The official newsletter of

Revs Institute Volunteers

Revs Institute
2500 S. Horseshoe Drive
Naples, Florida, 34104
(239) 687-7387

Editor:
Eric Jensen
eric60@gmail.com

Assistant Editor:
Morris Cooper

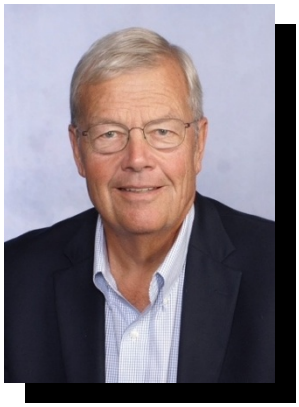
Thanks to this month's contributors:

- Tom Dussault
- Ralph Stoesser
- Roc Linkov
- Whitney Herod
- Max Trullenque
- Joe Ryan
- John Balconi
- Paul Kierstein
- Anna McDowell

Inside this Issue:

TAPPET CLATTER

Volume 27.6 **February 2022**



Chairman's Notes

Chip Halverson

I am writing this just after our Appreciation Banquet. It was great to get together after missing last year. Whitney did her usual spectacular job putting on a wonderful event. Thanks to Mr. Collier, Mace, Scott, and Mark for joining us. Special thanks to Mr. Collier for his remarks to the group.

We were able to celebrate some outstanding volunteers who distinguished themselves with their contributions to our volunteer organization. They have continued our tradition of striving for the very highest standards in all we do. Thank you from all of us.

Looking to the future we have two special events coming up. On 2/16 we have a member meeting with several speakers who should be of great interest. On 2/23 we will have our second annual Road Rally. John Fritz, Mike Lawther and Mark Koestner have been hard at work planning the route, the luncheon and the usual challenging clues. If you participated last year, you know that it was a fun day. If you plan to attend the rally, ***please RSVP via the Google link featured on the flyer. For the Monthly Member meeting, please sign-up in VicNet.***

We will be having our annual meeting in March. Part of that meeting is the annual election of directors. Directors serve three-year terms with their terms staggered so that three of the nine spots are up for election each year.

(Continued on page 2)

Chairman's Notes....*continued*

(Continued from page 1)

This year we had three candidates apply for the three open spots prior to the deadline, so no formal election will be necessary. We will be conducting the other annual business items at the meeting.

I talked in last months letter about the need to generate content for both the *Tappet Clatter* and the Adopt-a-Car program. I am happy to report great momentum in both areas. Brian Lanoway has set a new record for AAC reports with seven completed in the last year. Eric Jensen reports "a flood of coming articles" for the Tappet Clatter. Great work by both of them! They continue to look for written content and help in vetting it.

With all we have going on this should be an exciting spring.

Lastly, will all of the effort by the whole group, we should never lose sight of the fact that we should have fun while we are doing this.

All the best!

Chip Halvorson

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. Who invented the rear view mirror? Did you know that rearview mirrors were not on automobiles until **1914**?
2. What car and driver won the inaugural Indianapolis 500 in 1911 with a single seat and with a rear view mirror?
3. In 1922, what car won the first AAA sanctioned California economy run from Los Angeles to Yosemite Camp Curry, California? This car also won the economy run from San Diego to El Centro, California.

The answers are posted later in the issue.

Membership Report

By Tom Dussault

I would like to update everyone on what the Membership Committee has been up to. During the past nine months, we have recruited and brought on board more than sixty new volunteers. During January we interviewed eight new applicants six of whom were approved to join our volunteer team. We also presented the Orientation Program to seven new members. They will go on to participate in the Training Committee's Intro Class. Five will then be matched up with mentors and begin Station Guide training while the other two will fill Steward positions.

New Member Chase Lopez and partner Erica Lopez
Photos Courtesy of Revs Rnstitute

It is a gratifying experience to meet and interview prospective Revs Institute volunteers. This month's new members are no exception. Our new volunteers include:

- A former Wall Street trader whose recent experience camping in the infield at Sebring during an HSR racing event rekindled his passion for race cars.
- A Naples High School Student, originally from New Zealand, who loves history, Formula One, and plans a career in Cultural Anthropology.
- A gentleman from Connecticut who during his college years worked for Luigi Chinetti's Ferrari dealership.
- A Naples resident, originally from Michigan, whose 1954 Corvette spent a year on display at the Gilmore Museum.
- A former member of Ford's Design Center who was involved in a multitude of projects from the1965 Mustang instrument panel and console to the 1992 Dodge Ram pickup to Henry Ford II's private suite in the Waldorf Astoria Towers.

Thank you to everyone who has referred candidates to us. Our Docents have been very adept at identifying candidates during their tours. Please keep a few Revs Institute business cards in your wallet to hand how to potential candidates. It has the address where one can complete an application. We'll take it from there. Please see Whitney if you need additional cards.

Finally, we hope to add some new members to our Membership Committee. If you're interested in getting involved with recruiting, interviewing, orientation, reaching out to the community or any of the other activities in which we are involved, we would welcome you. You can do as much as you would like, starting with attending our meetings and sharing your ideas. Our members have varied backgrounds and experiences and working together have developed some interesting and creative ideas. Participating in a working committee is a great way to find out what's going on at Revs Institute as well as an opportunity to make a difference. Thanks to everyone for your support.

Volunteer Awards Banquet 2022

Back after a one year absence was the Revs Institute Volunteer & Staff Appreciation Banquet. For those new volunteers, this is an annual event held in January for all the volunteers, their guest, and staff. It is an opportunity to gather together to celebrate the previous year, have a nice meal, and present awards to those volunteers for service above and beyond. Our last banquet was held in 2020 so we are happy to have it return.

The banquet tables are set up in "Bentley Row" in the lower Vittesse Gallery. The cars are then repositioned into the shop, Mr. Collier remarked that you know the banquet is a success when the Delahaye must be moved into the shop to make room for the tables.

