

The official newsletter
of: Revs Institute
Volunteers

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*Thank You to
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contributors:*

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- Mark Gorayeb
- Morris Cooper
- Bill Vincent
- Frank Brown
- Whitney Herod
- Joe Ryan
- Chip Halverson
- John Wharton

TAPPET CLATTER



Volume 28.5

January 2023



Chairman's Notes

By Chip Halverson

As I open the Revs Institute calendar for January it shows our annual awards banquet on January the 21st. I always look forward to this evening to share with our spouses and guests a special event. The chance to be together, socialize, and celebrate our accomplishments is one of the highlights of the year.

As we do every year, we will recognize a number of volunteers and staff who have made extraordinary contributions to our organization. We will also recognize the accomplishments of the group as a whole. Over the last two years, in unprecedented times, the volunteer organization was presented with a number of unique challenges.

Perhaps the largest was that in response to the global pandemic, a much larger number of volunteers than normal withdrew from the organization. Our response quick and very successful.

Through the herculean efforts of the Membership Committee, 55 new members were recruited. As we sit today, an amazing 35% of our volunteers have been with us for 2 years or less. We also have grown significantly the categories of Steward and Guest Services volunteers.

(Continued on page 2)

Chairman's Notes... continued

(Continued from page 1)

With that influx of new volunteers, the Training Committee has done an extraordinary job of getting them up to speed in their respective rolls. The Mentor program in particular has proven to be a very effective training tool. We have trained and designated 7 new docents.

All of this was accomplished while holding ourselves to our usual high standards. We continue to get excellent guest feedback, including maintaining the highest Trip Advisor rating in Naples.

Much more to do in 2023, but we should take this time to celebrate our accomplishments. We will review all of the areas of the organization and their successes at the banquet.

Thank You All for your Hard Work

Chip Halverson

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!*

In keeping with the Spirit of Ecstasy theme of last month. The questions are easily answered if anyone has taken the opportunity to watch the video in the Automobility Gallery.

1. **Question:** How many variations of the Spirit of Ecstasy Mascot were produced?
2. **Question:** What year did the first Spirit of Ecstasy become the Mascot of Rolls-Royce?
3. **Question:** What award did Charles Sykes win in 1920?
4. **Question:** Eleanor (nee Nelly) Thornton was the model for the design of the Spirit of Ecstasy. What was her relationship to Charles Sykes?

The answers appear later in this issue

Volunteer Board of Directors Elections

2022 Volunteer Board of Director Elections

All members who have served for two years or more and have contributed 60 service hours/year are eligible for the Board. Board members serve a three year term. You don't have to live in Naples full time to serve on our Board. We use email a great deal and have been using Zoom meetings as needed. During "the season" we meet once a month.

There are three of the nine seats coming up for election each year. The term of office is for three years. The election will be held at the monthly meeting in April. Once we have the new Board members in place, the new Board will elect the President, Vice-President, Treasurer and Secretary.

We hope everyone will seriously consider serving as a Board member. If you wish to stand for election, please submit a short biography and a picture (100 words or less) no later than January 21st to Hank Berglund, Nominating Committee Chair at shberglund@aol.com. Biographies of the candidates will be published in the February *Tappet Clatter*.

Members Meeting... Save the Date!

Be sure and save March 1st, 2023 on your calendars for the upcoming Revs Institute Members Meeting.

The featured speaker is John Doonan, the President of the International Motor Sport Association (IMSA), the premier sports car sanctioning organization in North America. John Doonan has been called the most influential person in sports car racing today.



Membership Report By Tom Dussault

The Membership Committee welcomes four new Station Guides, one new Steward and one new Library Volunteer to our volunteer organization. They have completed our Orientation Program and the Station Guides are beginning their training with their Mentors.

Please reach out and welcome our new volunteers when you see them in the Museum. The Membership Committee welcomes all of our new volunteers and would thank the Docents who encouraged several to join our organization.

The six new volunteer's pictures and biographies are on the following page.

New Volunteers



Douglas Crowell

Joined December 2022

Doug is a seasonal resident of Naples and spends his summers in Pennsylvania. He worked for PPG as well as a number of other companies in engineering and international sales. He is an avid gardener and enjoys walking and biking. Doug rebuilt and rewired a 1955 MG as well as a Datsun 240Z.



John Nary

Joined December 2022

John is from the state of New York. He now is a full-time resident of Southwest Florida. He has a 50 years of experience as an interior designer of commercial offices in Buffalo, Atlanta, and Baltimore.

John's grandfather owned a garage and machine shop and he literally grew up there. He has an Audi that keeps him smiling, has owned Triumph TR3s, TR4s, and TR6s and completed a frame off restoration of a TR4. A student of history, John has attended races at Watkins Glen for many years.



Miguel Guerrero

Joined December 2022

Manuel is a bioengineering student at FGCU with a minor in chemistry. He also works in the biomedical field at Arthrex. He is a car enthusiast and self-described "car passionato."

We originally met Manuel during the FGCU Fall Service Learning Fair in August. We were very impressed with him at the time and are pleased he has chosen to perform his requisite volunteer hours as a Steward with us here at Revs Institute.



