years. Now semi-retired, currently working with Mecum Auto Auctions and Premier Auto Group.

Interested in cars since age 14 and involved in local stock car racing as part of a pit crew at 16. Performed restorations of classic cars, truck and hot rods most of my adult life. I have owned rare cars including a Renville Custom and a Woodhill Wildfire.

Currently own a new Jaguar SUV, 2006 Chrysler Crossfire convertible and a 1970 Corvette LS5 convertible. Live full time with my wife in Naples Florida.

TAPPET TECH

*Analyze **This!***

My oil, that is …

By Morris Cooper

Blackstone Laboratories of Fort Wayne, Indiana is a company whose name has come to be associated with oil analysis in a wide range of machinery, from automotive to aircraft, and from farm equipment to marine engines.

The company is well known in collector car circles for providing detailed analysis of motor oils and transmission fluids, particularly where the concern is early detection and warning of internal damage, contamination, or abnormal wear.

If you have used their analysis reports, you may have received their newsletter which outlines a couple of interesting recent reports to customers and provides the results of the testing. If you are a bit of a gearhead it makes for interesting reading, both to read the customer's concerns and reasons for testing as well as the explanation of the test results.

Their recent March 2021 newsletter contained a surprising and intriguing entry – the Miles Collier Collections 1919 Ballot Indy car.

But before we get to that story, here is a brief outline of what Blackstone does after a customer submits a sample for their four basic tests:

1. A spectrometer exam that measures the levels of metal and additives in the oil.
2. An insolubles test that measures solids in the oil – an indication of oil filter performance and oil oxidation.
3. A viscosity test measuring the pouring thickness of the oil and comparing it the grade being used. If it is outside the expected range, the causes may be contamination from fuel, moisture, or coolant.
4. A flash point test, measuring the ignition temperature of the oil. Fuel contamination is the common cause of a poor result.

Specialized testing goes beyond these basics for specific applications and concerns.

Here is a copy of the Featured Report on the Ballot in the Blackstone March 2021 newsletter. See the report on Page 16. The Ballot analysis explains the customer's concerns and sets out in the columns the earlier results of oil analysis done in 2001 and 2006 for comparison.

Your Assistant Editor interviewed Revs Shop staff to get the story behind the story.

BLACKSTONE LABORATORIES

(Continued on page 17)

TAPPET TECH

BLACKSTONE LABORATORIES

*Analyze **This!***
…..continued

Report of the Month

This 1919 Ballot Indy Car doesn't necessarily have a problem, but it's wearing more than it used to. Why?

To learn more about where the elements are coming from, click here.

UNIT

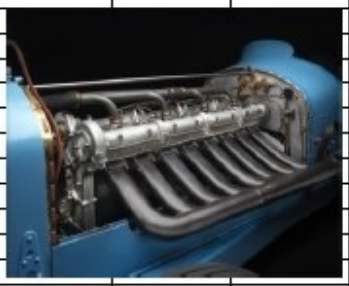
MAKE/MODEL: Ballot 8 Cyl
FUEL TYPE: Gasoline (Leaded)
ADDITIONAL INFO: 1919 Ballot Indy Car
OIL TYPE & GRADE: Morris 40W
OIL USE INTERVAL: 100 Miles

COMMENTS

You know better than we do what might have changed for this engine over the last 15 years. It's a pretty safe bet that it doesn't see a lot of use, so mild corrosion could be a factor in the increased wear. Corrosion wouldn't usually cause much copper and chrome to show up though. Maybe work was done? In that case the metals could be from wear-in or just shifting parts around. This 8-cyl. is wearing differently than it used to, though we'd hesitate to say there's a problem. Insolubles (solids) are low & no fuel/water is present. Let us know what you find out.