After dinner, the program began with a welcome from Whitney Herod and a presentation titled "A Legacy of Excellence." This included some of our volunteers' legacy; People who have influenced our lives in a positive manner. Mr. Collier took the podium for a many kind words for the efforts of the volunteers in the success of the Revs Institute. Success measured in our continued rating as the top attraction in Naples from Trip Advisor. These are ratings and testimonials from our guests about the positive experiences we have provided.

Chip Halverson, our volunteers organization Chairman, stepped to the podium to present the awards to this year's recipients. First up was the presentation of *Emeritus Member* to Susann Miller (left, with Whitney). This is recognition for members with a long history of service that can no longer devote the time. We will miss her service and event planning abilities. Please keep in touch, Susann.

This year a new award was created to recognize the author that has contributed significant, well researched, articles to expand our knowledge of the collection and history. In the spirit of our late friend and volunteer, Mitch Sayers, the *Outstanding Research Author Award* was presented to Morris Cooper (right). A tireless contributor to the *Tappet Clatter*, the award was presented to Morris prior to the banquet as he was travelling back to his home in Canada.

(Continued on page 5)

Volunteer Awards Banquet 2022

(Continued from page 4)

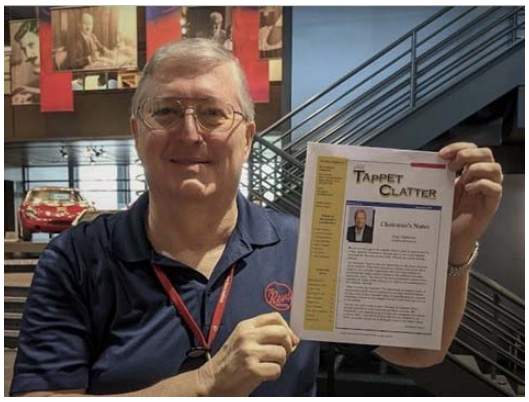
This year's *Outstanding Library Volunteer Award* was presented to Frank Brown (right). Frank has been described by Mark Vargas as a "scanning animal" digitizing article after article to preserve the print history in the archives. Congratulations, Frank!

Outstanding Station Guide Award was presented to the volunteer that embodies what we want all our Station Guides to be for our guests. The award went to Tom Dussault for his outstanding efforts. Very well deserved.

The *Outstanding Docent Award* was presented to Roc Linkov (right with Chip and Whitney) for his fine work as Docent. When Roc comes through a gallery, listen to and observe his presentation skills as he engages his guests and draws them into his narrative. It is always more than just the facts, it is encouraging guests to participate in the history.

We also want to recognize the staff member that has been of great help to the Volunteers. With shop tours, a growing collection and exploding volunteer roster, we often need help. His face is familiar to Revs Institute followers on social media. This, of course, would be Pedro Vela (left). Pedro has so often been the go-to for that help and deserving of the *Outstanding Volunteer Support Award*. Thank You, Pedro, for your support. We could not do this without you.

The final award of the night was the presentation of the *Joe Leikhim Award for Outstanding Service* to your *Tappet Clatter* editor, Eric Jensen (right). How can I respond except to say that I am humbled by such an award for doing something that is so much fun. Thank You.



Additional photos on the next page.

All Photos Courtesy of Revs Institute
Special thanks to Paul Kierstein and Max Trullenque

Volunteer Awards Banquet 2022

David and Bethany Weinberger

Phil Panos and Rick Soloway

Paul and Adlele Swinwood

Michael and Carolyn Bennett

Susan Sprague with Mia and Lodge McKee

The three Erics,… Jensen, Judson and Linkov

Candidates for our Volunteer Board of Directors

It is time to elect three new members to our nine-member Revs Volunteers Board. We elect three new board members each year, with board members serving three-year terms.

At the time of this publication, we have three candidates and three openings on the board. These three candidates will win by acclamation if a fourth candidate does not come forward. If other candidates come forward, their bios will be circulated to all volunteers for consideration and an election will be held by electronic voting. Additional volunteers wishing to be considered must contact Roc Linkov by February 15th.

The final voting results, or acclamation, will occur at the March Volunteer Monthly Meeting that will be held on Wednesday, March 16th, 2022.

Mark P. Koestner

Volunteer since 2014, served 1,981 hours to date.

Currently serving as Treasurer of the Revs Institute Volunteers Board of Directors. Previously held Board positions include, Chairman, Vice Chairman, Treasurer and, Programs Chair.

Current duties include serving as Station Guide and leading Docent tours Tuesday and Thursday afternoons all year round, preparing for and attending Board of Directors meetings monthly, preparing and delivering Treasurers reports at monthly Board meetings.

As Programs Chair I initiated offsite meetings as well as meetings at Revs Institute and have organized 14 Volunteer meetings over 2 years. I have also co-organized several lunch road trips which were attended by over 100 Revs Institute volunteers and spouses.

To date have trained and evaluated 6 Volunteers who have successfully passed their Docent test and have gone on to lead tours at Revs Institute.

My first sports car was a 1974 BMW 2002. I purchased new, a 1989 BMW M3 and put 235,000 miles over 20 years. Also owned BMW X-5 4.6is that I did a Dinan S3 conversion on. I currently drive a modified Mini Cooper John Cooper Works which I drive daily as well as participate in several track days per year.

I competed in Regional and National races thru the SCCA in the Central Florida region for 12 years in the GT-3 class. I have autocrossed as well as Instructed for the BMW Car Club of America. Along with my son Matt, we successfully completed the 2005 Targa Newfoundland.

I volunteer at the Naples Historical Society and conduct Docent led tours at Naples oldest home, Palm Cottage.

It has been an honor to be a part of such a special and unique organization and look forward to continuing to serve you for another term if I am fortunate enough to earn your vote.

Candidates for our Volunteer Board of Directors

Eric Jensen

Privileged to be a volunteer since 2016, became a Docent in 2017 and was elected to the Volunteer Board of Directors in 2019. I have served 1952 total hours for the museum and the volunteers.

I have served as Vice Chairman for each of the last three years and as acting as Chairman for a significant portion of 2019 to support the Chairman's absence due to family concerns. Also as docent training chair in 2019, I trained and qualified 2 docents as well as organized the reevaluation of existing docents. I assumed the job as *Tappet Clatter* editor from the September 2020 issue onwards.