Kirsten Orlandella

Joined December 2022

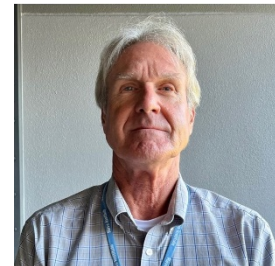
Kirsten is a full time resident. She is currently pursuing her second college degree, this one focused on the field of Library Science. She is excited about working and learning in the Revs research library. We are very pleased that Kirsten is now a part of Revs Institute.



Richard Myers

Joined December 2022

Richard is originally from the east coast of Florida where he earned a bachelor of science in mechanical engineering at Florida Atlantic University. He has an extensive background as a product engineer for retail and business applications. Rich worked at Collier Automotive Museum as an Associate during the early days of the museum, helping to plan and develop the Parts Department and Library.



Don Yasek

Joined December 2022

Don is a full-time resident. He is originally from Long Island New York, and worked in the nuclear power industry, ultimately as plant operator, for 25 years. Over his career, he has owned a restaurant in the Catskills and has sold Chevrolets.

Don follows a variety of racing. His interest dates back to the 1960s when he was an avid follower of the careers of Jim Clark and Dan Gurney. He enjoys visiting Sebring for Historic Sports Car Racing events.

New Training Classes

By John Wharton

The Season is upon us to *Gear Up* Collection Knowledge!

Cast off the summer cobwebs and brush up on your collection knowledge. For new Volunteers;

Collection Protection: Jan. 4 @ 10:00 am - 11:00 am

While we provide exceptional guest experiences, the primary role for volunteers is to protect the collection. This class provides tips for all Revs Institute Volunteers in how to recognize our various visitor types, anticipate potential incidents, and effectively and appropriately deal with bothersome behavior.

Accuracy is our hallmark so please try to attend all three class classes offered to Seasoned Volunteers:

MythBusters: Feb. 2 @ 10 am - 11:30 am

In 90 minutes we tackle twenty misconceptions, twisted rumors and outdated pieces of information that have popped up in the Revs Institute Volunteer exhibit narrative.

Porsche Gallery Refresher: Jan. 25 and Feb. 15 both @ 10:00 am - 11:30 am

Whether you've been away for a while, or still have trouble keeping all the Porsches straight, this refresher class is meant to reacquaint you with a key aspect of Revs Institute. Porsche savant Ralph Stoesser is your guide in an immersive galley tour.

Open Wheel Deep Dive Master Class: Feb. 8 @ 10:00 to 11:30 am

Taught by John Fritz in the Revs Gallery. This covers racing cars, their histories and technological evolution through the Miles Collier Collections.

Sign Up On VicNet Today!

Porsche Training Class

As we prepare for a new season of visitors, our Education and Training Committee is in full swing. Having one of the finest Porsche Collections in the world on display is a great responsibility for our Volunteers.



We have the great responsibility to convey accurate information and compelling stories. To achieve that we turn to Ralph Stoesser, Porsche Savant Extraordinaire, to share his knowledge to our Volunteers so that we can, in turn, share it with our guests.

If you missed the December class, be sure to sign up for the January or February classes. Be prepared when that Porsche enthusiast guest asks you a question!

Special Thanks to Mark Gorayeb for the photos



A TRADITION OF AUCTION EXCELLENCE

BE PART OF THE SECOND ANNUAL NAPLES MOTORCAR AUCTION!

The Cars on 5th Event will take place on the February 2-5th. In conjunction, the Naples Motorcar Auctions, now in its second year, will take place in Naples, Florida on February 3, 2023 at the Ultimate Garages, just minutes away from 5thAve.

Gates open at 10:00 am and the Auction will begin at 12:00 pm on Friday.

100% of the proceeds from the Naples Motorcar Auction benefit the Saratoga Automobile Museum & St. Matthews House, 501(c)(3), not-for-profit organizations.

Fellow Volunteer Dick Yerger is a Consignment Specialist for the auction events. If you or someone you know is interested in selling or buying a classic or vintage motor car, Please contact Dick at 302-354-4672, or email dickyerger@icloud.com for more information.



**SARATOGA
AUTOMOBILE
MUSEUM**

1934 LaSalle Series 350, Part I

By Frank Brown

The 1934 LaSalle cannot be studied in isolation without learning a bit about its “parent” or “older brother,” Cadillac, and the people behind it. That is where we will start the LaSalle story.

Henry Leland, Cadillac’s founder, was a man obsessed with precision build and overall product quality. Cadillac was founded by Leland in 1902.

William (Billy) C. Durant was the man who envisioned one General Motors corporation (GM). Cadillac was one of the founding companies that Billy acquired in assembling his GM.

Lawrence (Larry) Fisher was one of the Fisher brothers who were very reputable coachbuilders and suppliers of auto bodies to GM. The Fisher brothers joined the Board of Directors when GM acquired their firm. Lawrence was named head of the Cadillac Division of GM.

