

The official newsletter
of: Revs Institute
Volunteers

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*Thank You to
this month's
contributors:*

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- Morris Cooper
- Bill Vincent
- Fernando Licopoli
- Whitney Herod
- Max Trullenque
- Joe Ryan
- Chip Halverson
- Phil Panos
- John Wharton

TAPPET CLATTER



Volume 28.4

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Chairman's Notes

By Chip Halverson

Last month Revs Institute hosted the World Forum for Motor Museums and The National Association of Automobile Museums annual conference. Over one hundred fifty attendees spent four days attending seminars on various topics and had tours of the collection, shop, library and the parts department. They were also given opportunities to see collection cars driven in the parking lot.

The attendees represented all the well-known, major museums as well as many smaller specialty museums. They all shared our passion for automotive history.

The attendees I interacted with were consistently impressed with Revs Institute. All of the physical aspects, the collection, the shop and the library were, as always, very impressive. They were also very impressed with the people, the management, staff and shop personnel.

The Attendees had many chances to interact with our volunteers over the four days. That resulted in a lot of questions about how we recruit, train, and retain our volunteer team. Always good to get positive comments from your peers.

I think coming into Revs Institute as often as we do, it is possible to begin to take it all for granted. I came away from the conference having been reminded what a truly special place this is.

Wishing you a great Holiday Season and
the very best in the New Year.

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!*

This month's questions....

1. **Question:** What President was the first to ride in an automobile?
2. **Question:** What President was first to ride in an electric auto?
3. **Question:** Who was the first three time winner of the Indianapolis 500, the first to drink milk in the winners circle and the first face on the Borg-Warner Trophy?
4. **Question:** In keeping with the Spirit of Exhibition at The Revs Institute, A question has been asked. We know that Charles Sykes was commissioned by Claude Johnson to create the Spirit of Ecstasy, Rolls Royce's mascot. Who was the Spirit of Ecstasy figurine patterned after?

The answers appear later in this issue

Membership Report

By Tom Dussault

Our next Orientation will be held on December 10, 2022. Four new members will learn about the museum and research library. During the Orientation, we take member photos and they complete lots of paperwork. We will introduce these newest members in the January issue of *Tappet Clatter*. They are anxious to begin formal training with their mentors. Thanks very much to those members who have volunteered to mentor one of the new recruits. If you are interested, please let us know.

The "Get Involved Collier! Volunteer Expo" sponsored by the Greater Naples Chamber of Commerce was held on November 3rd. Many thanks to Jayne Gresch and Greg Gruber for representing Revs at the event. Sixty eight volunteer organizations participated. This is an opportunity for non-profit and government agencies within Collier County to reach out to members of the community who are interested in volunteering.

The results were as follows: Thirty five people sought out information about volunteer opportunities at Revs. Three indicated a real interest in volunteering. The rest of the people stopped by to comment on what a great museum we represent. Many were interested in how we fared in the hurricane. It turned out to be more of an opportunity to gain exposure in our community than a strong way to recruit new members. As with our other efforts, we don't know unless we try.

Thanks to Jayne Gresch for her great assistance as well as for filling in for me at the last board meeting. Happy Thanksgiving!

Volunteer Board of Directors Elections

The Revs Institute Volunteer Board of Directors consists of nine members. Three of the nine positions are elected each year. The three new board members will be elected for a three year period. The candidates will be presented in the February issue of the *Tappet Clatter* and elected by the Volunteers at the Annual Volunteer Membership Meeting next spring, including absentee ballots. There are two open positions to be filled. Any Volunteer in good standing and with at least two years of service can be a candidate. Self nomination is allowed.

If you would like to serve on the Board, please contact Hank Berglund, Nominating Committee Chair at shberglund@aol.com

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**

New Training Classes

By John Wharton

Tis the Season to Gear up Collection Knowledge!

Please try to attend all three class classes offered to Seasoned Volunteers:

Porsche Gallery Refresher: Dec. 14 @ 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.