I co-organized large group shotgun tours for the Porsche Parade and parking management for the Revs Institute Cars and Coffee.

I am a retired automotive engineer, sports car racer, and autocrosser but I still run track days in my Mustang GT because everything automotive is in my blood. I feel as though I have made positive contributions to the organization and I wish to serve the volunteers for another three year term. I hope you agree.

Tom Dussault

Dear fellow Revs Institute Volunteers,

I have served as a volunteer for three years and as a member of Revs Institute Board of Directors during the past year. It has been a year full of challenges for all of us. Upon Revs' reopening, many volunteers did not return and we faced a challenge in staffing the volunteer positions.

As such, the Membership Committee has worked to identify candidates and bring onboard new qualified and enthusiastic members to fill the void.

We also helped to develop two new volunteer positions; "Guest Services" and "Station Guide," to support our Guest Services employees and to provide security for the collection. To date, we have added more than sixty new volunteers. I hope to continue to recruit qualified new members to work alongside all of us.

I respectfully declare my candidacy and ask for your vote to remain a member of the Board of Directors for the coming three year term.

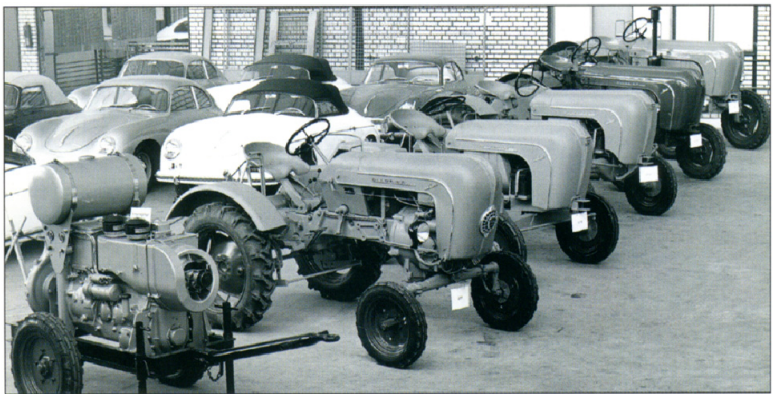
Plowing in Style … Porsche Tractors

Adopt-A-Car Report By Ralph Stoesser, Adapted by Morris Cooper

You can still buy a powerful and luxurious Lamborghini tractor today, so imagine if Porsche AG was still doing the same? Would you be comparing specifications and features between Kubota and Porsche?

A 1957 Porsche AP18 Tractor has recently been donated to Revs Institute (currently off-site) and it gives us the opportunity to consider a little-known aspect of Porsche's history, and the role that tractors played in the early financial survival of the company.

By the late 1940's Ferry Porsche remained unsure of whether the company would be a sportscar or tractor manufacturer. There was a much clearer market for postwar tractors. A decision was made to revise some pre-war engineering plans for a "Peoples Tractor" designed to match the price of buying two horses. That model had been fully developed in 1943, and included a limited-slip differential, oil filter, and front swing axle. By 1948, the diesel prototype model 313 was finalized in the same year as the prototype of the 356 sports car.



A factory view of Porsche tractors with 356 cars in the background
Photo Courtesy of 356registry.com

The Occupation authorities in Germany had not given Porsche permission to build cars, but they were one of two companies allowed to build tractors. The other company was Algaier. In 1949 the Porsche tractor rights were sold to that company. At the same time, Porsche was hand-building a small series of about 50 cars in Gmund, Austria. Dr. Porsche's daughter Louise Piech ran that company, and it was her status as an Austrian national that enabled Porsche to manufacture cars.

Constantly looking for cash flow, Ferry Porsche signed a contract with Piero Dusio of C.I.S. Italia to build the Cisitalia Grand Prix car, plus a sports car and a tractor. (See the *Jan 2019 Tappet Clatter for an article on Piero Dusio*). Those funds were used by Ferry Porsche to ransom his father out of prison in France where he had been arrested in December 1945 as an alleged war criminal.

Porsche was getting tractor license fees from Allgaier, monies from sales and parts for Volkswagen, plus royalty payments. Porsche's patented synchromesh transmission gave them further licensing fees, including licensing to Ferrari. In 1952, their U.S. importer Max Hoffman arranged a payment to design a small car prototype for Studebaker.

(Continued on page 10)

Porsche Tractors…. *continued*

(Continued from page 9)

The Porsche tractor's identification plate
Photo Courtesy of Revs Institute/Paul Kierstein

The first Porsche engineered tractor built by Allgaier was the AP17; AP for Allgaier-Porsche. By 1951, 5000 of these competitively priced tractors were sold and a new larger model introduced. After getting a cash infusion from Mannesmann, Porsche's steel company supplier, production ramped up to four sizes of tractors, all painted red. These had some major engineering features, such as forced air-cooled diesel engines, modular motor construction, use of gears, chains, or shafts instead of belts, and a fluid coupled clutch for smooth drivetrain engagement.

Porsche then set up a U.S. operating subsidiary in Easton, PA. By 1957 when Porsche sold its tractor rights to Mannesmann, 10,000 tractors had been sold worldwide, and 1000 sold in the U.S. The tractor market had softened by then, but the Model 356 had become a success. Allgaier continued manufacture through 1964, and so a total of 125,000 Porsche designed tractors were built.

The Pink Pig Tribute Porsche at full speed at Rennsport VI
Click for the Link

The Porsche tractor represents an important part of the Porsche "Up From The Ashes" story. It allowed the young company to survive its early cash-starved years from 1949 through 1957. It is the first diesel powered vehicle joining the collection, and is, by far, the slowest Porsche.

Porsche tractor interest perhaps reached a peak at the 2018 Rennsport Reunion VI in California, celebrating 70 years of Porsche. A highlight was a "racing version" prepared by Kevin Jeanette of Gunnar Racing and driven by 80's rock star and car collector John Oates (Hall & Oates) with his co-driver Justin Bell. It was painted pink in honor of the factory Pink Pig 917 with its butcher cuts labeled in German. Genuine GT front spoiler and wing were added but did not appear to contribute to top speed.

