

the
**Henry
Ford**

MAGAZINE
JANUARY-MAY 2020

Gain perspective.
Get inspired.
Make history.

THE DRIVEN TO WIN ISSUE

**WHAT
ROLE DID
AMERICA
PLAY IN
THE RISE
OF AUTO
RACING?**

PAGE 48



DIALOGUE + DISCOURSE
WITH DRIFTER
VAUGHN GITTIN JR.

RACING'S REMARKABLE
WOMEN PAST & PRESENT

CONNECTING COMMUNITIES

IN THE AIR AND ON THE GROUND.

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KEEP CLIMBING





MIDWEST PREMIERE EXHIBITION

The biggest Marvel exhibition ever chronicles the story of Marvel and its influence on visual culture, while also uncovering the stories of individual characters like Captain America, Spider-Man, Black Panther, Captain Marvel and Doctor Strange.

From comics to film, *Marvel: Universe of Super Heroes* features more than 300 artifacts, including some of Marvel's most iconic and sought-after pages, costumes and props. Spectacular artifacts thrill both avid collectors and casual fans, while immersive set pieces, soundscapes and interactive elements bring the Marvel Universe to life for the hero in all of us.

ADDITIONAL TICKET REQUIRED.

MARVEL UNIVERSE OF SUPER HEROES

MARCH 28-SEPTEMBER 7, 2020

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THE DRIVEN TO WIN ISSUE



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Drifter, enjoyer of anything with four wheels and video personality describes himself as a "professional fun haver"

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ON THE COVER

In 1908, American race car driver George Robertson drove this 1906 Locomobile to victory in the Vanderbilt Cup, America's first great automobile race. "Old 16," as the car is called, will be on display in Henry Ford Museum of American Innovation's all-new exhibition, *Driven to Win: Racing in America*, which will showcase America's role in the sport for more than a century as well as inspire visitors to ignite their own passions and push their own boundaries, just like those in the racing world have. The exhibition opens June 2020.

FROM THE HENRY FORD ARCHIVE OF AMERICAN INNOVATION

Gain perspective. Get inspired. Make history.

THE HENRY FORD: A NATIONAL TREASURE AND CULTURAL RESOURCE

The Henry Ford in Dearborn, Michigan, is an internationally recognized cultural destination that brings the past forward by immersing more than 1.8 million visitors a year in the stories of ingenuity, resourcefulness and innovation that helped shape America.

A force for sparking curiosity and inspiring tomorrow's innovators, inventors and entrepreneurs, The Henry Ford fosters learning from hands-on encounters with authentic artifacts. Through its 26 million artifacts, unique venues and resources — Henry Ford Museum of American Innovation®, Greenfield Village®, Ford Rouge Factory Tour, Benson Ford Research Center® and Henry Ford Academy®, as well as online at thf.org and through the TV programs *The Henry Ford's Innovation Nation* and *Did I Mention Invention?* — The Henry Ford helps all individuals to unlock their potential and help shape a better future.

The Henry Ford leads the Invention Convention Worldwide community and works to make STEM + Invention + Entrepreneurship (STEMIE) learning accessible to educators and students worldwide. As part of our leadership in invention education, The Henry Ford powers events like Invention Convention U.S. Nationals, curriculum and professional development.

For more information, please visit thf.org.

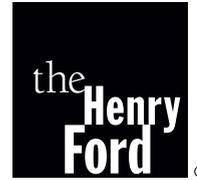
Inside every person is the potential to change the world.

The Henry Ford is building a platform using its Archive of American Innovation to unlock the most powerful resource on earth: the next generation. Help us grow the talent pipeline of tomorrow's innovators, inventors and entrepreneurs at thf.org/support.

The Henry Ford is an independent nonprofit organization. We depend on ticket purchases, income from our stores and restaurants, and tax-deductible contributions and memberships for support. To learn how your generosity can help take it forward, visit thf.org/support.

MISSION STATEMENT

The Henry Ford provides unique educational experiences based on authentic objects, stories and lives from America's traditions of ingenuity, resourcefulness and innovation. Our purpose is to inspire people to learn from these traditions to help shape a better future.



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WHAT AUTOMOBILE DO YOU DRIVE?

Our contributors tell us.



GEORGE TAMAYO

A 2014 BMW 328i M Sport. It makes my 65-mile commute bearable.

George Tamayo has more than 20 years of motorsports communications and marketing experience. Currently the creative director at RACER Studio, Tamayo's work has ranged from advertising creative to video production and content creation for numerous automakers and sanctioning bodies. When he's not working, he's probably riding a bike.

Trained for the Track,
Page 24



DIEGO PATIÑO

I live in New York, so I don't drive often. However, I'm partial to Japanese and French cars, and love to drive a stick. There's something about switching gears that makes me feel committed to the act of driving and staying present on the road as you command the machine, especially when you do long distances. It's very Zen.

Diego Patiño is a nonsensical amalgamation of guanine, adenine, thymine and cytosine who has worked with *The New York Times*, *Wired*, *The New Yorker*, *Eight by Eight*, *The Atlantic*, *Newsweek*, *ESPN*, *Billboard*, *The Village Voice* and *Los Angeles Magazine*, among many others. He's the proud owner and ringmaster of a tongue-eating louse circus and the real @FakeDiegoPatino.

Taking a Position,
Page 16



JOHN OREOVICZ

My daily drive is a 2010 Audi A4 2.0T quattro. It does everything well, is a blast to drive in the snow and still looks fresh and modern. And it's paid off.

John Oreovicz first visited the Indianapolis Motor Speedway on a fifth-grade field trip in 1975. Now he lives three blocks from Turn 1. A lifelong car enthusiast, rock 'n' roll aficionado and cat lover, he has written about motorsports since 1993.

Taking a Position,
Page 16



SUSAN ZWEIG

A 2011 pre-owned Toyota Camry, the steel-cut oats of the automotive world. I believe a car should behave like a trusted appliance, go without fail. Mine is appropriately washer white. Our 15-year-old golden retriever, who has never liked being in a vehicle, sleeps peacefully in the back seat, head on our daughter's lap.

Susan Zweig is a writer and editor in the Detroit area. A reluctant reviewer and enthusiastic audience member, she is drawn to stories that touch on art and design.

Team Scandicapped,
Page 12



RICHARD S. JAMES

My daily is a big German sedan that will get me and my equipment somewhere very quickly, but my joy is my Mazda MX-5 race car. Not much power, and it's not the fastest thing on the track, but it's about as much fun as you can have with Nomex on.

Richard S. James is a Southern California-based writer, photographer and content producer who has somehow managed to transform his love of motorsports into a career. When he's not at the track or in front of a computer, he's on some type of bike or sitting next to a smoker with a beer enjoying the smell of barbecue.

8 Questions with Vaughn Gittin Jr.,
Page 34

At The Henry Ford, we regularly ask ourselves, what does it mean to be a museum today?

We are always seeking new relationships and new partners to help us activate our collections and connect the past to the present day and inspire the next generation of thinkers and doers. Thanks to partners such as General Motors, Rolex Watch USA, Ford Motor Co., Roger Penske, Edsel B. Ford II, Jack Roush and many others, we will see more than a decade of careful research and work come to fruition on the floor of Henry Ford Museum of American Innovation this June when we open our new permanent exhibition, *Driven to Win: Racing in America*. It's a testament to the people, the experiences, the culture, the spectacle, the risks and innovations centered in the world of American motorsports. The exhibition is also the inspiration for this issue of *The Henry Ford Magazine*. Much of the racing-related content was created in collaboration with the expert editorial team at Racer Media & Marketing, which publishes the American motorsports magazine *Racer*.

We also continue to make great strides and foster new relationships through our fundraising campaign, The Innovation Project. Thanks to a transformational \$10 million grant from the Ford Foundation, we are now able to offer free access to thousands of fourth- and fifth-graders from the Detroit Public Schools Community District. We have further solidified our commitment to the global innovation education movement, welcoming more than 100,000 K-12 inventors to compete at the school level through Invention Convention Worldwide, culminating with nearly 500 final participants from schools all over the world coming to The Henry Ford. And we've now invited two seasoned entrepreneurs to spend time on-site at The Henry Ford to interact with the next generation of innovators, inventors and entrepreneurs as part of the William Davidson Initiative for Entrepreneurship.

This winter, we also celebrate another collaborative first with the grand opening of Plum Market Kitchen in the museum. The joint dining experience marks the first time the Plum Market team has partnered with a cultural destination. Through our partnership, we will be able to activate our stories of family farms and natural foods in bold new ways.

In early spring, our momentum continues as the museum welcomes the traveling exhibition *Marvel: Universe of Super Heroes*, which will bring the Marvel Universe to life for both avid collectors and casual fans.

When Henry Ford founded this institution 90 years ago, he wanted it to be a living, ever-changing learning laboratory where people of all walks of life could visit and engage. All of these recent efforts — from our hands-on learning and experiential programming, exhibitions and events to the innovation and invention curriculum and competitions — are helping us evolve not only as a national destination but as a force for learning in the 21st century. Thank you for your support and friendship as we begin our journey to 100 years.