**Collection Protection: Dec. 16 and Jan. 4 @ 10:00 am - 11:00 am
(choose one date)**

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

MythBusters: Jan. 18 @ 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.

For New Volunteers only :

New Volunteer Orientation: Dec. 10 @ 10:00 am-1:00 pm

New Volunteer Introduction Class: Dec. 17 @ 10:00 am -12:00 pm

Sign Up On VicNet Today!

Revs Institute – WFFMM – NAAM Joint Conference



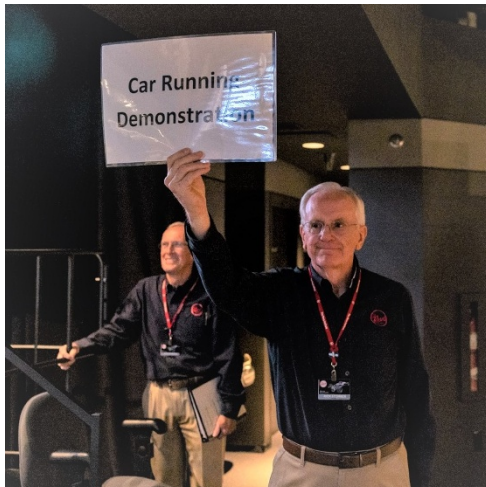
Revs Institute hosted a conference of the World Forum for Motor Museums (WFFMM) and the National Association of Automobile Museums (NAAM) November 9 to 12, 2022. The theme of the conference was *The Future of the Past is Collaboration*. Museum professionals from all around the world came to Revs Institute to educate, make contacts, share experiences and discuss the future.

Helping host the conference were a number of Volunteers. The organizations had high praise for the efforts of Revs Institute and the Volunteers. On these pages are photographs our Volunteers at the conference.



*All Photos Courtesy of Revs Institute
Maximilian Trullenque Photo*

Revs Institute – WFFMM – NAAM Joint Conference... *continued*

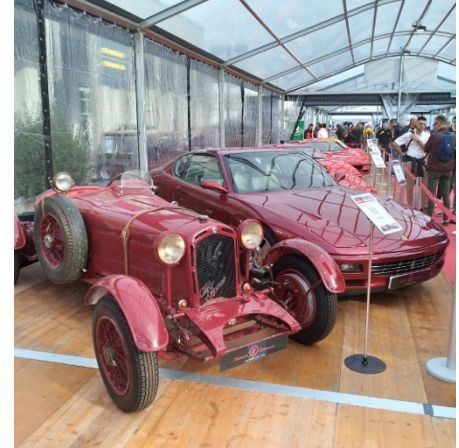


Car Notes From Italy

By Fernando Licopoli

Notes from The Veneto

My wife Katherine and I spent the month of October in Padua Italy located some thirty minutes from Venice by train. Our stay reinforced what I always knew; Italians are a visual people. It's no surprise of course. When born into a world that is surrounded by art in every form, it is impossible for one not to be influenced by the visual whether it be the architecture of Palladio or Giotto whose frescoes give emotion to the human form. Visual input is evident in every step. To say that our month long stay in Padua and the surrounding Veneto region was an abundance of visual stimulation would be an understatement. And so it happened that by sheer coincidence, Auto D'Epoca Moto, the largest auto and parts show in all of Italy, was held during our stay.



This year's theme was "L'Auto Accende La Passione" or "The Car Ignites Passion" and if anything, Italians are passionate when it comes to cars. The event was held at the Fiera Di Padova, an exhibition center that was more than adequate to handle the 5000 vintage cars, exhibitions, original spare parts, accessories, clothing and gems for the enthusiast. (above, right and below) Collectors as well as dealers from some 46 countries converged for the three day fair held from the 20th to the 23rd of October.

The Fiera Di Padova is an immense complex of pavilions with a covered area of some 651,216 square feet. Add the outdoor space and the area amounts to nearly 1.7 million square feet of space.