The tractor at Revs Institute is a Type 622, AP Standard 2-cylinder model, with 18 DIN horsepower, produced from June 1956 through June 1958. It was donated by Christian Zugel, who previously donated the early 1964 911 now on display in the Porsche gallery.

Charles F. "Boss" Kettering, Inventor, Philanthropist

By Eric Jensen

The general public know the names of many of the giants of the automobile industry; Benz, Porsche, Ford, Bentley, Duesenberg and Ferrari. These names are familiar because they are emblazoned on the flanks of our favorite automobiles. We know of Dunlop, Firestone, Goodyear and the Michelin brothers because their names are visible on the sidewalls of the tires; So important to every automobile.

There are many names unseen and unknown that had significant contributions to more than a century of automotive development. Pioneers like Nicolaus Otto, the inventor of the 4 stroke combustion process, Oliver Lucas (no, not *that* Lucas...) the inventor of the electric car horn, and Robert Bosch the developer of a more reliable magneto ignition system. Their names are rarely seen under the hoods and never on the bodies of these beautiful machines.

Charles F."Boss" Kettering

One such individual is Charles F. "Boss" Kettering. A prolific inventor responsible for the first practical electric starter, coil-spark ignition system, Freon refrigerant, General Motors' family of compact overhead-valve V8 engines and many other automotive innovations.

Charles F. Kettering was born on a farm near Loudonville, Ohio, a small town between Columbus and Cleveland in 1876. Kettering was encouraged to tinker with machines by his father at an early age planting the seeds for his future career. Once graduated from high school, Kettering taught school at a one-room schoolhouse but leaving after two years to enter the College of Wooster. Poor eyesight caused him to leave school and return to teaching. Another try at higher education led him to Ohio State but once again, poor eyesight forced Kettering to leave to take a job as a telephone wiring installer. Perseverance eventually paid off, for at 28, Kettering received a degree in electrical engineering from Ohio State in 1904. With a recommendation from the university, He took a job at the National Cash Register Company (NCR) in Dayton, Ohio.

The years at NCR were very productive professionally and personally for Kettering. Assigned to teams tasked with motorizing the hand-cranked cash registers, improving accounting machines, and improving internal department store communications he earned 23 patents for the company. Kettering also married his wife, Olive Williams of Ashland, Ohio and had his only child, a son named Eugene. Kettering only stayed at NCR for five years. He had bigger ideas for those new-fangled machines everyone was talking about; the automobile.

(Continued on page 12)

Charles F. "Boss" Kettering...*continued*

(Continued from page 11)

During his time at NCR, Kettering and a few associates worked on their ideas for an improved automobile ignition system in their after-hours. The group became known as the "Barn Gang" since they worked evenings in Col. Edward A. Deeds barn, NCR's general manager. With these designs in hand, Kettering and Deeds left to form Dayton Engineering Laboratories Company. Cadillac purchased 8000 of Delco's ignition systems in July of 1909 and Delco, as the company became known, was born.

Kettering then set upon developing an electric automobile starter-generator system at, Cadillac President Henry Leland's request, to ease the biggest problem of the internal combustion automotive engine; the hand crank starter. Difficult and dangerous, it kept many potential owners and drivers from operating gasoline powered autos. Broken thumbs, arms and wrists were an ever present risk. The electric starter first installed on a Cadillac model in 1912 eliminated those risks. In the 1920s, there were three competing automotive technologies; steam powered autos, electric autos and internal combustion autos. The electric starter played a key role in making the internal combustion auto the clear winner by the 1920s.

By 1915 Delco had 2000 employees and in 1916 became part of United Motors Corporation which later was acquired by General Motors in 1918. As payment, Kettering received both cash and G.M. stock, became a vice president in charge of the G.M.'s research division and was made a member of the board of directors.

A factory view of the Dayton-Wright Airplane Co.
Photo Courtesy of Wright State University Libraries

Kettering also founded the Dayton-Wright Airplane Company in April of 1917 with his Delco founding partner, Col. Edward A. Deeds, Orville Wright, to develop advanced aircraft and aircraft weapons. Dayton-Wright built the De Havilland DH-4 airplane, the Liberty aircraft engine, and the Standard J-1 bi-plane trainer to support the allied effort in WWI. The company developed the first retractable aircraft landing gear. The company also developed the Kettering Aerial Torpedo, the "Bug", a forerunner of today's cruise missiles, late in 1917 but it was never used in combat.

(Continued on page 13)

Charles F. "Boss" Kettering...*continued*

(Continued from page 12)

G.M.'s research department, under Kettering's leadership, developed a number of innovations important to the development of the automobile. One of which was quick-drying lacquer automobile paint named Duco, another was a tetraethyl lead additive for gasoline, called Ethyl, developed to increase the octane rating allowing for more powerful, more efficient, engines. This also helped the Allies' war effort to make more powerful piston engine aircraft for WWII.

Consider Freon, the trade name for dichlorodifluoromethane, was a gas developed for use in refrigeration units for home and automotive air conditioning systems. It was developed to replace more dangerous gasses in use at the time. Kettering also developed an incubator for premature infants, and was a pioneer in the application of magnetism to medical diagnostic techniques. Truly a renaissance man.

Prototype Valve Cover with the "Kettering Power" Logo

One of the last automotive innovations developed under his leadership of G.M.'s research department was the family of lightweight, overhead valve V8 engines introduced in 1949. Oldsmobile's offering was a 135 horsepower, 303 cubic inch displacement V8. Valve covers were created with "Kettering Power" embossed on the valve covers to honor his contribution but would ultimately be changed to "Oldsmobile Rocket." Cadillac's larger 160 HP, 331 CID version also appeared in 1949. Examples of which reside in each Cadillac, the Cunningham C1 and on a display stand in the Vitesse Gallery of Revs Institute.