Patricia

**PATRICIA E. MOORADIAN,
PRESIDENT AND CEO**



THE INNOVATION PROJECT

Campaign in Action



PHOTO BY BLUECADET

The Innovation Project, a \$150 million comprehensive fundraising campaign, represents The Henry Ford's commitment to create a pipeline for a diverse workforce in the new economy and inspire all audiences. Within the scope of the campaign, we are pursuing four key funding priorities:

1. Innovation, invention and entrepreneurial learning
2. Experiential learning in six connected areas of innovation
3. Digital learning tools for today's and tomorrow's connected learners
4. Creating change through the lens of accessible and inclusive learning

Our progress continues.

We've raised nearly \$100 million to date to help The Henry Ford advance innovation, invention and entrepreneurial learning for people of all ages and backgrounds.

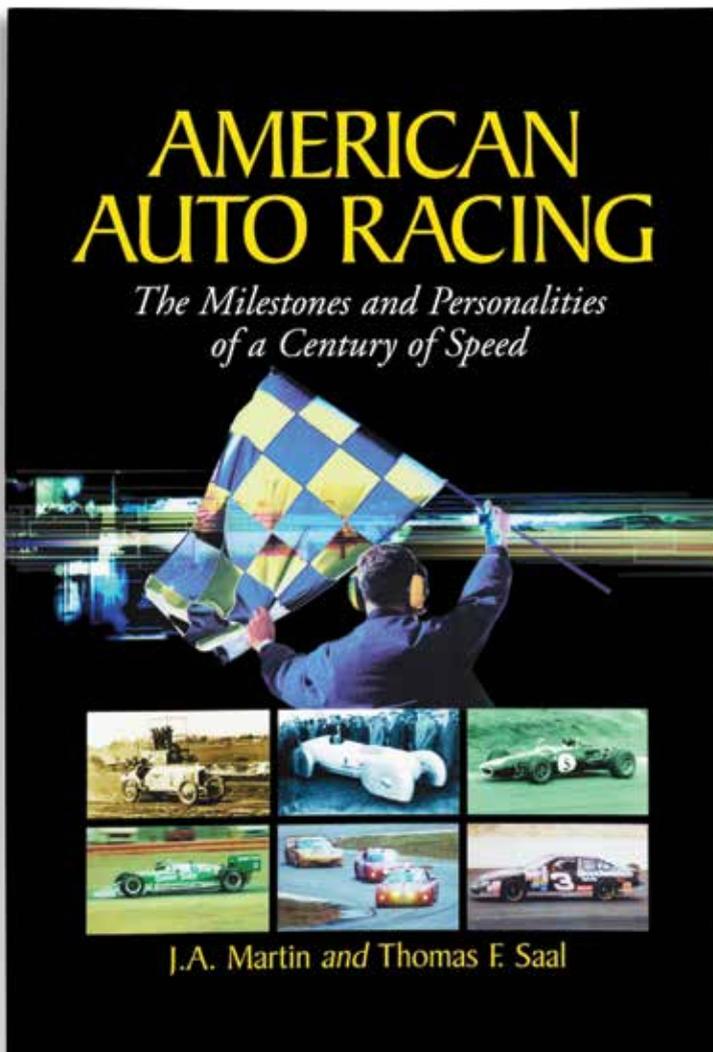
We're set to open *Driven to Win: Racing in America*, our new permanent museum exhibition presented by our Partner in Innovation General Motors. The exhibition will debut in June 2020. Also, we've made several improvements to elevate the physical experience and storytelling elements on the floor of Henry Ford Museum of American Innovation, including adding new digital columns in the museum plaza and near the agriculture exhibit as well as launching the multimedia and digitally driven space Intersection of Innovation (above). This spring, museum visitors will be able to use a touchscreen Connections Table to peer into the minds of our curators and explore connections between artifacts.

We've welcomed thousands of fourth- and fifth-graders from the Detroit Public Schools Community District to The Henry Ford thanks to a \$10 million grant from the Ford Foundation. The Henry Ford has developed customized curriculum and complimentary field trips to Greenfield Village for all of the district's fourth-graders and trips to Henry Ford Museum of American Innovation for all fifth-graders.

We've made great strides toward bringing the Detroit Central Farmers Market, one of the country's oldest surviving urban farmers markets, to Greenfield Village (top left). Once reconstructed, the market will be a place of community engagement, a learning platform where agricultural history, food pathways and sustainable farming practices can be shared and explored with the next generation.

For more details on The Innovation Project, visit theinnovationproject.org.

WHAT ARE WE READING + WATCHING?



DID YOU KNOW? /
Driven to Win: Racing in America is set to open in Henry Ford Museum of American Innovation in June 2020. See story on Page 48.

SHOP *American Auto Racing: The Milestones and Personalities of a Century of Speed* is available for purchase in The Henry Ford gift shops and online at thf.org/shop ▶

American Auto Racing: The Milestones and Personalities of a Century of Speed

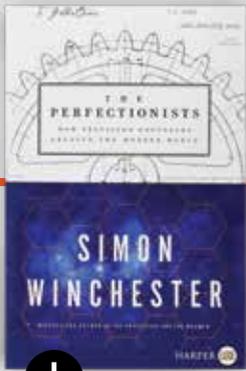
Matt Anderson, The Henry Ford's curator of transportation, recommends a read of J.A. Martin and Thomas F. Saal's book tracing American auto racing through the 20th century.

You can read *American Auto Racing* from cover to cover, but the handbook-like format makes it more rewarding when taken a chapter or two at a time. The book's many topics are split into 87 short chapters, each generally two or three pages long. All of the key races, faces and places are here, from the first Vanderbilt Cup competition in 1904 and Harry Miller's design dominance at the Indianapolis 500 in the 1920s to breaking the sound barrier at Bonneville in 1997.

This is not the sort of book that'll quickly tell you who won NASCAR's Cup Series championship in 1988, but if you want a concise overview of Bill Elliott's career and his impact on stock car racing, it's inside. In other words, *American Auto Racing* is a perfect primer for those wanting to study up before our new permanent exhibition, *Driven to Win: Racing in America*, opens this summer in Henry Ford Museum of American Innovation.

“American Auto Racing is a great little handbook for anyone wanting an introduction to U.S. racing — a great complement to our new racing exhibition.”

— Matt Anderson, curator of transportation, The Henry Ford



Louise Beck
Conservator,
The Henry Ford

The Perfectionists: How Precision Engineers Created the Modern World by Simon Winchester

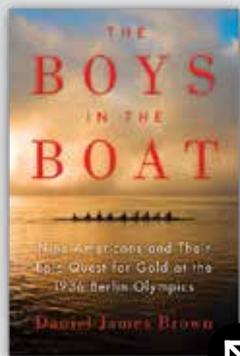
Occasionally, when holding some object or other, I find myself musing about its creation, about design decisions and whether it was manufactured by hand or machine. *The Perfectionists* takes this mentality a step further, probing the realm of precision — the exactness with which something is measured — and how precision engineering and manufacturing have changed the world. Simon Winchester's beautifully written account covers the advent of precision all the way to today's ultra-precise electronics, divided into chapters based on the ever-exacting and now near-indefinite tolerances demanded. His thought-provoking questions about the nature and necessity of precision, and of the balance between precision and craft, will add another layer to my contemplation, and admiration, of the materials that surround all of us.

Because Internet

Understanding the New Rules of Language



Gretchen McCulloch



Janice Unger
Processing Archivist,
The Henry Ford

The Boys in the Boat: Nine Americans and Their Epic Quest for Gold at the 1936 Berlin Olympics by Daniel James Brown

In *The Boys in the Boat*, author Daniel James Brown interweaves multiple stories of passion and drive. Rower Joe Rantz overcame tremendous personal obstacles on his way to becoming an integral member of the University of Washington rowing team. That group of young men struggled to gain respect in their sport, ultimately beating the elite U.S. teams on both coasts on their way to the 1936 national title. And at the Berlin Olympics that year, the team faced the powerhouse German crew in the finals and, digging deep, found a way to succeed when everything was against them.

DID YOU KNOW? / Staff of The Henry Ford often participate in worldwide Twitter Q&As such as Ask a Curator (typically in September), Ask an Archivist (typically in October) and Ask A Conservator (which just launched last November). Themes change and sometimes it's just an open discussion about all things curators, archivists and conservators do. Take to Twitter, tag @thehenryford and pose a question.

#AskACurator
#AskAnArchivist
#AskAConservator

Ryan Jelso
Associate Curator,
The Henry Ford

Because Internet: Understanding the New Rules of Language by Gretchen McCulloch

Congratulations! If you're reading this, you are participating in humanity's biggest experiment: language. And if you've ever accessed the internet, typed an email or sent a text message, you have contributed to the massive evolution language has undergone in the digital age. In *Because Internet*, author and linguist Gretchen McCulloch expertly dissects the complex nuances and development of our modern electronic communications. From GIFs and emoticons (or emotion icons) to the phrase "LOL" (laugh out loud), her book is part history, part linguistics and part realization that the informal language of our digital spaces is an expressive landscape that is neither single nor finite.

READS ABOUT RACING

The Benson Ford Research Center at The Henry Ford can put you on the right track if you're interested in learning more about auto racing in America. For help with access, write to research.center@thehenryford.org.