Among the 5000 cars for sale or show one could find examples ranging from humble Cinquecentos, curious FIAT Jollys designed for use at resort hotels, countless 356 Porsches, street and racing examples from Alfa Romeo, Lancia, Maserati and Ferrari. In addition there were many examples of one liter sports racing cars such as Stanqueillini, Ermini, and Panhard among others and all presented in fine fashion.

Photos Courtesy of Fernando Licopoli

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Car Notes From Italy...continued

(Continued from page 8)

There were several exhibits of interest. The Enzo Ferrari Museum in Modena presented "The Classic Ferrari Exhibition." Historically significant Ferraris were put on display illustrating the craftsmanship, dedication, tradition and innovation that illustrates the Ferrari ethos. Of singular interest was the Ferrari 125S (left), the first car that the Classic Ferrari Department undertook to restore. The 125S was the first Ferrari to race under the Cavallino Rampanti shield. Driven by Franco Cortese, the car debuted in 1947 at the Piacenza Grand Prix circuit and was, in Enzo Ferrari's words, "a promising failure" having to withdraw due to a fuel pump "fault." The promise of the car was fulfilled in the ensuing competitions by winning six out of thirteen races. Enzo Ferrari was the first to test drive the 125S and one can only wonder what he must have been thinking, holding on to the steering wheel of his first eponymous creation.



A partial view of The Golden Age of Rallying was an exhibit brought in from The Italian National Motor Car Museum in Turin highlighting representative cars of the era. Among the cars exhibited was Sandro Munari's 1972 winning Lancia Fulvia HF 1600 (below) with other rally versions such as the FIAT 124 Spider.

The four day show drew buyers from throughout the world and numbered, according to one source, some 125,000 visitors. To truly take advantage of the event, one should plan at least three days. Unfortunately I did not.

Having lunch at an outdoor food court, I spoke with a Belgian dealer in high end marques who bemoaned that the pricing this year was a bit inflated. The amount of people and cars, car club exhibits, restoration service booths, and the endless sea of car parts and memorabilia was, much like Italy, visually stimulating.

Next year the fair will take place in Bologna from October 26 to 29. If in the area, you can take advantage of the event as well as experience some of the best food in of all of Italy. It is no small wonder that Bologna is called "La Grassa", or "the fat."



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Car Notes From Italy...continued

(Continued from page 9)

[This link](#) will take you to Autoweek's Mark Vaughn, who had the advantage of being there on press day before opening to the general public. His article along with the 80 photos will give you deeper idea of the show itself and the number of examples that were on the floor.

Notes from Emilia-Romagna

Emilia-Romagna is birthplace of balsamic vinegar, parmesan cheese, Pavorotti, Lambrusco wine and of course the celestial home to some of the most exciting car manufacturers in the world such as Ferrari, Maserati, Lamborghini, Pagani and motorcycle manufacturer Ducati. It is of no surprise that Emilia Romagna is referred to as the Motor Valley.

In Modena, Maranello and surrounding area you will find museums and factory tours for Ferrari, Maserati and Lamborghini and they are obvious destinations for any enthusiast. Yet within Modena there is a notable manufacturer whose contribution to racing and the career of some notable drivers is well worth considering.

In 2019, I had the opportunity to visit the Museo Stanguellini (right) which displayed many examples of "il piccolo grandi auto da corse" or "the little big racing car." And indeed they were. Vittorio Stanguellini was a gifted engineer who not only designed and developed successful small engined sport and formula cars but also designed and built twin cam engines and engine dynamometers used by the Scuderia Ferrari. In addition, Stanguellini designed the electrical circuitry for his factory.



Briggs Cunningham race cars included a front engined Stanguellini formula junior car that was raced by Cunningham and Walt Hansgen among others.

The cars were raced by international luminaries such as Lorenzo Bandini and Wolfgang Von Trips. Juan Manuel Fangio, a good friend of Stanguellini, was instrumental in the development and testing of the front engined formula cars.

The collection is located in Modena on Via Emilia Est. Visits are made by personal appointment only. After making arrangements by phone, my wife and I went to the entry, rang the bell and were shortly met by Vittorio's granddaughter, Francesca.