ELEMENTS IN PARTS PER MILLION

			UNIT / LOCATION AVERAGES						UNIVERSAL AVERAGES
	MI/HR on Oil	100		100	200				
	MI/HR on Unit	150			200				
	Sample Date	1/19/2021		7/3/2006	7/11/2001				
	Make Up Oil Added	0 qts			10 qts				
	ALUMINUM	4	4	3	4				4
	CHROMIUM	**6**	4	2	3				3
	IRON	**43**	25	16	15				16
	COPPER	**93**	54	56	14				35
	LEAD	153	179	261	123				192
	TIN	1	1	0	1				1
	MOLYBDENUM	18	26	28	33				31
	NICKEL	1	0	0	0				0
	MANGANESE	1	0	0	0				0
	SILVER	0	0	0	0				0
	TITANIUM	0	0	0	0				0
	POTASSIUM	4	2	1	0				1
	BORON	173	123	76	119				98
	SILICON	12	9	6	9				8
	SODIUM	6	7	8	7				8
	CALCIUM	1784	1036	789	534				662
	MAGNESIUM	16	550	687	948				818
	PHOSPHORUS	604	724	770	799				785
	ZINC	572	783	896	880				888
	BARIUM	0	0	0	1				1



This car lives at the Revs Institute — a nonprofit educational institution dedicated to the study, preservation, conservation, and restoration of historically significant automobiles — in Naples, Florida. Because their main goal is historical accuracy, the whole car (including the engine) has been restored as closely as possible to its original state.

It's interesting that an engine built more than 100 years ago has much in common with today's engines. The same metals are being used, just in slightly different ways. The main bearings supporting the crank are roller bearings, as are the bearings in the camshaft. The rods are regular babbit and the wrist pins are a copper bronze material that was commonly used back in the day.

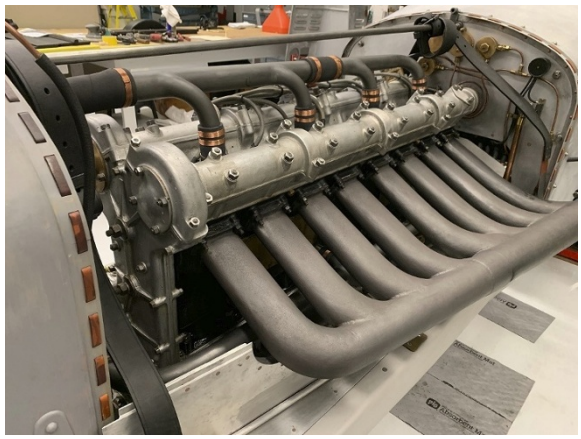
They sampled the engine in 2001 and 2006, and then car sat until they shipped it to the UK for restoration. The engine, however, was only taken apart and cleaned — it wasn't rebuilt. It basically didn't have a lot of running till late 2018, and then it went back to Paris in 2019 for its 100th anniversary. So the engine has not run much, and it probably only had maybe 100 miles on it from 2006 until the time it was disassembled, cleaned, and put back together. The oil is a Morris 40W and what you're seeing is probably a little corrosion plus a little metal just from removing parts, cleaning them, and then reinstalling them.

TAPPET TECH

*Analyze **This!** .....continued*

(Continued from page 15)

The Revs Institute technicians send engine oil for analysis to Blackstone Labs every time the oil is changed on a car, and after any race events. Otherwise, because of the very low mileage, it can be two to four years between oil changes. Also, an oil sample is drawn from the engine if the shop suspects any problem has arisen. They are very cautious to determine the cause of anything that they hear or see.



Revs Institute Photo

As the Ballot report recites, a long time had passed since the last 2006 oil analysis while the car was out for restoration, prompting the interest in determining the results of the engine cleaning and re-assembly during that process.

This is another example of the care and attention given to the cars we proudly display to our visitors.

Giving Jim Claeys a Birthday Boost

Long time volunteer, Jim Claeys, had a birthday recently. A friend of Jim's got him a book as a gift and asked the Revs Volunteers and staff give Jim a special boost. The book is the *Evolution of the Porsche 911 In Competition -1965*-2010 by Michael Keyser and Bill Oursler. The boost was from having many Revs Volunteers and museum staff sign the book. We all wish you a Happy Birthday, Jim.