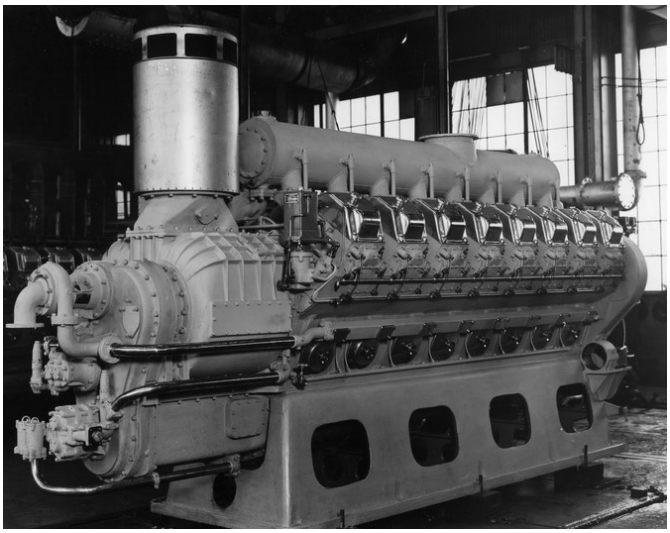
Automotive parts divisions of G.M. created from the original Dayton Electric Laboratories Company include Delco-Remy, Delco Products, and Delco Moraine. These divisions developed components such as alternators and starters, shock absorbers and struts, springs, windshield wipers, locomotive generators and large industrial motors as well as brakes, and engine bearings. Many more would carry the Delco name over the years such as AC-Delco, Delco Radio, and Delco Electronics.

G.M. Divisions that benefited from Kettering inventions include Frigidaire (refrigerators and home appliances), Delco Air (auto air conditioning systems and compressors), and the Ethyl Gasoline Corporation (leaded gasoline additives). GM purchased Winton Engine, a maker of large industrial engines, to apply Kettering's team's talents.

(Continued on page 14)

Charles F. "Boss" Kettering...*continued*

(Continued from page 13)



The massive Winton 201A V16 diesel engine.

Kettering's labs greatly improved the power and efficiency of the locomotive engine used in and built by the division formed from the two; ElectroMotive Division (EMD). The result was the line of 201A series of 2-stroke diesel engines for locomotives as well as WWII U.S. naval vessels.

His son, Eugene, carried his on fathers legacy of innovation at EMD for many years as Chief Engineer and later Research Assistant to the General Manager. Eugene was credited with the creation of the EMD 567 family of locomotive diesel engines, the successors to his father's 201A series engines.

A man of great charity, Kettering and his heirs donated much of his wealth to the creation of the Sloan-Kettering Cancer Institute for Cancer Research, the C.F. Kettering Foundation for the Study of Chlorophyll and Photosynthesis, the Charles F. Kettering Foundation for medical research, and the Charles F. Kettering Memorial Hospital located in Kettering, Ohio, a suburb of Dayton.

Charles F. Kettering died at his home in Dayton in 1958 at age 82. During a long career, he was granted over 140 patents, dozens of honorary doctorates, the Edison medal from the American Institute of Electrical Engineers, the 1936 Franklin Medal by The Franklin Institute for the science of automotive engineering and was inducted into the National Inventors Hall of Fame. "Boss" Kettering Awards were given each year to the inventors of significant patents within GM and its divisions. The annual Charles F. Kettering Prize created by the General Motors Cancer Research Foundation, honors the most outstanding recent contribution to the diagnosis or treatment of cancer.

While there may not be an automobile with his name on its flanks nor a prominent component emblazoned with "Kettering" in bold script for all to see, "Boss" Kettering's innovation was key to the development of the automobile. While the Delco company no longer exists in name nor form, Charles F. Kettering's legacy of science, invention and spirit of philanthropy will live on.

Note: The author grew up in Dayton, Ohio two blocks from the city of Kettering, worked for Delco Products div. of GM for many years and received a Boss Kettering award from Delphi Automotive in 1997. Clearly, it was my destiny to write this article.

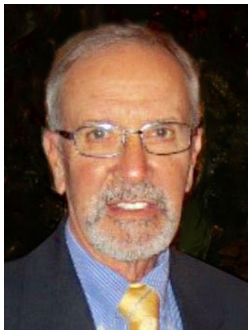
Welcoming our Newest Volunteers

Tony Mecoli

Joined Jan 2022

Full Time Resident

A former Wall Street trader whose recent experience camping in the infield at Sebring during an HSR racing event rekindled his passion for race cars.



Phil Payne

Joined Jan 2022

Full Time Resident

A former member of Ford's Design Center who was involved in a multitude of projects from the 1965 Mustang instrument panel and console, to the 1992 Dodge Ram pickup, to Henry Ford II's suite in the Waldorf Astoria.

Daniel Roseliep

Joined Jan 2022

Full Time Resident

Originally from Dubuque, Iowa. Dan was instrumental in starting the Cars & Coffee event in Madison, Wisconsin where here owns a real estate company. He has owned and enjoyed a variety of cars including a Mercedes-Benz, four BMWs and a Porsche Boxster. He is excited about learning a lot more about the history of the cars in the Miles Collier Collections.

Bill Vincent

Joined Jan 2022

Part Time Resident

I grew up in an automotive friendly environment, as my father rallied and raced an Austin Healey 100-4, along with my uncle in a Porsche Speedster… When both were new!!!

From there I grew up to compete in SCCA GT, Formula Atlantic, and Can-Am… Then going to work for one of our sponsors, Modine Mfg., supplying the cooling packages to many race teams, including Penske's PC Indycars.

My good fortune continues, as I've now found The Revs Institute!

Volunteer Hours for 2021

Our volunteers contributed an amazing total of 16,642 hours for 2021

Training	**799**
Administrative	**337**
BOD/Committees	**624**
Station Guides	**8679**
New Station Guides	**830**
Docent Tours	**1416**
Guest Services	**587**
Parts	**51**
Shop	**342**
Tappet Clatter	**562**

More new volunteers next page

Welcoming our Newest Volunteers

Henry Astma

Joined Jan 2022

Full Time Resident

Originally from Michigan, a car enthusiast whose 1954 Corvette spent a year on display at the Gilmore Museum.