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Car Notes From Italy...continued

(Continued from page 10)

She invited us to a small sitting area and were offered espresso and dolce (sweets). We spoke a bit about her brother Simone who races Stanguellini sport racers in historic events. I mentioned that I recently attended the Goodwood Revival and spoke of Joe Colasacco who the year before won the Glovers Trophy race for 1.5 liter F1 cars. In addition he races the Stanguellini Delfino formula junior car. Francesca mentioned that he frequented the museum quite recently.

Stanguellini race cars have successfully competed in Italy winning countless 1000 cc and 750 cc class races. Stanguellini sports cars (right) also raced at LeMans. During the front engined formula junior era, his formula juniors were the car of choice both in Europe and the US.



In addition to the iconic race cars, the museum houses the personal collection of cars owned by Francesca's father Francesco as well as the first automobile in Modena to bear a license plate.

The Stanguellini family's connection to the racing world is quite impressive. Vittorio was a respected and close friend of Enzo Ferrari and recognized by a wide array of personalities in the racing world. If you find yourself in the Motor Valley, the Museo Stanguellini is well worth the espresso, the sweets and the collection.

Video Treats

A short video of a 1948 Fiat 1100 S Stanguellini. This car is a former participant in the 1951 and 1952 Mille Miglia. Click on the picture to play.



The History of Car Audio

By Morris Cooper

It is hard to separate our individual memories of cars from the soundtrack of that same era. Car radio has shaped our relationship with the car itself. Its evolution was influenced by both the ever-increasing technology and the ever-increasing audience.

Well before commercial radios and audio technology were available, the self-described “Father of Radio”, American inventor, Lee de Forest, demonstrated his wireless car radio at the 1904 St. Louis Exposition.

It was not until around 1920 when vacuum tube technology made radio broadcasting commercially viable with the availability of mobile receivers. In 1930, the Galvin Brothers together with Bill Lear (of later Learjet fame) marketed their radio. They named it as a variation on the popular “Victrola”. They called their product, and later the company, “Motorola.” Galvin’s genius was in merging the two great societal changes of the early 20th century, cars and radio... into a harmonious package.

By the end of that decade AM radios were a common feature in new cars. The AM band was well-suited to the geographic expanse of the population. AM signals travel much further than FM broadcasts and AM was also cheaper to transmit. The first FM receiver by Blaupunkt came out in 1952. Although the audio quality of AM is not comparable, it allowed for radio stations to exist in thinly populated areas of the U.S. and Canada. Well known AM mega-stations broadcasting at 50,000 watts could be heard (at night) in a 500 mile or more radius. Essentially, an AM station works by transmitting an analog version of the sound on top of its radio station frequency.

Despite the hard times of the 1930’s, the public’s interest in car audio did not decline even though a car radio was a very pricy option. The built-in Motorola in a Ford Model A was a fifth of the price of the car.

It had become popular in the succeeding years for car manufacturers to add art deco radio designs to match the radios in people’s homes. By 1946, there were nine million car radios in the U.S. By 1963, there were fifty million car radios.

Although magnetic recording tape had been around since 1928, early efforts in the 1950s to provide mobile play from a media were made with vinyl records. This was an option in 1956 Chrysler cars, with a limited selection of specially produced 7-inch discs turning at 16 ½ rpm. Although later players used commonly available 45 rpm records, the additional needle pressure to keep the records from skipping was quickly wearing out the records.



*1934 Chrysler Airflow
Courtesy of Revs Institute,
Peter Harholdt Photo*

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The History of Car Audio...continued

(Continued from page 12)

Radio's inherent drawback was the listener's inability to choose the songs or performers. Earl Muntz invented the "Wayfarer" 4-track stereo cartridge player in 1962. Bill Lear and Motorola developed the 8 track cartridge, as a means of getting around



1956 Chrysler Phonograph

the Muntz patent, and it appeared in Ford cars in late 1965 for the 1966 models. The sixth Beatles studio album "Rubber Soul" was their first available on 8-track. Understandably, Ford's market share effectively blew away Muntz's 4-track system despite some technological advantages. 8-track cartridges were also cheaper to produce. Despite its annoyances of changing tracks in the middle of a song, the 8-track format had a surprisingly long run of 23 years. There still seems to be at least one vendor at automotive

flea markets selling 8-tracks to the owners of restored 1970's era cars.