Alfred P. Sloan was managing Hyatt Roller Bearings, a components manufacturer that supplied GM. He joined the ranks of GM management, when GM acquired Hyatt, and ultimately, became its chief. Among many other accomplishments, Sloan refined and effectuated most of Durant’s visions for GM.



Don Lee was the exclusive Cadillac distributor in California. He acquired J.W. Earl’s coach-building business in Los Angeles and astutely demanded that J.W.’s son, Harley, come as part of the package. As the tale unfolds, Lee loses Harley to GM.

Harley Earl (left), like Larry Fisher, began his working life as a coachbuilder. He is the star of the story of Cadillac’s LaSalle. This 1927 Cadillac project put Harley Earl on the map, as it were. Larry Fisher and Harley Earl became life-long friends.

Jules Agramonte is the obscure hero behind the resuscitation of the dying LaSalle automobile, in 1933.



*1934 LaSalle
Photos Courtesy of Revs Institute
Peter Harholdt Photo*

(Continued on page 9)

1934 LaSalle ...continued

(Continued from page 8)

A Brief Look at Cadillac:

In twentieth-century America, thousands of car companies came and went. None of them, however, enjoyed the continued success and prestige of the Cadillac Motor Division of General Motors. Eighty years after the first single-cylinder prototype vehicle rolled down the streets of the Motor City, the Cadillac brand was still widely respected and recognized as a symbol of the best that the United States had to offer.

The Cadillac brand set such a high standard for automobiles that the Cadillac name became a standard by which to measure the quality of other things: commonly, people would refer to the “Cadillac” of anything, a vacuum-sweeper, a refrigerator or any other product to indicate that it was the best available in its class.

To be seen driving a Cadillac used to be an irrefutable indication that one “had arrived.” Cadillac’s solid engineering, remarkable re-sale value, and smooth velvety ride contributed to the popular notion that Cadillac was a symbol of total product quality and material success in the last century.

This “Cadillac Mystique” did not develop overnight or automatically, however. It started when Vermonter, Henry Martin Leland, a man of high stature, who was obsessed with tolerances down to the thousands-of-an-inch, associated himself with a prominent machine-tool business in Detroit. When approached by a group of businessmen who were keen on having his assessment of the machinery of a faltering horseless carriage outfit they sought to liquidate, Leland spotted an opportunity to enter the nascent automobile industry. Sometime earlier, Oldsmobile had turned Leland down when he tried to offer them his automobile engine, and now, here was an available car company with no motor – how serendipitous!

At first, Leland did not pursue the luxury car business with his new venture. His first Cadillacs were priced at about half-the-price of cars of their day, and well below prestige marques such as Winton, Packard and Pierce-Arrow. A man so focused on precision-fit was simply happy to build fewer, but better, automobiles than the competition. The success of the Cadillac enterprise stemmed from its excellent reputation. The principles of part interchangeability that Leland learned when he worked in Samuel Colt’s small firearms business was integrated into Cadillac’s way of making things. This precision build and attention to detail won Leland’s company the coveted Dewar Trophy once in 1908 and again, in 1912, for its electric self-starter. The company introduced its first mass-produced V-8 engine in 1914, resulting in the scorn of other carmakers that led to one famous advertising tagline: “The Penalty of Leadership.”

(Continued on page 10)

1934 LaSalle ...continued

(Continued from page 9)

GM Acquires Cadillac:

The fiscal autonomy of the Cadillac company ended when William C. Durant was executing his ambitious plans to build General Motors and acquired Leland's firm. Though now part of a larger enterprise, Cadillac continued to retain its operating independence and obsessive focus on product quality.

The Fisher Brothers started to accumulate their fortunes when, in 1910, Cadillac placed its first volume order of closed car bodies with them. Cadillac was on its way. Leland left Cadillac in 1917 and went on to found another auto company, Lincoln.

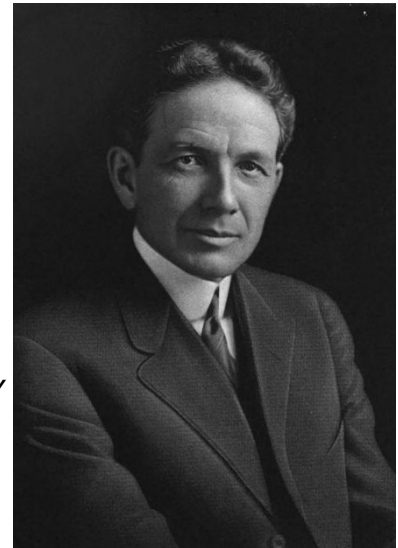
Sloan Fulfills Durant's Visions:

As Alfred P. Sloan wrote in his memoirs Billy Durant (below) was a true visionary:

Mr. Durant's pioneer work has yet to receive the recognition it deserves. His philosophy was an emerging one in the model T era and was afterward to be realized not by him but by others, including myself .

Mr. Durant between 1908 and 1910 brought into General Motors about twenty-five companies. Eleven were automobile companies ... Of the automobile companies, only four, Buick, Olds (now Oldsmobile), Oakland (now Pontiac) and Cadillac, were to have a permanent place - first as companies - later as divisions in the evolution of the corporation.