Kevin Indiveri

Joined Jan 2022

Full Time Resident

A gentleman from Connecticut who during his college years worked for Luigi Chinetti's Ferrari dealership.

Zoe Brunton

Joined Jan 2022

Full Time Resident

A Naples High School Student, originally from New Zealand, who loves history, Formula One, and plans a career in Cultural Anthropology.

Events Calendar

Event	Date	Info or contact
Busey Bank	Feb 17, @6:00 pm	Sign up on VicNet
Volunteers Monthly Meeting	Feb 16, @10:00 am	Sign up on VicNet
Volunteer Road Rally	Feb 23, @ 10:30 am	RSVP Link
Bonita National Community Car Club	Feb 25 @10:30 am	Sign up on VicNet
Pelican Bay Women's League	Mar 4, @10:30 am	Sign up on VicNet
Heron Condo Association	Mar 18, @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.		

TAPPET TECH

Engine Sounds

Why do some engines sound so sweet…..

By Eric Jensen

A significant part of the driving experience of a sports car or grand touring machine is the sounds it makes. The subtle mechanical noises, the roar from air rushing into intake to the sounds trumpeted from the exhaust. The exhaust note is our subject for this month. Credit goes to Lodge McKee for initiating the subject by asking "why does a flat-plane crank V8 engine sound so different than a cross-plane V8?" I confess that I needed a bit of research to answer that question but it brings up a larger question; Why do some engines' exhaust notes sound so sweet while others of the same design sound like a flatulent pig?

To start the discussion, each time a cylinder opens its exhaust valve and releases the spent exhaust gasses there is a pulse (or note) much like playing a single note on a musical instrument. Each exhaust note rushes down the exhaust pipe, joined by notes from other cylinders and exit the system much like notes exit the bell of a trumpet. The muffler, further "tunes" the sound that exits the tailpipe. The sequence of those notes and how it gets from the engine to the end of the tailpipe determines the quality of the sound. It also affects the power, but this article will concentrate on just the sound.

If we start with a 4 cylinder engine, we have 4 notes evenly spaced from the firing order of the engine. If the exhaust pipes carrying those exhaust notes are close in length and then join together into a single pipe, the sound you hear has evenly spaced notes that increase in pitch as the rpm increases. Some manufacturers seem to know this very well creating a very pleasing "ripping cloth" exhaust sound from their 4 cylinder engines. Click n the highlighted word for a video link.

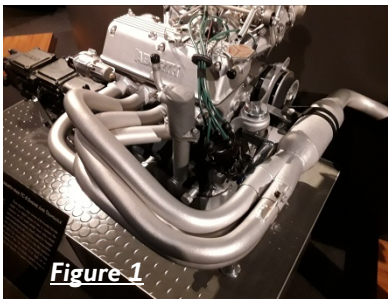


Figure 1

Note the picture in Figure 1 with equal pipe length from each cylinder to the tailpipe. Engines without equal length pipes, such as the VW engine, as an example, in Figure 2, changes the sound to a to a less pleasing note. Each cylinder's path to the tailpipe pipe is different and the exhaust notes "pile up" in the pipe. Porsche flat 4 engines with racing exhaust sound far better than the typical Volkswagen flat 4 with its factory exhaust for this reason. "Log" type exhaust manifolds (see Figure 3) can contribute to this as well due to their unequal path lengths.

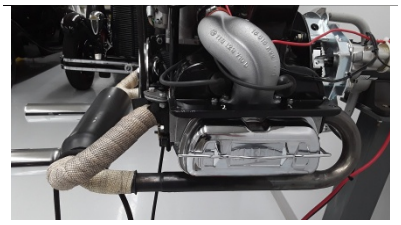


Figure 2

An inline six or eight cylinder engines, with their balanced firing orders also have even pulses travelling down the exhaust so they, too, can make very pleasant exhaust notes. Since they fire 2 more times per 2 revolutions, a 6 cylinder engine at 4000 rpm will sound much like a 4 cylinder at 6000 rpm.

Photos and Diagrams Courtesy of Eric Jensen

(Continued on page 18)

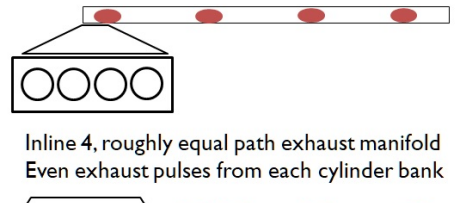
TAPPET TECH

Engine Sounds

….continued

(Continued from page 17)

Jaguar's XKE engine with dual exhausts, firing 3 cylinders into each, makes a beautiful "stereo" exhaust note easily recognizable by aficionados. A V12, since it is essentially two even-firing inline sixes together will also give a nice even exhaust note at twice the pitch as a six and three times that of a four.



Inline 4, roughly equal path exhaust manifold
Even exhaust pulses from each cylinder bank

Inline 4, Log type manifold
Un-even exhaust pulses from each cylinder bank

Figure 3

Now we come to the V8. All cross plane crank V8s fire 2 cylinders on the same cylinder bank right after one another on each bank. So that means the firing pattern is; **left-right-left-left-right-left-right-right** cylinder firing (with some variation among brands). (See Figure 4) The sound travels down the exhaust manifolds on each bank and the dual exhausts broadcast those sounds. The double-fired cylinders' pulses travel closer together giving that V8 "burble." Not an unpleasant sound but not the same as a Ferrari V8 or a Ford Shelby Voodoo V8 with a flat plane crankshaft.