SERIALS

Auto Racing: Magazine of the World's Greatest Sport

Auto Racing Digest

BOOKS

The Complete Book of Auto Racing by Lyle Kenyon Engel

The New York Times Complete Guide to Auto Racing by John S. Radosta

Auto Racing Yearbook by Eugene Jaderquist

The Fastest Men in the World—On Wheels by Deke Houlgate

Where They Raced, Lap 2: Auto Racing Venues in Southern California, 1900-2000 by Harold L. Osmer

Dirt Track Auto Racing, 1919-1941: A Pictorial History by Don Radbruch

Famous Auto Racing Thrills by George Sullivan

ARCHIVAL COLLECTIONS

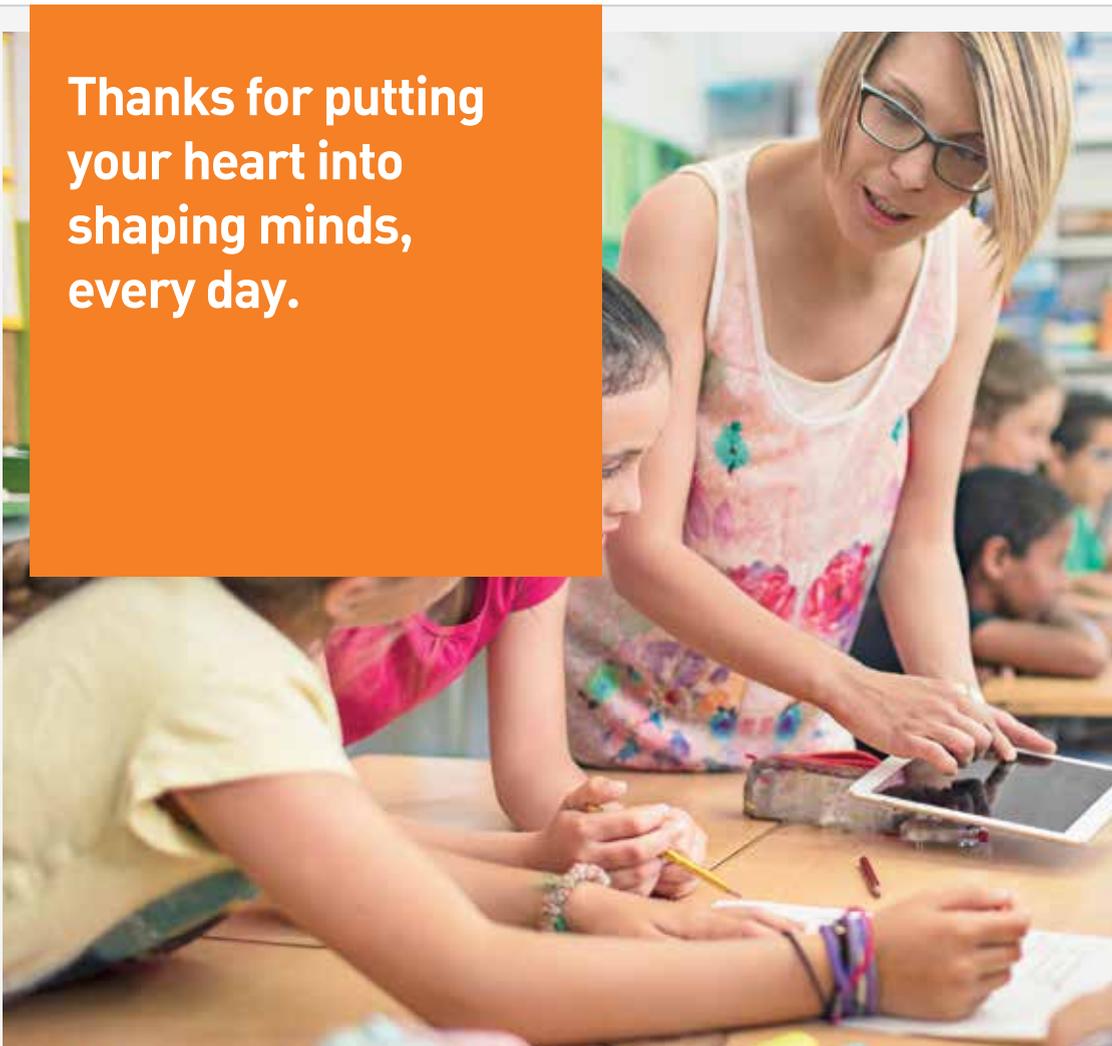
• Accession 2009.158 - Dave Friedman Collection, 1946-2009

Materials covering 60 years of automobile racing

• Accession 2009.103 - Phil Harms Collection, 1896-2003

Collection documenting the history of open-wheel automobile racing in the U.S.

Thanks for putting
your heart into
shaping minds,
every day.



PNC is proud to be the title sponsor of PNC Tinkering for Tots at The Henry Ford Museum of American Innovation and Greenfield Village.

The next generation of doctors, inventors, creators and achievers starts today.

For the PNC Tinkering for Tots Schedule visit: <https://www.thehenryford.org/current-events/calendar/tinkering-for-tots/>

pncgrowupgreat.com



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INNOVATION GENERATION

The Henry Ford is committed to ALL audiences and inspiring the next generation of inventors, entrepreneurs and innovators, regardless of backgrounds or barriers. Our Archive of American Innovation serves as the cornerstone for all of our innovation learning experiences, programs and curricula, which are designed to accelerate the innovative mindsets of all learners from across the globe.

Invention Convention U.S. Nationals **12**
Programming, Resources + Events **14**

 INVENTION CONVENTION U.S. NATIONALS

TEAM SCANDICAPPED

Young inventors use personal experience to address real-world problem

Invention Convention Worldwide invites students to solve problems and invent through hands-on, real-world, project-based learning activities. In 2019, more than 100,000 K-12 inventors competed at the school level. Winners advanced to state competitions, hoping to be one of the 492 granted access to Henry Ford Museum of American Innovation for Invention Convention U.S. Nationals. A trio of young inventors and their invention, Scandicapped, won the competition's coveted 2019 President's Choice award from The Henry Ford President and CEO Patricia Mooradian.

SCANDICAPPED, INVENTED BY fifth-graders Anna Gareau, Claire Kinnaman and Cooper Dyson, has a simple premise. Using an accessible parking sign fitted with LED lights and RFID technology found in pet microchips, drivers would be discouraged from illegally parking in reserved spaces.

According to the trio, it's an idea that came to life in their classroom at Cheatham Hill Elementary in Marietta, Georgia. First proposed by Anna, Scandicapped's inspiration is personal, a problem she identified within her own family since her sister has hydrocephalus and uses a wheelchair. Her family's frustration in parking lots is constant, Anna said.

For five months, the three fifth-graders brainstormed after school to define the problem and outline their design solution and concepts — all under their teacher's guidance. Final iterations of Scandicapped allow a fitted solar-powered sign to read a chip embedded in a driver's placard or license plate. When the plate's chip is verified, the parking sign's LED lights glow green to indicate legal parking. When a car is parked illegally, the sign's LED lights glow red to alert drivers of their mistake. If ignored, the continued red flashes also alert the public and law enforcement of the infraction.

And the team's research shows those infractions would get noticed. Within just 35 minutes of observing their elementary school's retrofitted accessible parking signs one school morning, nine violations occurred. "They were mostly younger, teenagers," said Claire. "They don't really

know how much their actions can affect people." What's also interesting about their test, she added, was how half of drivers who did park illegally moved their vehicle when the prototype sign glowed red.

Team Scandicapped followed much of the protocol The Henry Ford has applied to its own innovation learning framework, Model i, when working on their ideation. (See Page 14.) Model i connects habits of innovators and actions of innovation to provide an interdisciplinary language and approach to learning. Habits such as empathy and collaboration, along with actions such as defining the problem, designing solutions, and optimizing through feedback and iteration, are within the framework. All of these practices and processes were acknowledged and noticed by judges and staff at The Henry Ford during the 2019 Invention Convention U.S. Nationals. And they were a major reason why the Scandicapped inventors won the competition's President's Choice award. "I was shocked and amazed," said Cooper of the honor.

Leadership at The Henry Ford was equally amazed at the resourcefulness of Team Scandicapped. "The work of Cooper, Claire and Anna so closely embodies the mission of this great institution," said Patricia Mooradian, president and CEO of The Henry Ford, "reflecting on the fact that 10 percent of the population is disabled in some way and we have to do what we can to make the world more accessible to everyone."

— SUSAN ZWEIG

BEST OF SHOW OF THE 2019 INVENTION CONVENTION U.S. NATIONALS

Most Innovative

Vikram Anantha: His Automated Communication Companion allows autistic children to learn the names of objects and then practice them. Learn more: youtu.be/O1dfyHqLv58

Model i Youth Inventor

Yi Wu: His BB Cup promotes oral health by cleaning a toothbrush easily and keeping bacteria from forming in water remaining in the cup. Learn more: youtu.be/6b5UVYrubAQ

Best Engineering

Arthur Zhang: His AWARE interconnected network of sensors uses artificial intelligence to make predictions for natural disasters. Learn more: youtu.be/Sb_KOgZXbZA



SAVE THE DATES

**2020 Invention Convention
Michigan
April 25
Henry Ford Museum of
American Innovation**

**2020 Invention Convention
U.S. Nationals
June 4-5
Henry Ford Museum of
American Innovation**

More than 120,000 K-12 inventors from across the United States and elsewhere compete at local events to showcase their inventions at Invention Convention U.S. Nationals on the floor of Henry Ford Museum of American Innovation alongside some of the most iconic inventions in American history. Learn more at inventionconvention.org.