I see three simultaneous patterns in the way Mr. Durant set up General Motors. The first was variety in cars for a variety of tastes and economic levels in the market. That is evident in Buick, Olds, Oakland, Cadillac, and later, Chevrolet. The second pattern was diversification, calculated, it seems to cover the many possibilities in the engineering future of the automobile, in search of a high average result instead of an all-or-none proposition ... The third pattern in Mr. Durant's arrangements was his effort, in connection with Buick, to increase integration through the manufacturer of the parts and accessories that make up the anatomy of the motor car.



(Continued on page 11)

1934 LaSalle ...continued

(Continued from page 10)

To evidence his support of the vision of the founder of General Motors, chief Sloan said in his memoirs:

... any given car was related to other cars that impinged upon it below and above in price and engineering design ... shows that we have still to realize the ideal or theoretical list price set up in the 1921 plan. The list for the still dominant touring cars in 1924 was as follows: Chevrolet, \$510; Olds, \$750; Oakland, \$945; Buick "4", \$965; Buick "6", \$1295; and Cadillac, \$2895.

The obvious price gaps in the 1924 GM list were between Chevrolet and Olds at the bottom and the Cadillac and the Buick "6" at the top. A few hundred dollars doesn't seem much but in 1924, a Runabout Ford Model T could be had for \$265; that is \$4,053 in 2021 dollars. In current dollars the gap between the price of a Buick "6" and a Cadillac was \$24,160. To close this product/pricing gap, the chief communicated his plans:



1924 Buick 6 Touring

In his 1924 annual report to shareholders, Sloan put forward the new pricing structure as an organizing principle that would guide the company into the future. "The ideal for which the corporation is striving is to have a car for every purse and purpose", he said.

The solution for filling these gaps within GM's ladder began in 1926 with the new Pontiac, which was based on the Chevrolet and sold by Oakland as a companion make. Other gaps were filled later, among them the Viking, companion to Oldsmobile, and the Marquette, companion to Buick. Both these makes debuted for the 1929 model year, but they did not last long; each was terminated after the 1931 model year. Pontiac ultimately replaced Oakland, also at the end of the 1931 model year.

To fill the gap between the standard Cadillac and the Buick "6," I proposed that Cadillac study the possibility of making a family-type car to sell for about \$2000, which eventually resulted in the famous LaSalle car introduced in 1927.

The model was more stylish and youthful than the reserved Cadillac; indeed, it was so different that there was very little parts exchange with a Cadillac.

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1934 LaSalle ...continued

(Continued from page 11)

Fisher, from Coachbuilder to Cadillac Management:

When Larry Fisher assumed the leadership of the Cadillac Division, he continued the focus on product supremacy in the market.

As head of the Cadillac division, Fisher faced a pressing problem in 1925. Packard had just blown by Cadillac to become the bestselling luxury car in America. He believed the reason was styling. Why else would Packard, with no better engineering and a much higher price, be outselling his brand by a margin of two to one? He shared Alfred Sloan's opinion that under the aegis of Fisher Body, GM cars had become stodgy-looking, unimaginative, and boring .

Cadillac's Man in California:

Don Lee the California exclusive Cadillac distributor operated dealerships in San Francisco, Sacramento, Oakland, Pasadena, Fresno and Los Angeles. From that vantage point he enjoyed a unique view into the luxury car market in his state. He perceived that, while Cadillac was maintaining its engineering supremacy, its styling was falling short of the hand-finished excellence of competitors like Packard and Pierce-Arrow.

In response to demand for more personalized vehicles by many notable Hollywood people, Earl had developed a process in his father's shop (Earl Auto Works) for making factory-built cars look more like custom-built cars.

Don Lee took notice that, to get the best of both worlds, some of his customers would order Cadillac chassis from his dealerships and have them delivered to Earl Automobile Works in Los Angeles, where they were only too happy to pay two or three times the price of a base Cadillac to have Harley create a completely unique auto body that would assure the "oohs" and "wows" of many a passersby as it rolled down the street.

Lee Takes over Earl's Coachworks:

Don Lee was losing business to Earl, so he made a bid to buyout J.W. Earl's coachworks, contingent upon Harley remaining as its chief designer. The bid was accepted, terms unknown, and the shop became Don Lee Coach and Body Works.

In the summer of 1925, Lee ordered 100 chassis from Cadillac in Detroit, to create a series of custom five-passenger sedans. The large order caught the attention of Mr. Fisher who decided to travel west to learn first-hand what was going on. That "what" was Harley Earl.

Next Month, 1934 LaSalle Part II: Harley Earl Creates LaSalle

The Lost Arrow

By Morris Cooper

A serious contender for the title of the most overlooked car in the Miles Collier Collections would be the 1988 Arrows F1 race car in the Revs gallery.

As best as can be determined, no Revs Institute Volunteer has ever presented an Adopt-a-Car study on this vehicle and the publicly available information on it is sparse.

Most curiously, the plaque beside the exhibit says the car is “On loan from USF&G” (United States Fidelity and Guaranty). That company ceased to exist in 1998 and morphed to become part of the St. Paul/Travelers Insurance group. Although USF&G had been in business since 1896, by 1990 it had serious financial difficulties and was considered on the verge of bankruptcy.