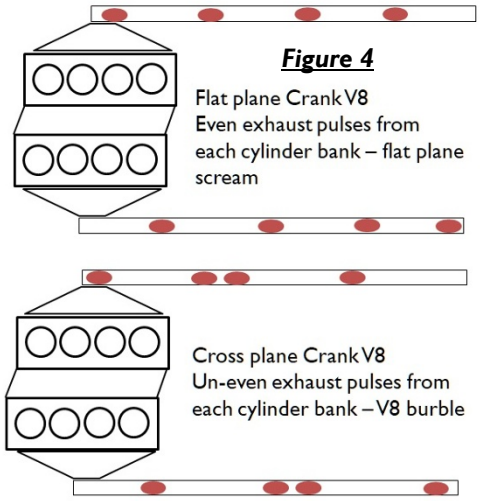


Figure 4

Flat plane Crank V8
Even exhaust pulses from each cylinder bank – flat plane scream

Cross plane Crank V8
Un-even exhaust pulses from each cylinder bank – V8 burble

The flat plane crank has even firing side-to-side as; **right-left-right-left-right-left-right-left.** So each manifold sends a clear single exhaust note in steady rhythm down each exhaust pipe just like an inline 6 or a V12 would. So a V8 at 6000 rpm sounds like a V12 at 4000 rpm.

The popularity of aftermarket performance exhaust systems clearly shows the importance of the aural experience to driving. To that end, manufacturers are more often installing mufflers that can be adjusted from within the driver's compartment to increase or decrease the sound. Track Mode for loud and Neighborhood Mode for a quiet trip to work early in the morning. Certain manufacturers have ported intake noise into the passenger compartment. Some even send synthesized tones through the car's audio system to fake a more pleasing engine note.

Just what will we do with electric cars? Clip a playing card in the wheel spokes as we did as children? Play recordings of our favorite exhaust? Sadly, a part of the driving experience will be lost to enthusiasts.

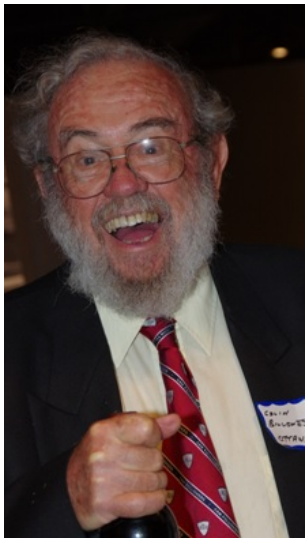
The Checkered Flag

Remembering Our Volunteers

James R. Claeys passed away peacefully on December 31, 2021 in his home in Bonita Springs, Florida. He was 78. Born in Davenport, Iowa on March 26, 1943. He attended a one-room schoolhouse before attending St. Joseph's Elementary and High School in DeWitt, Iowa and St. Ambrose University in Davenport, Iowa. Jim married his loving wife Dolores (Konrad) Claeys on October 24, 1964.

Jim and Dolores moved to Bonita Springs, Florida in 2006. They also continued to spend summers in Avalon, N.J. Jim lived an active life full of adventure and travel. He camped, hiked and canooed as a Boy Scout volunteer with his three sons, all of whom are Eagle Scouts. He was an avid cyclist, riding across Iowa several times as part of the "Register Annual Great Bike Ride Across Iowa" (RAGBRAI) and enjoyed golf. Jim loved skiing and particularly looked forward to the annual Gentlemen's Ski Club trips to Vail, Colorado.

His passion for cars led him to racing his Porsche and becoming a driving instructor. He belonged to the Schattenbaum Region of the Porsche Club of America in N.J. and Everglades and Paradise Gruppe in Florida, and also managed parts for rare cars at the Revs Institute in Naples, Florida.



Colin A. Billowes passed away peacefully in Ottawa, Ontario Canada on January 14th, 2022 at the age of 86. Colin was born in Malta of British parents and educated in the UK at the Portsmouth Grammar School. He spent some years in Kenya and Bahrain as a young man after which he returned to the UK in 1961 to study Electrical Engineering. He came to Canada in 1966 where he carved out a career in Telecommunications. He held positions with Bell Northern Research (BNR). the Dept of Communications and finally with Canadian International Development Agency (CIDA) as Director of the Telecoms and High Technology Program.

He was very active in the local branch of the Institution of Engineering and Technology (formerly the Institute of Electrical Engineers) where he served on the Ottawa Executive Committee for over 50 years, a record. He served for 8 years on the London-based IET Council.

He was a classic car enthusiast and owned a classic ALFA Romeo and a Rolls Royce. He was an active member of both of those clubs. After retiring, he spent his winters in Florida and volunteered at the Revs institute where he conducted tours and research on the collection of cars.

Photos Courtesy of Revs Institute

TAPPET TRIVIA

And now, the answers…

1. **Q:** Who invented the rear view mirror? Did you know that rearview mirrors were not on automobiles until **1914**? ***Answer:*** Dorothy Levitt, a pioneer of female motoring, is credited with inventing it, in 1909!.

2. **Q:** What car and driver won the inaugural Indianapolis 500 in 1911 with a single seat and with a rear view mirror? ***Answer:*** Ray Harroun's winning ride in the inaugural Indianapolis 500 in 1911 was bumpy for being on bricks. But the fuss surrounding Harroun's single-seat Marmon Wasp – the other 39 cars had a riding mechanic – centered on the rear-view mirror in use. It's believed that was the first time such a device was used in racing.

3. **Q:** In 1922, what car won the first AAA sanctioned California economy run from Los Angeles to Yosemite Camp Curry, California? This car also won the economy run from San Diego to El Centro, California. ***Answer:*** The 1922 Oakland model 6-44 with an astounding 40.37 Miles per gallon, The Oakland defeated 20 other Automobiles both large and small. In spite of the 113 degree heat in the desert. The 246 mile round trip was made in about 12 hours. The Oakland company was acquired by General Motors in 1909. The name was replaced by the Pontiac brand in 1931.