By 1975, one third of the U.S. record market had become cassette tapes. The availability of home-made "mix-tapes" created a surge in popularity. Cassettes had better tape quality, longer play times and auto reverse. A later feature was Dolby noise reduction.

The last cars marketed in the U.S. with a factory equipped cassette player were the 2010 Lexus and the Ford Crown Victoria, likely a reflection of their buyer demographic.



*Aftermarket Under-dash 8 Track
Photo Courtesy of Stephen Hagwood*

Pioneer introduced the first Compact Disc (CD) player in 1984. Sound quality was improved over the cassette with increased durability. The 1987 Lincoln Town Car was the first with an OEM CD head unit. By the late 1980's in-car CD changers became very popular as trunk mounted devices held six or more discs. Later, throughout the 1990's, multiple CDs were stored in the head unit itself.

The 1980s into 1990 evolution also saw the increase in the number of speakers, and the sound quality in luxury cars was close to the best home audio equipment.

Although the technical basis for satellite radio began in the early 1990s, the first satellites were launched in 2000 with full coverage of the U.S. achieved in mid 2002.

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The History of Car Audio...continued

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While it was revolutionary to be able to continue to listen to one channel on a cross-country drive, the listener limitation was the inability to select or skip songs and the repetitious loop of music on any specific channel. However the novelty of freedom from FCC rules allowed for profanity, sex talk, offensive comedy and targeted political talk radio. It was a new era in listening.

By the early 21st century new digital storage media became adapted to car audio, such as thumb drives, memory cards and then Bluetooth. Now for the first time, the car audio head unit could interface with mobile phones and other devices. The car radio became increasingly important as the housing for backup cameras, GPS navigation, and connectivity with Apple CarPlay and Android Auto. Car audio soon went from dashboard mounted controls and buttons to steering wheel controls, voice activated commands and hands-free mobile phones.

Electric vehicles are mostly sold without AM radios due to electromagnetic interference, reducing audio quality below acceptable levels. AM radio has all but disappeared in Europe, superseded by the Digital Audio Broadcast format.

In the last decade we have seen car audio diverge from merely talk or music to become components of active noise control. Sometimes this is used to minimize internal background noise but occasionally to artificially augment engine sounds through the car speakers. A benefit of active noise control is the ability to make the car lighter with less sound deadening materials and the newly possible omission of the heavy balance shaft in the motor. A benefit of augmented engine sound is to make an anemic 4 cylinder sound like a V8 through the speakers, at least to the occupants. Some cars today play various recorded engine noises using different sounds dependent on the motor's rpm or acceleration.

Bringing this audio history in context to the Miles Collier Collections cars, as best as our Editor could determine, the only car radios are in the Chrysler Airflow, the 1950 Cadillac, the 1952 Cunningham C3 and the 1964 Porsche 911. To top it off, the McLaren F1 has a custom made Kenwood 10 disc CD changer but no radio, because designer and builder Gordon Murray never listened to radio.



Front Mounted McLaren F1 10 Disc CD

The car without a radio where you might well have expected to find one is Mr. Collier's personal high school graduation gift, his blue 1965 Porsche 356C. Reportedly, he just preferred the sound of its air-cooled flat-four engine. Completely understandable.