The Arrows exhibit car prominently bears the USF&G livery because USF&G was the team’s sponsor from 1986 through 1990. Is this race car “on loan”? It remains an unanswered question. Unlike everyday cars, a race car has no governmental registration or title documents.

Origins

The Arrows Grand Prix team began in 1977 in Milton Keynes, England. The team’s name is the initials of the surnames of its founders: Franco Ambrosio, Alan Rees, Jackie Oliver, Dave Wass, and Tony Southgate after they had left the Shadow Formula 1 team. Shadow race cars have been aptly described as “The love child of a woodchipper and a doorstep.”

The first Arrows car was a direct copy of the Shadow DN9. Arrows called their car the FA1, naming it after the team’s first sponsor Franco Ambrosio. Problems soon ensued. Shadow sued for copyright infringement in Britain and won, barring the Arrows FA1 from racing. Ambrosio was jailed for serious financial irregularities in Italy and was murdered along with his wife in his seaside villa near Naples in 1990.

By 1987, the Arrows team boss was Jackie Oliver. He signed American driver Eddie Cheever to partner with British driver Derek Warwick when USF&G became the team’s major sponsor. The two accomplished drivers had been teammates at TVR the previous year.



*Photos Courtesy of Revs Institute,
Peter Harholdt Photo*

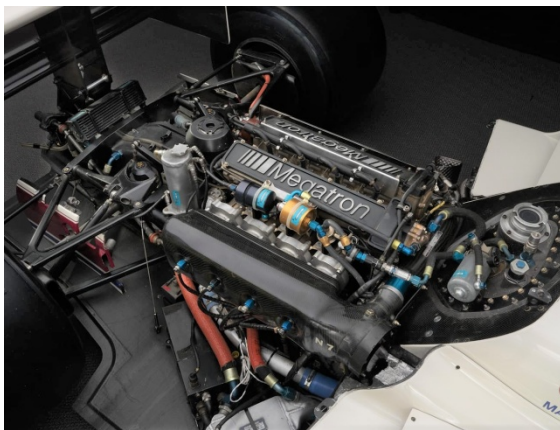
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The Lost Arrow...continued

(Continued from page 13)

Megatron

In the 80s USF&G had been on a corporate buying spree. One such acquisition was the Detroit-based computer leasing company Megatron Inc., established by John J. Schmidt, a great fan of Formula 1 racing. Schmidt was able to convince USF&G to sponsor a Formula 1 team to grow business by bringing top executives of major



corporations to watch Formula 1 races and thereby promote USF&G activities. This, and the motor powering the car, is the reason why the “Megatron” name appears on its sides.

The engine powering this Arrows A10B is the venerable turbocharged BMW 4-cylinder 1499cc M12 motor (left). At the time, it was the oldest Formula 1 turbo motor in use. First started by the Brabham team in 1982, it won the 1983 Drivers' Championship as the first to win using a turbocharged motor.

At the time, BMW engineers estimated that this engine produced around 1400 hp at 11,000 rpm with maximum turbocharger boost. No one would ever know for sure since the BMW dynamometer could not register above 1280 hp. If so, it would be the most powerful engine ever to race in Formula 1, naturally aspirated or turbocharged (the turbocharger shown at right).

But BMW announced its withdrawal from Formula 1 at the end of 1986. Arrows team boss Jackie Oliver made a deal to continue the use of the BMW motor under the Megatron name.

The mechanical race car genius behind the improved engine was Swiss engine tuner, Heini Mader. Thus the rebadged BMW engine, now known as Megatron, was used by the Arrows team for the 1987 and 1988 seasons. The Megatron motor ended after the 1988 racing season. From 1989 onwards, turbocharged engines were banned.



The only book referencing the Arrows Team in the Revs Institute library is a “souvenir” hardbound book distributed by USF&G and bearing its logo. It is described on the inside cover as “A written and pictorial account of the 1987 Formula 1 season.”

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The Lost Arrow...continued

(Continued from page 14)

The book covers each of the F1 cars and races of that year and includes a brief reference to the Arrows A10B and the team.

The Arrows Grand Prix Team has been referred to as the best team never to have won a Grand Prix. Although they did score nine podium finishes between 1978 and 2002, their record remains – 382 races without a win.

Now, 35 years later, the name Megatron has an entirely different meaning. Megatron is a very popular Transformer toy figure (right):

“...a fictional character and the main antagonist of the [Transformers](#) media franchise..... Megatron is the cruel and tyrannical leader of the Decepticons, a faction of sentient, war-mongering robotic lifeforms that seek to conquer their home planet of Cybertron and the rest of the known universe.”