1958	Alfa Romeo Guilietta Sprint Veloce
1964	Alfa Romeo GTZ
1934	Alfa Romeo 8C 2300
1934	Alfa Romeo 8C 2900B Berlinetta Touring
1967	Alfa Romeo AutoDelta 1600 GTA
1967	Anglo American Racers Gurney Eagle
1949	Ardent Alligator
1988	Arrows A10B Formula 1 Car
1919	Ballot
1926	Bentley Super Sport
1901	Benz Dos-a-Dos
1930	Bugatti Type 35
1933	Bugatti Type 55 Super Sport
1950	Cadillac Series 61 LeMans LeMonstre
1950	Cisitalia SC
1961	Citroen 2CV Sahara
1950	Cunningham C-1 Prototype
1952	Cunningham C-3
1952	Cunningham C-4R
1953	Cunningham C-5R
1955	Cunningham C-6R
1937	Delahaye 135 Comp. Special Roadster
1917	Detroit Electric
1963	Elva Porsche
1970	Fiat Abarth TCR
1955	Jaguar D-Type
1974	Jorgensen Eagle
1927	Lancia Lambda
1962	Lotus Elite Series II SE
1938	Maserati 8CTF
1961	Maserati Tipo 60 Birdcage
1995	McLaren F1
1929	Mercedes Benz SSK
1939	Mercedes Benz W-154
1912	Mercer Raceabout
1935	MG PA PB Leonidis
1922	Miller
1927	Packard Speedster
1896	Panhard & Levassor
1951	Porsche 356SL Gmund Coupe
1956	Porsche 550A Spyder
1959	Porsche 718 RSK Spyder
1964	Porsche 904 Carrera GTS Red
1964	Porsche 904 Carrera GTS Silver
1966	Porsche 906 Carrera 6
1968	Porsche 907
1969	Porsche 908-02 Spyder
1967	Porsche 910-6
1964	Porsche 911
1967	Porsche 911R
1969	Porsche 917 PA
1958	Porsche Carrera Speedster
1963	Porsche Elva
1961	Porsche RS-61L Spyder
1958	Scarab Sports-Racer
1914	Simplex
1928	Stutz Black Hawk
1920	Vauxhall 30-98 Type E
1927	Vauxhall 30-98 Type OE
1869	Velocipede Bicycle
1884	Columbia Three-Track Tricycle
1885	Humber 58" Ordinary Bicycle
	Abarth 1000-TC-R engine
	Alfa Romeo GTZ engine
	C-6R Offenhauser Racing engine
	Cadillac OHV V-8 engine
	Chrysler Hemi engine (C-3R)
	Duesenberg Sprint Car engine
	Ford GT-40 transaxle and engine
	Ford Turbocharged Indy engine
	Jaguar XK Series engine
	Porsche Type 771 engine
	Porsche Type 901/20 engine
	Porsche Type 901/22 engine
	Porsche Type 908 engine

New Adopt-A-Car Format

Now that the seasonal volunteers are starting to get work their way down to Florida, perhaps it's time to consider adopting a Collection car. None of the cars listed here have ever been researched by a volunteer.

Although a full Adopt-A-Car report is still our ultimate goal, we have made the research possibilities easier by offering shorter sub-topics that you can investigate, such as:

- the car's pedigree
- the history of the car's manufacturer
- its racing history
- how to drive the car
- the innovations in the car's design
- the processes and materials used to produce the car
- the styling features and colors used
- the car's restoration or re-restoration
- anecdotes about the car's history
- identifying additions to the car's research bibliography

The sub-topic research efforts don't have to be long. A one to three-page effort would do.

Any time spent on your research can be applied to your annual volunteer hours, even if your work is remote.

Even better, for those of you who are willing to take on a full Adopt-A-Car research report, we will do our best to get you a ride in your selected car when it's being exercised.

If you are interested please contact:

Brian Lanoway at blanoway@shaw.ca.
Adopt-A-Car Committee Chair.

Adopt-A-Car Program

Available Adopt-A-Car Automobiles and Engines

Alfa Romeo Guilietta
Alfa Romeo GTZ
Alfa Romeo 8C 2300
Alfa Romeo 8C 2900B
Alfa Romeo AutoDelta 1600
Gurney Eagle F-1
Ardent Alligator
Arrows A10B Formula 1
Ballot
Bentley Super Sport
Benz Dos-a-Dos
Bugatti Type 35
Bugatti Type 55 Super Sport
Cadillac Series 61 LeMonstre
Cisitalia SC
Citroen 2CV Sahara
Cunningham C-1 Prototype
Cunningham C-3
Cunningham C-4R
Cunningham C-5R
Cunningham C-6R
Delahaye 135 Roadster
Detroit Electric
Elva Porsche
Fiat Abarth TCR
Jaguar D-Type
Jorgensen Eagle
Lancia Lambda
Lotus Elite Series II S.E
Maserati 8CT
Maserati Tipo 60 Birdcage
McLaren F1
Mercedes Benz SSK
Mercedes Benz W-154
Mercer Raceabout
MG PA PB Leonidis
Miller
Packard Speedster
Panhard & Levassor
Porsche 356SL Gmund Coupe
Porsche 550A Spyder
Porsche 718 RSK Spyder
Porsche 904 Carrera GTS Red
Porsche 904 Carrera GTS Silver
Porsche 906 Carrera 6
Porsche 907
Porsche 908-02 Spyder
Porsche 910-6
Porsche 911
Porsche 911R
Porsche 917 PA
Porsche Carrera Speedster
Porsche Elva
Porsche RS-60 Spyder
Porsche RS-60 Spyder
Scarab Sports-Racer
Simplex
Stutz Black Hawk
Vauxhall 30-98 Type E
Vauxhall 30-98 Type OE
Columbia Three-Track
Humber 58" Ordinary
Velocipede Bicycle
Abarth 1000-TC-R engine
Alfa Romeo GTZ engine
C-6R Offenhauser engine
Cadillac OHV V-8 engine
Chrysler Hemi engine
Duesenberg Sprint Car
Ford GT-40 transaxle and
Ford Turbocharged Indy
Gurney Eagle GP engine
Jaguar XK Series 6 cyl
Meyer-Drake Turbo Proto
Porsche Type 771 engine
Porsche Type 901/20
Porsche Type 908 engine

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

The ***Tappet Clatter*** is the official newsletter of **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:
The *Tappet Clatter*, 2500 South Horseshoe Drive, Naples, FL 34104.