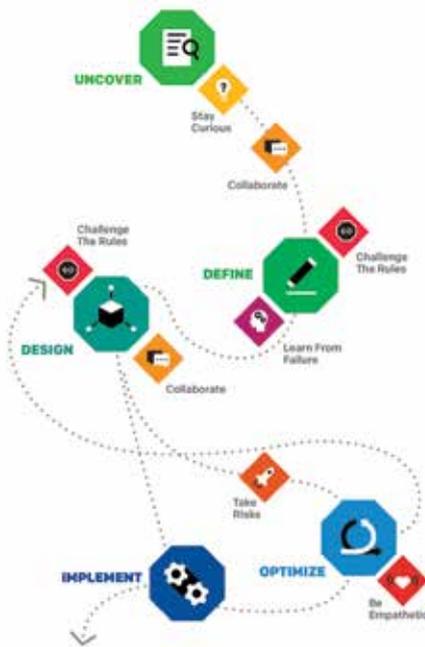
► From left: Inventors Claire Kinnaman, Anna Gareau and Cooper Dyson are Team Scandicapped, the winner of the President's Choice award at the 2019 Invention Convention U.S. Nationals. The team was led by Nancy Ernstes, Cobb County Schools K-12 InVenture, in Georgia.

PROGRAMMING, RESOURCES + EVENTS

What to Watch, Read, Do
to Inspire Big Thinking



WATCH *The Henry Ford's Innovation Nation and Did I Mention Invention?* Episode information about *Innovation Nation* can be found at thf.org/innovationnation and episode clips for both shows are on [youtube.com/thehenryford](https://www.youtube.com/thehenryford). Seasons one and two of *Innovation Nation* on DVD are also available exclusively at thf.org/shop and The Henry Ford gift stores ►



ENTREPRENEUR-IN-RESIDENCE PROGRAM

Entrepreneurs and future game changers collaborate, learn and grow

Richard Sheridan of Ann Arbor-based Menlo Innovations (below) is The Henry Ford's second Entrepreneur in Residence (EIR). In residency since July 2019, he has been conducting workshops and related youth programming as part of The Henry Ford's EIR Program, which invites successful entrepreneurs to devote time at The Henry Ford to help the institution explore alternative learning platforms for launching the next-generation workforce. Sheridan's entrepreneurial journey supports two of The Henry Ford's six core collecting areas: communications and information technology along with design and making. His software design and development firm is internationally known for its innovative workplace culture. The Henry Ford's next residency will begin later in 2020 with an entrepreneur whose expertise falls under the areas of mobility as well as power and energy — aligning with the June 2020 debut of the new permanent museum exhibition *Driven to Win: Racing in America*.

The EIR Program is part of the William Davidson Foundation Initiative for Entrepreneurship, which The Henry Ford kicked off in 2019 to test and explore multiple learning platforms and further expand its entrepreneurial programming and content. Learn more at thf.org/initiative-for-entrepreneurship.

INNOVATION LEARNING SUITE

Accelerate an innovative mindset in students

At The Henry Ford, there's the belief that anyone can innovate. That's why the educational institution has developed Model i, an innovation learning framework based on the authentic objects and real-life stories that it has been collecting for the past 90 years.

Model i is the foundation of a new Innovate curriculum and the basis of the learning experiences outlined and offered to teachers and students. Curated based upon The Henry Ford Archive of American Innovation, this unique framework provides an interdisciplinary language and approach to learning based on the habits and actions of innovators. It is also reinforced throughout the learning journey, powering The Henry Ford's entire Innovation Learning suite of products.

Programs and resources are accessible to any educator and student, providing everyone the opportunity to solve global challenges for the future.

To discover The Henry Ford's Innovate curriculum-aligned resources, including a free Model i primer, lesson plans, activities and worksheets, visit thf.org/education or thf.org/modeli.



RICHARD SHERIDAN PHOTO BY BRIAN EGEN

READY TO INSPIRE
TODAY'S MINDS AMID
YESTERDAY'S TRADITIONS

Citizens Bank is proud to present
Holiday Nights in Greenfield Village.

taking

a

**Women past and forward
embrace roles in auto racing
on and off the track**

By John Oreovicz • Illustrations by Diego Patiño

positi



on

Danica Patrick's emergence as a popular culture phenomenon makes it easy to forget that not too long ago, women were considered an anomaly or a novelty in the auto racing world.

Patrick burst into prominence by leading, and nearly winning, the 2005 Indianapolis 500, ultimately finishing fourth and landing on the cover of *Sports Illustrated*. The universal celebration of her performance demonstrated how much attitudes had changed at the Indianapolis Motor Speedway, where women weren't even allowed into the pits until 1971.

Remarkably, by 1977, there was a female driver on the Indy 500 grid. But perhaps even more amazing is that it took another 15 years before Lyn St. James picked up where Janet Guthrie left off. A new generation of female participation arrived in

the form of Sarah Fisher in 2000, and from 2007-13, the 33-driver Indianapolis field featured three or four women.

While the female driver count has dropped in recent years, women are finding a place in motorsports in other roles, including engineers, mechanics and even team principals. Auto racing takes gender out of the equation more than any other major sport, and a growing number of women are racing and competing with men on equal terms.

This story showcases three prominent individuals who broke — are breaking — boundaries so others could — can — too.



janet guthrie

careers outside of auto racing / aerospace engineer, flight instructor, pilot need-to-knows / the first female to qualify and compete in both the Indy 500 and Daytona 500 inducted into the International Women's Sports Hall of Fame in 1980, the International Motorsports Hall of Fame in 2006, the Sports Car Club of America Hall of Fame in 2018 and Automotive Hall of Fame in 2019

AFTER GRADUATING FROM THE

University of Michigan, Janet Guthrie worked as an aerospace engineer while also serving as a pilot and flight instructor. But her passion was driving her Jaguar in Sports Car Club of America road races, and by the time she was 35, Guthrie was a full-time racer.

In 1976, she arrived at Indianapolis Motor Speedway (IMS) as a 38-year-old rookie with the eyes of the world upon her. Several prominent drivers publicly criticized her presence.

"Most of the oval track drivers never had the experience of running with a woman driver, and they were sure they weren't going to like it," recalled Guthrie, now 81. "That got calmed down within the course of the races that I ran in 1976. But the public, I think, needed to be convinced."

When the controversial newcomer didn't find enough speed in her primary car, A.J. Foyt offered his spare Coyote, and Guthrie showed enough pace in practice to become the 500's first female qualifier. But that historic achievement would have to wait another year.

"Those were the glory days of the Indy 500, with 85 cars entered, so qualifying for the first time was really a major moment of my life," she said.

Guthrie's car broke early in the 1977 race, but more importantly, Indy's gender barrier had been

broken. She returned to IMS a year later and drove to a ninth-place finish despite concealing a broken wrist. In all, Guthrie drove in 11 Indy car races between 1976 and '79, earning a career best fifth-place finish at the Milwaukee Mile in her final open-wheel start. She also competed in 33 NASCAR Cup Series races in the same period, earning five top 10 finishes.

In retrospect, Guthrie did much of the heavy lifting for the female drivers who followed her into the American motorsports arena. Respect for her achievements, from both a sporting and sociological standpoint, only increases with the passing of time.

"The 'first woman' thing was more of a responsibility than anything," Guthrie said. "I think I took the heat, and then the drivers discovered that I was competitive, I was courteous and that I was getting the most out of my equipment."

Guthrie is convinced that a female circuit racer will one day demonstrate the kind of championship-winning success women have achieved in NHRA drag racing.

"There's a lot of talent at the lower levels, and it all depends on who gets the chance," she said. "I'm sure that eventually we will see a woman win the Indianapolis 500, and similarly with the Daytona 500."

DID YOU KNOW? /

The autographed racing glove worn by Janet Guthrie in 1977, when she became the first woman to compete in the Indianapolis 500, will be on display in the new *Driven to Win: Racing in America* exhibition in Henry Ford Museum of American Innovation.



Others Driven to Win

While Janet Guthrie broke the glass ceiling for women in auto racing, the sport has seen several other individuals deserving of the title "barrier breaker" over the years.

Wendell Oliver Scott was one of the first African American drivers in NASCAR and the first African American to win a race in the Grand National Series. A Virginia native, Scott raced full time on the NASCAR circuit through the racially charged '60s.

After his win in the Grand National Series race in December 1963, it would take another 50 years for an African American driver — Darrell Wallace Jr. — to capture a NASCAR victory.

Brehanna Daniels is making similar waves, although off the track — sort of. Along with friend Breanna O'Leary, the two made history in 2018 as the first women to pit a car together in a NASCAR Cup Series race. For Daniels, it's a double whammy, since she is also the first African American woman to work in the pit. Both young barrier breakers were given the opportunity to enter one of stock car racing's most prestigious scenes through NASCAR's Drive for Diversity Pit Crew Development Program.

READ Janet Guthrie's autobiography *Janet Guthrie: A Life at Full Throttle* ►

JANET GUTHRIE'S GLOVE FROM THE HENRY FORD ARCHIVE OF AMERICAN INNOVATION





lyn st. james

careers outside of auto racing / speaker, author, philanthropist, coach, mentor need-to-knows / first woman to win Rookie of the Year at Indianapolis 500 and the only woman to win an IMSA GT race driving solo · inducted into the Sports Car Club of America and the Florida Sports halls of fame · held 21 international and national closed-circuit speed records over a 20-year period

LYN ST. JAMES WAS WATCHING

from afar when Janet Guthrie was trying to break into Indy car and stock car racing. At the time, St. James was a part-time competitor chasing an Sports Car Club of America road-racing national championship in a Ford Pinto.