(*Jim Claeys Photos*)

TAPPET TRIVIA

And now, the answers…

1. *In what year did Oldsmobile offer the first mass produced automatic transmission?* **Answer:** Hydramatic (also known as Hydra-Matic) is a an automatic transmission developed by both General Motors' Cadillac and Oldsmobile divisions. Introduced in 1939 for the 1940 model year Oldsmobile, the Hydramatic was the first mass-produced fully-automatic transmission developed for passenger automobile use. Cadillac offered it the following year in 1941.
2. *What percentages of exotic fuels are now used in the Mercedes W154?* **Answer:** 85% Methanol, 10% nitro-methane, and 5% Acetone. Blended by VP Fuels at great expense to the management at the Revs Institute .
3. *What was the first motor vehicle to install seat belts?* **Answer:** The 1902 Baker Electric Streamliner Racer. Due to earlier mishaps with speed attempts, Walter C. Baker thought it prudent to strap both he and his engineer, C. E. Denzer into the Streamliner. Turns out, this was a good idea as it crashed on Staten Island at 100 MPH.
4. *When was the first land speed record? How Fast was it?* **Answer:** December 18, 1898: The first Land Speed Record was set, *in an electric car.* French race car driver Gaston de Chassaloup-Laubat set the first recognized World Record for Land Speed at an unimpressive 63.13 kilometers per hour (39.25 mph).

Events Calendar

Event	Date	Info or contact
Ski Club Tour	April 9 @ 1:30 pm	Whitney Herod wherod@revsinstitute.org
Paradise Porsche Club Rally Tour	April 10 @ 10:00 am	Whitney Herod wherod@revsinstitute.org
Strand Golf Group Tour	April 16 @ 10:30 am	Whitney Herod wherod@revsinstitute.org
Mustang Club Rally to Revs	April 17 @ 12:00 pm	Whitney Herod wherod@revsinstitute.org
Volunteer Luncheon	April 21 @ 11:30 - 2:00pm	Whitney Herod wherod@revsinstitute.org
Naples Lifestyle Group Tour	April 28 @ 10:30 am	Whitney Herod wherod@revsinstitute.org
Ferrari Club Tour	April 30 @ 10:30 am	Whitney Herod wherod@revsinstitute.org
For a full list of daily tour groups and events, go to the 'Calendar of Events' on VicNet.		

Adopt-A-Car Program

Available Adopt-A-Car Automobiles and Engines

Peter Harholdt

Alfa Romeo Guilietta
Alfa Romeo 8C 2300
Alfa Romeo 1600 GTA
Gurney Eagle F-1
Ardent Alligator
Benz Dos-a-Dos
Cadillac Series 61
Cadillac LeMonstre
Cisitalia SC
Citroen 2CV Sahara
Cunningham C-4R
Cunningham C-6R
Elva Porsche
Fiat Abarth TCR
Jaguar D-Type
Jorgensen Eagle
Lamborghini 350 GT
Lancia Lambda
Lotus 23
Maserati Tipo 60 Birdcage
Mercedes Benz SSK
Mercedes Benz W-154
MG PA PB Leonidis
Osca Sports-Racer
Panhard & Levassor
Porsche 356SL Gmund
Porsche 550A Spyder
Porsche 718 RSK Spyder
Porsche 904 Carrera GTS
Porsche 907
Porsche 910-6
Porsche 911
Porsche Carrera
Porsche Elva
Porsche RS-61L Spyder
Stutz Black Hawk
Vauxhall 30-98 Type E
Vauxhall 30-98 Type OE
Engine: Abarth 1000-TC-R
Engine: Alfa Romeo GTZ
Engine: Cadillac OHV V-8
Engine: Chrysler Hemi
Engine: Duesenberg Sprint Car
Engine: Ford GT-40 Transaxle
Engine: 1965 Ford Indy Car
Engine: Ford Turbo Indy
Engine: Jaguar XK100 Prototype
Engine: Jaguar XK Series
Engine: Porsche Type 771
Engine: Porsche Type 901/20
Engine: Porsche Type 901/22
Engine: Porsche Type 908
Engine: Porsche Type 916
Columbia Three-Track Tricycle
Humber 58" Ordinary Bicycle
Velocipede Bicycle

To adopt a car or engine, contact:

Brian Lanoway
Adopt-A-Car Chair

The ***Tappet Clatter*** is the official newsletter of **The Revs Institute Volunteers** of Naples, Florida. Its intended purpose is to inform, entertain and promote camaraderie for our members.

The editor is Eric Jensen, eric60@gmail.com. Although email is preferred, correspondence can be mailed to:
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