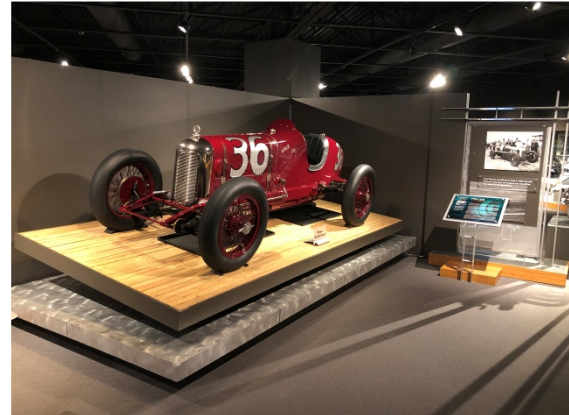
High Speed Board Meetings

By Bill Vincent

Residing in the Revs Gallery is a beautiful 1924 Miller 122/91 Racing. It sits proudly on a platform of wood. Most probably don't understand the significance of that, as many have never even heard of the rather short period of motorsport history known as *board track racing*.

Board track racing's popularity ran, roughly from the 1910s through the 1920s, fading into the history books in the early 1930s, with the start of the Great Depression. They rose in popularity for their ease and relatively low cost of construction evolving from bicycle velodromes of the day.

But for those competing, they definitely were not for the faint of heart!



Bill Vincent Photo

Board track racing made the high, steep banks of today's speedways popular along with grandstand / stadium-style seating for fans. All while built of wood! Many tracks only lasted a few years. They required huge amounts of maintenance and lacked any real durability. Imagine a wooden roller coaster, but for cars. Cars capable of serious 100 mph+ speeds! Safety was definitely consigned to the back of the program. But purses of up to \$25,000 drew in the competitors!



Baltimore-Washington Speedway in 1925
 This work is from the [National Photo Company](#) collection at the [Library of Congress](#). According to the library, there are [no known copyright restrictions](#) on the use of this work.

The wood was woefully inadequate to contain the racing cars, many of which would rupture fuel tanks in crashes. The wood would then absorb the fuel making fire a *serious issue*. Drivers, riding mechanics, and fans alike were all vulnerable to flying wood splinters and debris. The cars raced - dodging holes, and other "challenges" of the tracks - as the tracks often crumbled beneath them.

All this, along with the poor tire technology of the time - often catastrophic tire failures - made for sadly memorable days with many fatalities often including spectators. Some even took to calling the board tracks "Murderdromes."

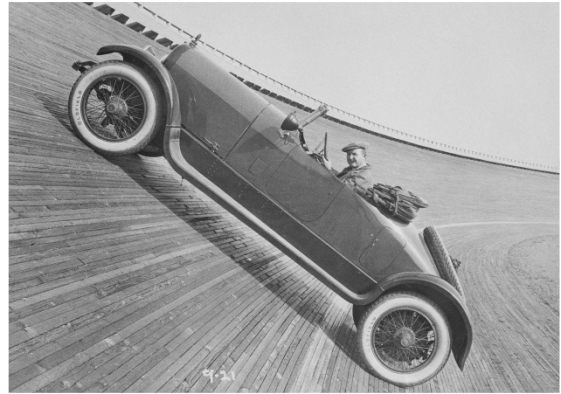
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High Speed Board Meetings... continued

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And motorcycles raced these tracks too! At one point there were about two dozen of these tracks built throughout the country. Many were in California, but they were also in Illinois, Missouri, Pennsylvania, Iowa, Ohio, and both coasts. In their prime they were really popular, too. Many tracks drawing large crowds. In 1915 the Chicago track drew a reported 80,000 spectators!

The cost of constant maintenance, particularly on tracks in unfavorable climates, played into the demise of the board tracks, along with the ever increasing speed of the cars. On average it required as much as a million board feet of lumber to resurface every mile and a quarter of track. The labor and materials of which, just weren't sustainable. But maybe that's not a bad thing!