"I was excited and pumped about my racing, and I watched her on the television and thought, 'God, she's struggling and nobody wants her there,'" St. James recalled. "She didn't smile very much, and it made me say, 'Why would I want to do that? Why would I want to put myself in that kind of situation when I was having so much fun?'"

In the early 1980s, Kelly Services sponsored the International Motor Sports Association (IMSA) American Challenge championship and paid bonuses to female drivers. St. James parlayed an opportunity in that series, along with a chance encounter with legendary Ford executive Walter Hayes, into a highly successful relationship with Ford that produced six wins in IMSA competition, including class victories at Daytona and Sebring, prior to shifting her focus to Indy cars.

"I wanted to test-drive one, just to experience the peak of race car performance," she said. "I was just in heaven. I had set speed

records in a stock car at Talladega, and in comparison, it felt numb. Dick Simon [IndyCar team owner] was very supportive, and that was a turning point. I wrote to 150 companies over four years seeking support. J.C. Penney was the 151st, but the first one that said yes."

Finally in 1992, St. James became the first woman to qualify for the Indianapolis 500 since Guthrie last did 15 years earlier. St. James finished 11th in the race, claiming Rookie of the Year honors. In 1994, she out-qualified reigning Indy car champion Nigel Mansell at Indy; she made a total of seven Indianapolis starts, the last in 2000.

St. James still occasionally competes in vintage races but spends most of her time mentoring female drivers. Her foundation's driver development program has graduated more than 230 participants over the last 25 years, including then-future Indy car drivers Sarah Fisher and Danica Patrick.

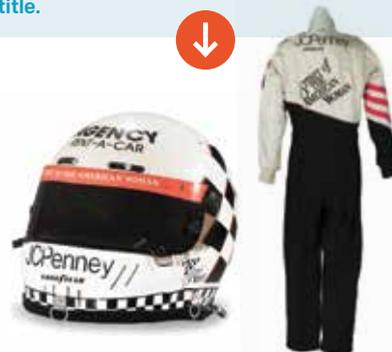
"It's sad that leaders in motor-sports have not figured out that the car levels the playing field for everyone," St. James said. "The leaders have missed an opportunity to show how female involvement in racing really represents society. Women can perform and compete on an equal level."

Mentor of Motorsports

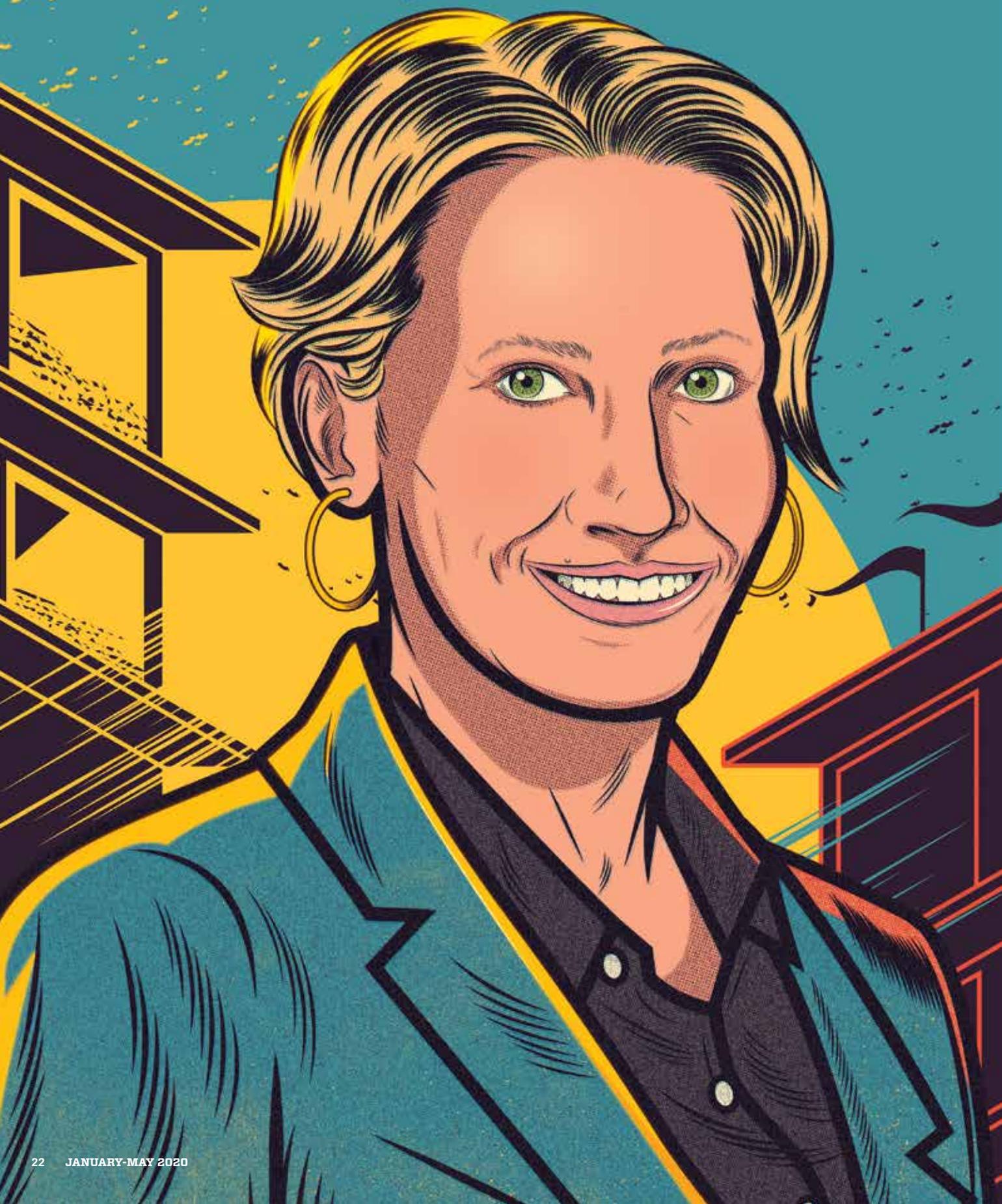
In 2008, a small crew from The Henry Ford traveled to Phoenix, Arizona, to visit a race car driver academy for women. The institution, called Complete Driver Academy, was established by Lyn St. James in 1994 to help identify potential champion female drivers and provide the tools they needed to further their careers. The Henry Ford interviewed St. James there as part of its Visionaries on Innovation collection of interviews and first-person essays, which also features other racing legends such as Mario Andretti.

In addition to documenting St. James' oral history, The Henry Ford has several artifacts from her racing career in its collections — some of which will be on display in the new *Driven to Win: Racing in America* permanent exhibition in Henry Ford Museum of American Innovation, where St. James will be a showcased driver. "Lyn has been an adviser to the exhibit going back more than 10 years," said Matt Anderson, The Henry Ford's curator of transportation. "From the start, she has offered her help and advice, including connecting us with innovators like motorsports training expert Jim Leo of PitFit Training in Indiana." See story on Page 24.

Among the racing-related artifacts from St. James that will be on display in *Driven to Win*: her helmet, driving suit, commemorative ring and Rookie of the Year trophy from the 1992 Indy 500, where she became the first woman to win that title.



WATCH Lyn St. James' entire Visionaries on Innovation interview and/or read the transcript at thf.org/explore/lyn-st-james ▶



beth paretta

[careers outside of auto racing](#) / [car salesperson, auto manufacturer executive, creator of STEM-based education for the next generation](#) [need-to-knows](#) / [team principal of automotive racing organization Grace Autosport](#) · [aspiring owner of a race car that will someday compete in IMSA or at the Indy 500 with an all-female team](#)

“WHEN I WAS GROWING UP,

I had pictures of a Lamborghini Countach and Porsche 959 on my wall next to Duran Duran,” laughed Beth Paretta, the first female executive to lead a performance division for a major auto manufacturer.

After graduate school, Paretta took a job selling cars, then landed a management role with Volkswagen Credit.

“That taught me the behind the scenes of the automotive business,” she shared. “It was a good opportunity to sit on all sides of the table, to figure out what the manufacturers and the dealers want, let alone the customers.”

She then spent four years as the U.S. operations manager for Aston Martin. Because the company was so small, this gave Paretta hands-on experience in every aspect of the business — a major factor why she was recruited by Ralph Gilles and the late Sergio Marchionne to lead the SRT brand when Fiat Chrysler Automobiles (FCA) spun it off as a separate “halo” division.

Running SRT brought responsibility for managing FCA’s American motorsports programs, taking Paretta’s life full circle. During her tenure, FCA drivers won multiple championships in NASCAR and International Motor Sports Association (IMSA). “Racing was

a comfort for me since I was about 5 years old,” she said. “I found it weirdly soothing to watch, and I was mesmerized by it. At a basic level, I still find that. When I got involved, I loved solving business problems and figuring out how to do things better.”