Linked Photo

Events Calendar

| Event | Date | Info or contact |
|----------------------------|-------------------|------------------------------------------------------------------------|
| Pella Winter Meeting | Jan 10 @ 7:00 pm | Sign up on VicNet |
| Gulfshore Opera Tour | Jan 11 @ 1:30 pm | Sign up on VicNet |
| Volunteer BOD Zoom Meeting | Jan 20 @ 10:00 am | Sign up on VicNet |
| Volunteer Banquet | Jan 21 @ 5:30 pm | wherod@revsinstitute.org |
| Morgan Foundation Board | Jan 25 @ 3:00 pm | Sign up on VicNet |
| Twin Eagles Tour | Jan 27 @ 10:30 am | Sign up on VicNet |
| Pelican Landing | Jan 27 @ 1:30 pm | Sign up on VicNet |
| Syracuse University | Feb 1 @ 6:00 pm | Sign up on VicNet |
| Auburn Duesenberg Club | Feb 3 @ 10:30 am | Sign up on VicNet |

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

It's In The Air

By Bill Vincent

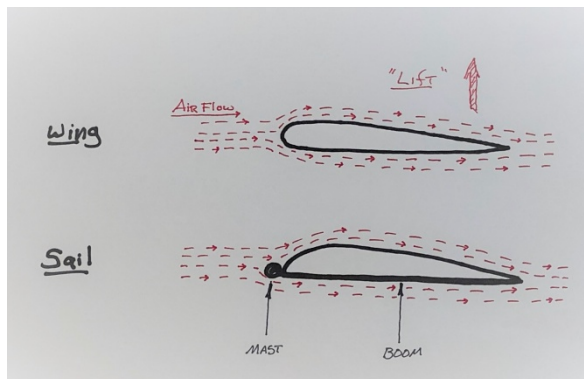
Briggs Cunningham is the only man to win the America's Cup (in sailing) *and* compete at the 24 Hour of Le Mans in a car bearing his own name. So it's kind of fitting that the Briggs Cunningham collection of cars ended up at the Revs Institute in Naples, Florida. It is only blocks from sailing on the beautiful Gulf of Mexico and virtually next door to an airport.

Race cars, sailing, and airplanes - all sharing and working with the same air.

Mr. Cunningham was among the leaders in seeing what those three different forms of motion all had in common with the air around us - and how the knowledge from one can be used to enhance the other. The Miles Collier Collections' 1950 Cadillac "Le Monstre" is a great example of one of his early attempts. To fully appreciate the overlap, we need to understand how sails and wings really work - as they are all really doing the same thing, just in a different direction.



*Peter Harholdt Photo
Courtesy of Revs Institute*



*Figure 1
Bill Vincent Drawing*

There are many who believe the wind is "pushing" a sailboat along. Or that the wings on an airplane, or race car are "pushing" it up in the air or down on a track. But that's not completely true. What's really happening is that the sailboat is being "drawn" along by the difference in pressure, or "lift" being created by the wing shape of the sail, as the air flows over it. Just as the race car is being "drawn" downward, or the airplane upward. (Figure 1)

The air around us likes things to be even and balanced. So when a pair of air molecules hits the leading edge of a wing, or sail, they split to go on either side and meet again on the trailing edge. But to do that, the air molecules on the more rounded side are traveling a greater distance and have to speed up to meet their friends at the trailing edge. When those molecules speed up, their pressure drops, compared to the molecules traveling down the other side.

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It's In The Air... continued

(Continued from page 16)

It's this change in pressure, or "lift" that moves the sailboat forward, lifts the plane upwards, and pushes the race car down in the process. With the weather, that is wind moving around to fill in low pressure areas. So, these "wings" are also tuned, or adjusted in similar ways too.



Figure 2

After World War II Mr. Cunningham acquired the schooner "Brilliant" from the Coast Guard and made upgrades to improve its performance. One of those upgrades was the invention of what we now call the

"Cunningham downhaul". (Figures 2 and 3) It is a combination of lines and pulleys to control the shape of the leading edge of the sail, or wing shape to optimize its performance. Have you ever had a window seat on an airplane and saw the front edge of the wing adjust before landing? It's of a similar theme.