Barney Oldfield on a board track in a car with Oldfield tires at an unidentified track



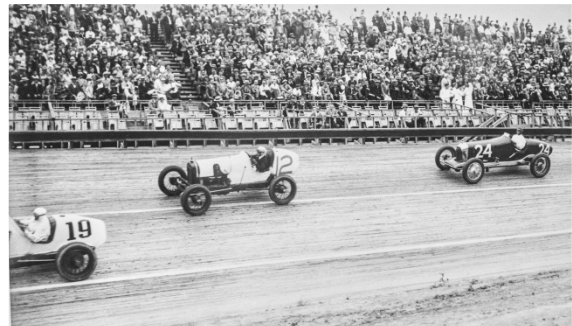
*Miami Florida Board Track,
Date unknown*

Although I'm sure it was a spectacle at the time. Just the safety issues alone signaled that the board track racing had run its course.

So next time you're standing next to that gorgeous Miller on its wooden platform at The Revs Institute, spare a thought for the gladiators who hurled themselves around those old board tracks back in the day.

They were a rare breed indeed!

For those who'd like to explore further, you can find a great little documentary on YouTube called: ["Dancing With The Devil, Board Track Racing Documentary"](#). *Click on the title for a link.*



*Pre-War Woodbridge Speedway
Woodbridge, New Jersey*

*All Photos This Page Courtesy of Revs Institute
Bruce R. Craig Photograph Collection*

The Checkered Flag

Remembering Our Volunteers



Long time Revs Institute Volunteer, Gerry Mewton passed away on November 15, 2022 following a long illness. Gerry started as a Volunteer before the museum was open to the public. Gerry was honored with the Station Guide of the Year in 2014.

Gerry was born on March 19, 1938, in St. Austell, Cornwall, England. As a youth, Gerry enjoyed trainspotting jumping off jetties in Austell Harbor and was an avid cyclist. Notice two of the three activities involved wheels!



Mark Ghorayeb Photo

At 16, he left his home in St. Austell for an apprenticeship at Alvis Car and Engineering Company in Coventry, which at the time was the U.K.'s leader in British Car manufacturing. The nearby Jaguar factory held fascination for Gerry as well. Always mechanically inclined, Gerry's appreciation of details helped develop a life-long love of engines, motor cars, and later aviation.



*Photo Courtesy of
Revs Institute*

Gerry came to live and work in the United States in 1968 to work for General Electric. Initially assigned to the Cincinnati, Ohio facility, that was changed to GE Aviation in Lynn, MA. Gerry and his then wife, Cay, settled in the coastal town of Marblehead, MA. Gerry worked for General Electric for more than 30 years designing engine installations for helicopters and airplanes and later travelled the world as a Customer Support Engineer.

His love of motorcars led to the ownership of several Jaguar sedans and E-Types and an MG. As every English car owner knows, this involved much of Gerry's time keeping them in pristine running condition. Gerry was known for his abundance of British jokes and sayings, singing rugby songs, and generally being a "lover of the eternal fun," as he'd often say.

Gerry is survived by his wife, Lenore and sons Matt and Sam.

Please post a tribute to Gerry [HERE](#)

In lieu of flowers, donations may be made in Gerry's memory to the [Kidney Foundation](#).



Lenore Mewton Photo

Events Calendar

Event	Date	Info or contact
Volunteer BOD Zoom Meeting	Dec 9 @ 10:00 am	wherod@revsinstitute.org
Billken Club Tour	Dec 9 @ 1:30 pm	Sign up on VicNet
Air Cool Breakfast & Thurs. Night Rally Crews	Dec 11 @ 10:00 am	Sign up on VicNet
Arthrex Tour	Dec 16 @ 1:30 pm	Sign up on VicNet
PNC Bank Tour	Dec 22 @ 1:00 pm	Sign up on VicNet
Gulfshore Opera Tour	Jan 11 @ 1:30 pm	Sign up on VicNet
Volunteer Banquet	Jan 21 @ 5:30 pm	wherod@revsinstitute.org

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



TAPPET TECH

Banks for Cars, Not Money

By Eric Jensen

Many of us have seen banked racetracks on television or in person. How many of us understand the significance? A banked track or road is simply one where the road surface is tilted at an angle from level. Why would we do that? For racetracks, the answer is speed. For railroads or roadways, the answer is safety.