Whether at VW, Aston or FCA, Paretta often noticed something. “I spent much of my career sitting in meetings where I was the only woman at the table,” she said. “I’ll be honest, there were times at the beginning when I thought that was kind of cool. ‘Hey, look at me!’ But then I was like, ‘This isn’t cool at all. Why am I the only one here?’”

In 2015, Paretta formed Grace Autosport, using racing as a platform for encouraging young women to pursue STEM (science, technology, engineering and math) careers. She hopes to eventually field a car in IMSA or the Indianapolis 500 with a pioneering all-female team.

“Racing is the fuel that keeps the spotlight on what we are doing, but the important work is the education,” Paretta said. “We know we can affect a kid’s trajectory of what they want to do when they are 10-12 years old. That’s when you plant the real seed. Racing is fantastic because it demonstrates teamwork, and it’s applied STEM, or STEM in action.”

[A Starting Position](#)

Like Grace Autosport’s Beth Paretta, The Henry Ford is on a mission to push the invention education movement forward and inspire youth to consider STEM-based career paths. And it’s using its massive amounts of resources, including its unparalleled collection of artifacts from 300 years of American history, a carefully curated educational resource bank and a learning framework called Model i (see Page 14) to grow the talent pipeline of tomorrow’s innovators, inventors and entrepreneurs.

Auto racing is a topic The Henry Ford is leveraging to help teachers and students explore STEM-based concepts that are integral to the sport. Teacher guides and educator digital kits with lesson plans, activities and project ideas are available online, covering technology and engineering as well as scientific concepts like change in motion, speed and energy as they relate to American auto racing. In addition, when the new museum exhibit, *Driven to Win: Racing in America*, opens in June 2020, it will be the The Henry Ford’s premier STEM-based museum experience, designed to help students visualize themselves in a range of possible careers in everything from engineering and design to business and sports (see story on Page 48).

“We’ve made a considered effort to incorporate STEM concepts and Model i ideas about the habits of innovators and actions of innovation into our racing exhibit, connecting these ideas to our cars and their stories,” said Matt Anderson, The Henry Ford’s curator of transportation.

ONLINE Explore The Henry Ford’s entire suite of educational resources thf.org/education ►

ONLINE Visit Grace Autosport’s website to learn more about how this all-female racing team is inspiring young women to pursue STEM-based careers graceautosport.com ►

TRAIL FOR TH



NEED

E Fitness authority Jim Leo is using science and an understanding of the human body and mind to better position racing's athletes for success

RACK

By George Tamayo • Photos by Walter Kuhn (except as noted)



ou've probably heard this one before, and maybe you've even wondered it yourself: Are race car drivers really athletes? After all, isn't the car doing all of the work, and how much different can it be than driving down the interstate, if only a lot faster?

Anyone in the business of motorsports will answer unequivocally "yes" to the first question and a resounding "no" to the second. So, too, will just about anyone who has spent time driving a race car or go-kart at speed on a racetrack.

Jim Leo, the founder and owner of PitFit Training in Indianapolis, is one of those who wholeheartedly endorses the fact that race car drivers are indeed athletes; however, his arrival at that answer came in a very methodical and hands-on way.

Leo has a degree in exercise physiology and biomechanics and early in his postgraduate career set up a health and wellness program for the employees of Detroit Diesel in the early 1990s. At the time, the majority shareholder and CEO of Detroit Diesel was one Roger Penske of Penske Racing fame and an 18-time winner of the Indianapolis 500 as a team owner. At the time, Leo was not involved with motorsports and had only a passing interest in it, when he approached Penske about creating a fitness regimen for his race teams — specifically, the pit crew members.

Soon after, PitFit Training was born, and Leo found himself training not only the Penske Racing crew members but crew members from other teams as well. The era coincided with an increased emphasis on how athletes across nearly every sport began training more scientifically and specifically for the demands of their particular sport. It wasn't long after that that drivers were coming to Leo for advanced fitness training.

PILOT PARALLELS

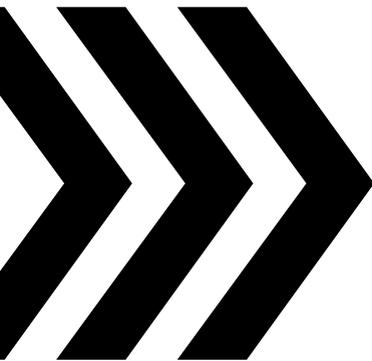
Now, after more than 20 years in the sector, Leo has honed and refined the techniques he uses to keep drivers physically and mentally performing at their peak. "There's no question that race car drivers are athletes," said Leo. "But I'll take it one step further and say that they are more akin to fighter pilots. [See sidebar on Page 30.]

"If you look at a driver's physical requirements, such as the elevated heart and breath rates, enduring g-forces and near-instantaneous reflexes in addition to the high demand on cognitive ability, they align closely to the traits of combat pilots. Every athlete has to make split-second decisions on the field of play that have ramifications that may end in a game-losing situation, which is true of race car drivers as well. But drivers have the added weight that their decisions can not only affect the outcome of their race result but could also cause themselves or a fellow competitor potentially grave harm or their team hundreds of thousands of dollars' worth of car damage."

Added Leo for further clarification: "Physiologically, we know that a driver's blood lactate levels rise while in the car as well as cardiovascular demands that are similar to running a 10K at an elite pace."

MIND + MATTER

To get a sense of what a race car driver deals with, imagine this: You are out in the parking lot of your local shopping center in full sun at high noon in July wearing a pair of thick flannel sweatpants and sweatshirt with gloves, shoes and socks atop an exercise bicycle that you must pedal hard enough to maintain a heart rate above 130 beats per minute. On your head is a helmet that has bungee cords attached, each pulling on your head randomly in four directions. With your left hand, you're doing ▶

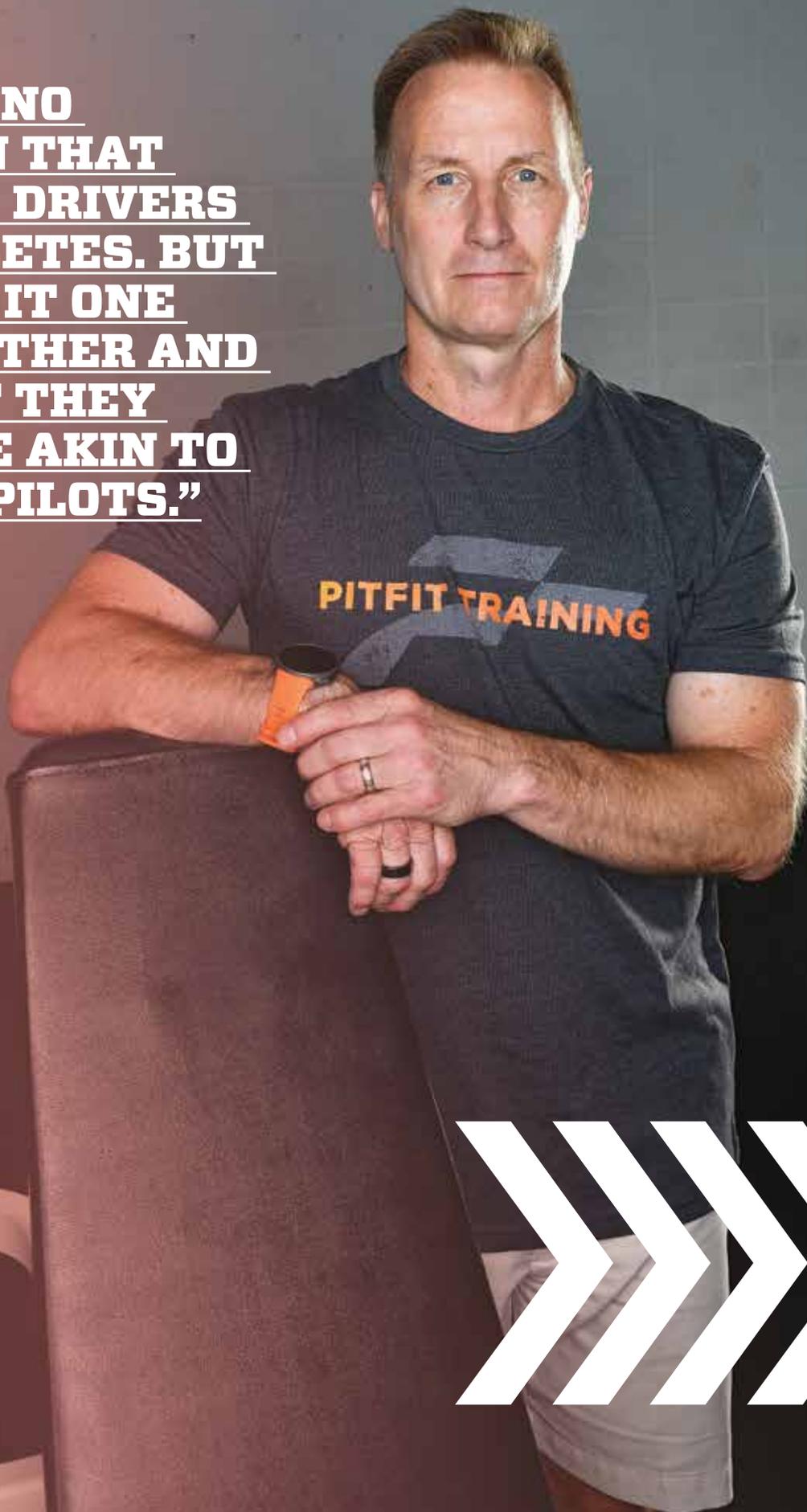


DID YOU KNOW? / Depending on which way your body is oriented when it accelerates, you can feel g-forces front-to-back, side-to-side or head-to-toe.