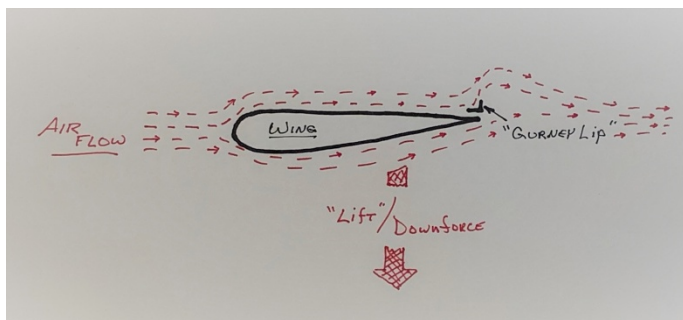


Figure 4
Bill Vincent Drawing

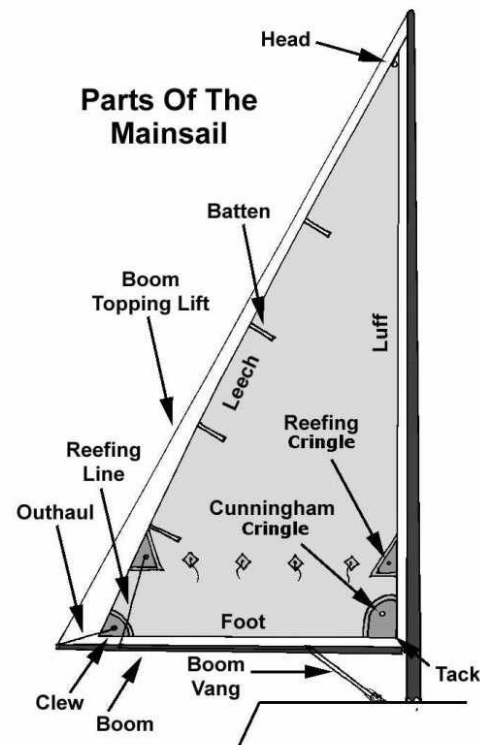


Figure 3

On the trailing edge of the sail, or wing there's another adjustment. On the 1974 Jorgensen / Gurney Eagle, you'll notice a piece of aluminum bent at 90 degrees affixed to the rear edge of the wing. This has a number of nick names, but is probably best known as "The Gurney Lip or Flap" (Figure 4 and Figure 5 on the next page).

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It's In The Air... continued

(Continued from page 17)

What this does is impede the air flowing over the top of the wing (for a race car), forcing the air flowing under it to speed up even more, enhancing the low pressure under the wing - creating more downforce. (Figure 4) On a sailboat this is done with the "leech line". It controls the amount of "curl" at the rear edge of the sail. (Figure 3)

And on an airplane, this adjustment is made with flaps. (Figure 6)



Figure 6



Figure 5
Peter Harholdt Photo
Courtesy of Revs institute

Obviously this is just a rudimentary overview of things "aerodynamic" and we could spend HOURS going through all the nuances, but I've always found it interesting how technologies and knowledge transfers from one application to another.

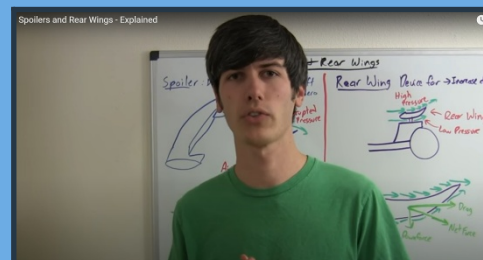
And how people, like Mr. Cunningham, had the foresight to pick up on and take advantage of those opportunities! A walk through the Revs Institute is a great way to observe the progress of the knowledge gained in the aero field, relating to cars.

From cars like the Miller 122/91 in 1924 to Cunningham's "Le Monster" in 1950, through the 1988 Arrows Formula 1 car - there's a visible advancing timeline!

The shapes all evolved to take advantage of something we can't see - - - It's in the air!

Video Treat

Engineering Explained describes the difference between a "spoiler" and a "wing" as used on automobiles. Click on the picture for the link.



TAPPET TECH

Body-on Frame vs. Unit-Body

By Eric Jensen

As tours pass through the first couple decades of automotive design in the Vitesse Gallery they come upon a significant advancement within the 1927 Lancia Lambda Torpedo Tourer. That advancement may be hidden by the body of the car but is nicely displayed in the pictures behind on the wall. The Lancia contains a very early innovation, unit-body construction. Most cars to that point have what is known as a ladder frame construction.

What is meant by "ladder frame" construction and how does it differ from unit-body?

The "ladder frame" description is apt. In Figure 1 we show a Ford Model A hotrod ladder frame. It looks exactly as it is described; Like a ladder laying flat. Two frame rails run front to back and the crossmembers, looking like ladder steps, from side to side. The front and rear axles, control arms and springs can be clearly seen.



Figure 1

The Hispano-Suiza H6C chassis shown in Figure 2 shares that design and clearly shows not only the attached suspension but the engine, radiator, completed dashboard and steering system. This forms the support for any coachwork the buyer desires. The Hispano-Suiza is clearly more robust as is befitting a fine automobile but the concept is the same.

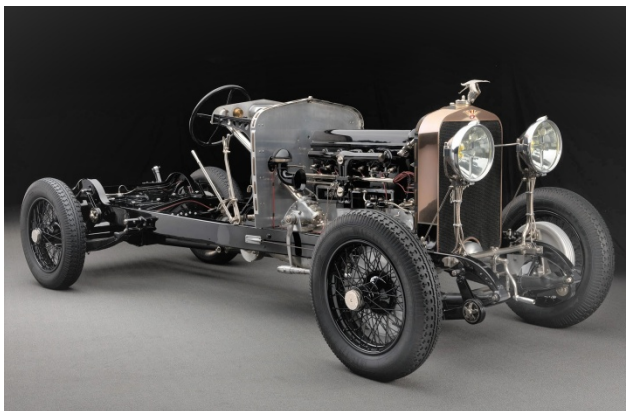


Figure 2

Peter Harholdt Photo, Courtesy of Revs Institute

That coachwork starts with a wooden frame that is subsequently covered by the sheet steel, aluminum or even wooden body. The Morgan sports car in Figure 3 on the following page shows this well. We can see the frame, in black. The wooden structure clearly shows the shape of the metal body that will be installed over and attached to the wooden frame.