When we look at an oval track (like the one shown at right) and see the significant degree of banking (or tilt) in the oval with 140 mile per hour test cars or racing cars. That bank angle allows more speed than would be possible if it was flat. To understand that, an explanation may be helpful.



If we drive down a road that is tilted to one side or the other, the car will tend to drive down the tilt with no steering correction from the driver. The driver compensates by turning the wheel to the uphill side of the tilt to keep the car driving straight. Now imagine the same tilt to the road on a curve. The tilt, or bank angle, will turn the car for the driver without turning the steering wheel at the proper speed. That speed involves some complex math involving speed, curvature of the turn and the bank angle we won't go into here. This math was originally developed for railroad trains.

As we all know, locomotives don't steer the wheels like a car, they go where the rails take them. When a train enters a curve, the rails are laid with a bank angle so the train naturally follows the path with limited slipping or skidding of the wheels. This reduces wear on the tracks and wheels. It also makes the train less likely to jump the rails and provides a more comfortable ride for the passengers. As speeds of trains increased this became increasingly important. That bank angle, however, is quite small relative to Daytona and difficult to see.



Modern highways bank turns as well. A design speed lower than the speed limit determines the bank angle of the highway bend. At the design speed, cars and trucks can drive through the bend without turning the steering wheel at all. This is exactly like trains on railroad tracks (left).

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TAPPET TECH

Banks

...continued

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At the speed limit, a small amount of steering wheel angle will allow the vehicle to follow the bend. In slippery conditions like rain or snow, the reduced speed means steering is not needed. The friction between the tires and the road won't need to be as high to safely take the bend.

Please note that banking (right) is different that a "crowned" or "cambered" road. Crowned roads, or a sloped surface off each side of the road, is to drain rainwater.



As automobiles entered the world, so did racing. The thrill of racing is about speed. In the early days, cars were on skinny tires, racing was on dirt tracks, so traction in the corners was very limited. Cars would have to slow down quite a bit to get through the turns and then speed back up for the straightaway. Slowing for a corner was difficult and did not add to the "show" in American oval track racing. This speaks to the relative lack of brakes in early cars. The



Banking at Brooklands

solution is to add bank angle in the turns so the cars can go faster without having to brake and without sliding off the track. Board tracks allowed large bank angles for very high speeds as did concrete, brick or asphalt tracks.

The oldest banked track was Brooklands in Surrey, England, United Kingdom. The track opened in 1907, with the three turns being banked at 30 degrees (left). This concrete oval track was used to *test* autos as well as *race* them. The track hosted the very first 24 hour racing event eleven days after opening.

So now you know that banks are not just for money!

TAPPET TRIVIA

By Joe Ryan

And Now The Answers.....

1. **Q:** What President was the first to ride in an automobile?
Answer: President William McKinley was first to ride in a Stanley Steamer.
2. **Q:** What President was first to ride in an electric auto?
Answer: President William McKinley was transported to the hospital in a electric powered ambulance. He had been shot at the Pan-American Exposition in Buffalo, New York. President McKinley died one week later from his wounds.
3. **Q:** Who was the first three time winner of the Indianapolis 500, the first to drink milk in the winners circle and the first face on the Borg-Warner Trophy? **Answer:** Louis Meyer in 1936.
4. **Q:** In keeping with the Spirit of Exhibition at The Revs Institute, A question has been asked. We know that Charles Sykes was commissioned by Claude Johnson to create the Spirit of Ecstasy, Rolls Royce's mascot. Who was the Spirit of Ecstasy figurine patterned after?
Answer: Eleanor Thornton; By 1911 Rolls Royce started to install the Spirit of Ecstasy on every vehicle produced.

Thanks to Tom Dussault and Frank Brown for questions 1 and 2 and thanks to Phil Panos for question 3.

Brush up on the Spirit of Ecstasy figurine. More fascinating questions and trivia about the Spirit of Ecstasy is coming in the January issue of the *Tappet Trivia* Column. Contributions to the column always welcome.



*Courtesy of Revs Institute
Maximilian Trullenque Photo*

Adopt-A-Car Program

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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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