DID YOU KNOW? / U.S. Air Force Col. John Stapp, who was called the human guinea pig of g's, used himself in dangerous experiments in the 1950s so he could understand how the human body responds to various accelerations. Much of his daredevil research impacted automotive safety standards.

**“THERE’S NO
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— Jim Leo





TRAINED TOGETHER

For a race car driver, reaction times and mental focus are paramount. Driver Charlie Kimball (above sitting) tries to keep up with randomized light patterns during a training session at the PitFit facility, while fellow driver James Hinchcliffe (right in photo at left and left in photo on opposite page) completes strength training for his shoulders and arms, key areas of concentration for Indy car drivers since they endure high cornering g-forces without the benefit of power steering. At PitFit, it's common practice for physical exercise to be immediately followed by mental acuity challenges.

DID YOU KNOW? /

Besides racing, neurocognitive training impacts many activities, such as golf, archery, surfing, boxing and drumming.





15-pound bicep curls, while with your right hand you are throwing darts at a board every two seconds and each must hit the bull's-eye. Meanwhile, a tennis ball machine is firing balls at you from 10 feet away, which you must duck out of the way of to avoid being hit. To top it all off, through a set of earphones, you are being fed complex math problems that you must solve instantly or face the possibility of an electric shock if you answer incorrectly or if you miss the bull's-eye.

Taken as a whole, this hypothetical may border on the absurd, but each element gives us a sense, through ordinary tasks that we can all identify with, what the physical, reflexive and mental rigors of driving a race car entail, along with the physical jeopardy that can result through bad decision-making.

"Drivers are always analyzing what they see on track or what information they are being fed from a spotter about track position or an engineer about strategy," said Leo. "We spend a lot of time training a driver's neuropathways to better cope with the physical and cognitive demands of racing by having them train at specific intensities, immediately followed by a cognitive skills test like repeating a pattern on a light board or visual recognition test, even sometimes adding some kind of auditory distraction to really create a chaotic environment while their heart and breath rates are still high.

"The idea is to have them practice focusing on the task at hand to push beyond the physical stress," elaborated Leo. "This trains a driver to cope with both the physical and mental demands they are required to exercise on track in competition."

CONSISTENCY IS KEY

That kind of focus may not be apparent to the spectator trackside or on television, but one need only look at the consistency of a top driver's lap times to get the real picture.

Over the course of a race, discounting laps where there was a yellow flag or a pit stop, it's common to see a string of 25 or more lap times that never vary by more than half a second — the equivalent of throwing 25 darts in quick succession all within the bull's-eye.

While the romantic lore of a race car driver may be of a brazen daredevil driving by the seat of his or her pants, the reality is far from it. Drivers are highly fit athletes with astounding cognitive ability — meaning there is far more to winning a race than standing on the gas. ●

GOOD TO KNOW

NEUROCOGNITIVE: Having to do with the ability to think and reason. This includes the ability to concentrate, remember things, process information, learn, speak and understand.

G-FORCE: The force of gravity or acceleration on a body. It's that invisible pull that keeps you from floating off into space. Lateral g's are the forces a race car driver feels when turning.



ONLINE To learn more about PitFit Training and Jim Leo's story of entrepreneurship, visit pitfit.com ►

DRIVERS' TRAINING



Jim Leo of PitFit Training in Indianapolis likens the cognitive prowess, aka mind conditioning, of a race car driver to that of a combat pilot. It makes sense. Like a fighter pilot, a race car driver must be able to withstand the effects of sustained g-forces on the human body for long periods of time. Consider: An Indy 500 race can sometimes last up to five hours, with drivers often experiencing g's spiking to three or more. And these drivers, like those pilots, consistently need to have unbelievably quick reaction times and sensorimotor functions, not only to succeed in their mission but to survive.

Imagine yourself having to react to a car that crosses your path at more than 200 miles per hour or what it feels like to be constantly battered by continuous braking and accelerating forces in a cockpit where temperatures are likely above 100 degrees. Due to the high speeds and g's alone, the average human on a racing oval would black out.

Where PitFit takes its motorsports training to the next level, and further parallels combat pilot training, is with its approach to incorporating neurocognitive elements with physical fitness. PitFit's brain training is three pronged, targeting vision, reaction time and sensorimotor functions to give racing's athletes the greatest developmental improvements that will lead to success on the tracks.

That means workouts are often a combination of neck-centric strengthening exercises matched with ladder-type movements to improve hand-eye-foot coordination that are then paired with high-end virtual and augmented reality games and tasks based upon advanced biometrics, artificial intelligence and data analytics. PitFit has a custom-built sensory station, for example, created by Oregon-based Senaptec, a startup that's bringing new visual training technologies to market that are specific to improving eye-to-brain connectivity. (Senaptec has the New York Yankees, Red Bull and the Air Force on its client list.) PitFit's station requires drivers to interact with moving images on a screen through activities that an article on thedrive.com compared to the arcade game Whac-A-Mole. Skill levels are then measured to help indicate the driver's ability to make quick decisions under pressure.

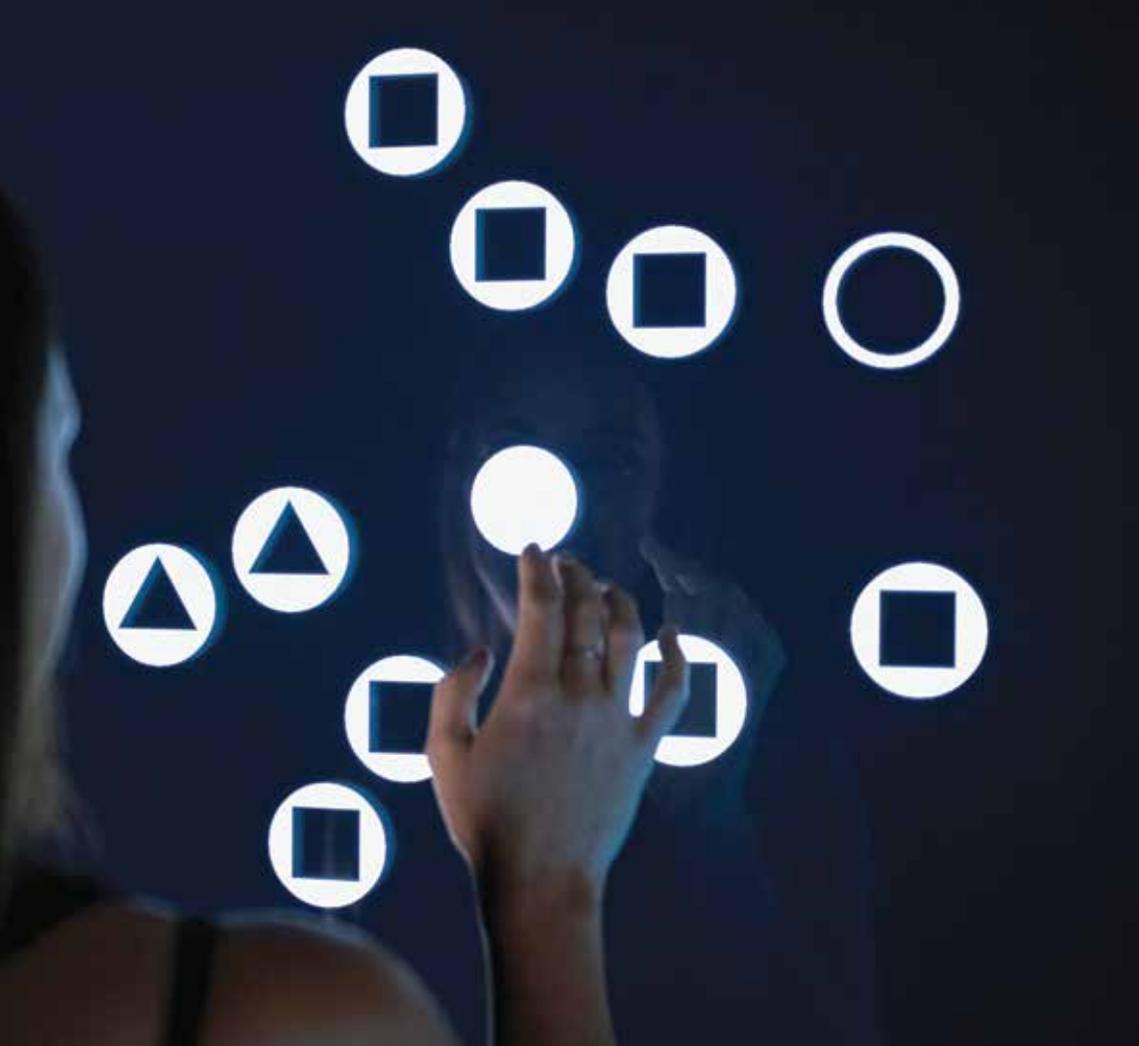
Race Trainer, another PitFit exclusive, is a homemade steering-resistance machine centered around a weighted steering wheel paired to pedals. A lighted control board behind the wheel prompts the driver to simulate a turn on the track, which then prompts the trainer to pull on resistance bands strapped to weighted headgear worn by the athlete. The exercise, according to PitFit, mimics the effects of those lateral g's.