(Continued on page 20)

TAPPET TECH

Body-on Frame vs. Unit-Body ...continued

(Continued from page 19)

The Lancia, in contrast, combines the ladder frame and the wooden body support into a metal structure that supports the suspension, engine and the body. This patented design forms a strong, stiff, but lighter car than those that use a ladder frame.



Figure 3

Figure 4 shows the structure that supports the chassis, engine and body.

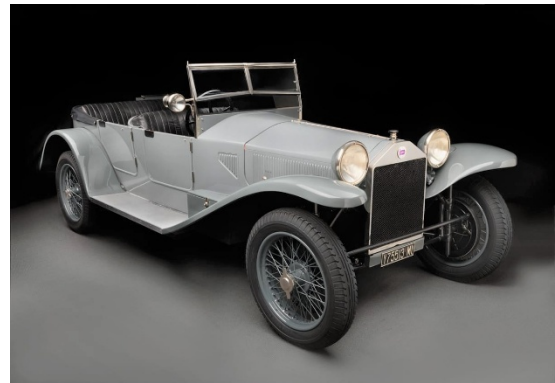
This construction method has several names, unit-body, uni-body or monocoque but they all refer to this efficient construction method. Figure 5 is the complete car.

Unit-body construction did not lend itself well to custom coachwork. This type of construction did not please the coachbuilders common in this era nor some buyers wishing for a different style body than Lancia provided. Demand for custom coachwork forced Lancia to offer a modified structure for 1926 that was part way between a full unit body and a ladder-frame to satisfy the demand.

Compared to its neighbors, the 1927 Vauxhall and Packard, the Lancia weighs about half. That is a huge advantage in performance, ride, handling, safety and fuel economy over the ladder-frame. While not designed as a racing car, the advanced design of the Lambda made it a formidable in competition. It took decades more for other carmakers to catch up to this innovative design.



Figure 4



*Figure 5
Peter Harholdt Photo,
Courtesy of Revs Institute*

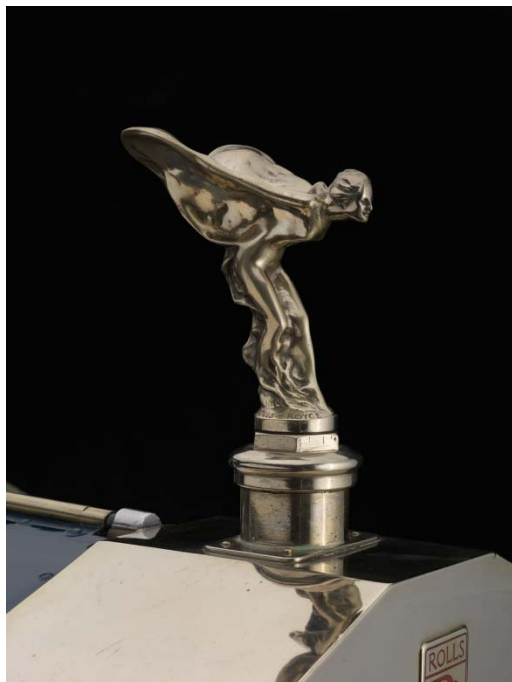
TAPPET TRIVIA

By Joe Ryan

And Now The Answers.....

1. **Q:** How many variations of the Spirit of Ecstasy Mascot were produced?
Answer: Five different mascots of the Spirit of Ecstasy were designed.
2. **Q:** What year did the first Spirit of Ecstasy become the Mascot of Rolls-Royce? **Answer:** 1911 was the first year the Spirit of Ecstasy adorned the Rolls Royce.
3. **Q:** What award did Charles Sykes win in 1920? **Answer:** Charles Sykes and The Spirit of Ecstasy won a gold medal at the International Automobile Mascot Competition.
4. **Q:** Eleanor (nee Nelly) Thornton was the model for the design of the Spirit of Ecstasy. What was her relationship to Charles Sykes?
Answer: Eleanor was secretary and secret lover to Charles Sykes' Patron, the second Baron Montagu of Beaulieu. She was no stranger to modeling. She had modeled for several of Sykes's earlier designs.

The final trivia questions on the Spirit of Ecstasy in next month's issue of Tappet Clatter. Everyone is encouraged to stop by the display of the Spirit of Ecstasy in the Automobility Gallery.



***Contributions to the column
are always welcome.***

*The Spirit of Ecstasy on the 1914
Rolls-Royce
Silver Ghost Tourer*

*Peter Harholdt Photo
Courtesy of Revs Institute*

Adopt-A-Car Program

Available Adopt-A-Car Automobiles and Engines

| | | |
|--------------------------|-------------------------|-----------------------------|
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| Alfa Romeo AutoDelta | Stutz Black Hawk | Cadillac OHV V-8 engine |
| Ardent Alligator | Vauxhall 30-98 Type OE | Chrysler Hemi (C-3) engine |
| Bugatti Type 55 Super | Waymo Firefly | Duesy Sprint Car engine |
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| Scarab Sports-Racer | | Velocipede Bicycle |

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

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