PitFit's brain training is three pronged, targeting vision, reaction time and sensorimotor functions.



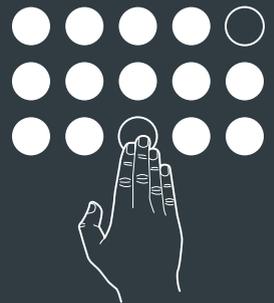
- ▶ PitFit incorporates Senaptec's strobe glasses as part of its neurocognitive exercises. Using liquid crystal technology, the lenses flicker between clear and opaque, removing visual information and forcing an individual to process more efficiently.

PHOTO OF STROBE GLASSES AND SENSORY STATION COURTESY OF SENAPTEC



◀ **SENSORY STATION**

Through high-end virtual and augmented reality games and tasks, you can assess your hand's reactions to visual signals and find out how well you can see through distractions, judge depth and track multiple objects in space.



◀ **RACE TRAINER**

The light serves as a reaction trainer — green means turn now — and it's all about how the driver responds when the steering wheel and headgear are weighted.

OTHER LOW-TECH TRAINING EXERCISES

A trainer drops playing cards from chest height, and the driver has to try and grab one before the card hits the ground. The cards may fall in different directions, and this builds reaction-time skills that result in better, safer results on the track.

HIT IT

Driver Zach Veach spends time at PitFit doing exercises designed to perfect hand-eye-foot coordination, which is part of the program's brain training to improve success on the track.





“THE IDEA IS TO HAVE THEM PRACTICE FOCUSING ON THE TASK AT HAND TO PUSH BEYOND THE PHYSICAL STRESS. THIS TRAINS A DRIVER TO COPE WITH BOTH THE PHYSICAL AND MENTAL DEMANDS THEY ARE REQUIRED TO EXERCISE ON TRACK IN COMPETITION.”

— Jim Leo



DAVE FRIEDMAN COLLECTION

The son of a movie producer and silent film actress, still photographer Dave Friedman began photographing local amateur sports car races around his native Los Angeles after serving in the military in World War II. By 1963, Carroll Shelby had hired him to document the design and development of what would become one of racing's most dominant stable of cars: the Shelby Cobra, King Cobra and Cobra Daytona coupe.

The Henry Ford's Dave Friedman Collection documents over 60 years of various automobile races and race cars and features photographs, slides, negatives and contact sheets. Included are several images of a young race car driver from the '60s named Roger Penske (at left), who would later become one of the winningest team owners of all time in auto racing. Penske's also the guy PitFit Training's Jim Leo — now a leading authority on motorsports-specific human performance training — first solicited in 1993, offering to help prepare his team physically and mentally for the track. The next year, Penske Racing dominated its competition, winning 12 of 16 races, the CART championship and the Indy 500.

ONLINE To access digitized items from The Henry Ford's Dave Friedman Collection, visit thf.org/research/dave-friedman-collection ▶

A FITTING CONNECTION

Early in 2019, Matt Anderson, curator of transportation for The Henry Ford, along with other staffers, was on the phone with racing legend Lyn St. James. They were talking about themes and stories for *Driven to Win: Racing in America*, the permanent racing exhibition coming to Henry Ford Museum of American Innovation in 2020 (see story on Page 48). St. James, a longtime supporter and partner of The Henry Ford, has been an integral source of ideas and insights related to *Driven to Win* since its conception — and she is one of the drivers who will be showcased on the museum floor (see story on Page 16).

It was during this call that St. James recommended The Henry Ford investigate Jim Leo's story of entrepreneurship and innovation. A who's who of auto racing had been having great success on the tracks using Leo's PitFit Training approach, including drivers such as Scott Dixon, Tony Kanaan, Dario Franchitti, Will Power, Kasey Kahne, Sam Hornish Jr., Larry Dixon, Morgan Lucas, Pippa Mann, Levi Jones and James Hinchcliffe.

Soon after that call, Anderson and team were in Indianapolis, meeting Leo and touring his industry-leading motorsports training facility. "Jim couldn't have been friendlier. He opened his doors and gave us an up-close look at his methods and machines," noted Anderson, who admitted to being a bit star-struck when driver Pippa Mann walked into Leo's gym to work out while The Henry Ford team was on-site.

"Jim had us try some of the physical and mental workouts," Anderson continued. "We did our best, but, needless to say, none of us will be starting in the Indy 500 anytime soon." The team decided then and there to incorporate elements of the PitFit program into the exhibition. Leo enthusiastically agreed to help adapt some of his training machines into inter-activities for visitors to experience when *Driven to Win: Racing in America* opens in June 2020.

"Our visitors will be able to use some of the same training machines, and some of the same sensory performance devices, that top drivers use," Anderson said. "Once you realize the physical strength and mental acuity required of these racers, you'll never doubt their athletic abilities again."



QUESTIONS

WITH VAUGHN GITTIN JR.

Drifter, enjoyer of anything with four wheels and video personality describes himself as a "professional fun haver"

By Richard S. James • Photos by Larry Chen





Vaughn Gittin Jr. is living a gear-head's dream. The 2010 Formula D champion is a regular winner on the drifting circuit in his Monster Energy Nitto Tire Ford Mustang RTR. He has expanded his motor-sports activities into road racing and off-road racing, where he won the 2018 Ultra4 4500 East Coast Championship. The star of viral videos, television and video games, Gittin's latest venture is the creation of custom Mustangs under the RTR — Ready to Rock — brand. The Henry Ford Magazine interrupted his busy schedule to get the answers to some burning questions.

1

THF Magazine ▶

How did you first become attracted to drifting and what makes you so good?

Gittin ▶ My love for cars in general stems back to being a child. My dad was a used-car salesman, and he was a warm-blooded hotrodder. He was always bringing unique, cool cars home. At 4 years old, I got a go-kart. I vividly remember going out, going as fast as I could and pulling the little brake and making the go-kart slide. Fast forward through skateboarding, riding BMX, motocross ... When I was 18, I got my first rear-wheel-drive car, and I would go to the industrial parks and parking lots where I used to ride my go-kart and do donuts, burnouts, powerslides. Eventually, I saw videos of this sport called drifting (see sidebar on Page 42), and my perspective was that it was about showing your style and personality with really awesome cars. It was something I just really, really enjoyed.

Right about that time, drifting was coming to the U.S. from Japan. I went to my first organized drift event in 2001 or 2002 and immediately realized that all these things I've done — the playing around, the motocross, the skateboarding — really taught me good car control. And I was pretty good, naturally, at drifting. I fell in love with the culture, the scene, the people and the camaraderie.



DRIFTING DUO
Vaughn Gittin Jr. (right) with RTR Motorsports teammate and fellow Spec 5-D driver Chelsea DeNofa at Formula Drift New Jersey 2019. Gittin finished fourth.



2

THF Magazine ▶**What is a professional fun haver?**

Gittin ▶ To me, fun and fun-having is a mindset. We all have our bad days, and we all have the things we have to do that we don't necessarily want to do to achieve our goals and dreams. But I always find something fun in just about everything I'm doing. It's very similar to what kind of person you are: an optimist or a pessimist? Is the glass half full or half empty? I think a fun haver always looks at life and challenges with the glass half full and creates fun out of it. I truly believe that my purpose is to put smiles on faces and hopefully inspire people to have fun on a daily basis because I think it's important. And anybody can be a fun haver. I've dubbed myself a professional one, but it's a very inclusive movement and something the world needs more of.



DID YOU KNOW? / Vaughn Gittin Jr. mentions his love of cars and speed started with a go-kart at age 4. The Henry Ford has a go-kart replica of the Lotus-Ford driven by Jim Clark in the 1963 Indy 500 in its collections. While more toy than competitive kart, the designer replica features a fiberglass body with a gasoline-powered engine in the rear. It was a prize in a 1964 contest sponsored by Pedwin Shoes, a brand of the Brown Shoe Co. of St. Louis, Missouri.

3

THF Magazine ▶**What's next for you in motorsports?**

Gittin ▶ I'm really torn because I have only so much time, and there are so many cool opportunities and things that I'm excited to be a part of. You're going to continue seeing me having some fun in drifting and competing. I'm definitely focused on doing more festival events, like Gridlife, where I can go and get my fix on the track and have fun and perform and then chat with fans and get people in the passenger seat. Certainly, I have taken a liking to off-road, not just the racing, but the culture and being outdoors. Ultra4 is what I've kind of just fallen into the last couple of years, and my perspective is that it's the most challenging type of off-road racing there is. You race in the desert, you race on the short course, you're going over massive boulders and driving up waterfalls. It's an absolutely incredible challenge, and it's so beautiful when you're out there.

ONLINE

Learn more about Gridlife, a hybrid music and automotive festival series blending the culture of music and motorsports into one high-energy weekend experience. Some call it an on-track automotive carnival or spring break for car people, with some of the best drivers, including drifters, from the U.S. coming out to party. Discover more at grid.life ▶



"DRIFTING IS THE EPITOME OF CAR CONTROL, ARGUABLY ONE OF THE MOST CHALLENGING SPORTS — THE PRECISION REQUIRED AND THE COMMITMENT AND THE MENTAL CAPACITY TO BE THE ABSOLUTE BEST YOU HAVE EVER BEEN IN YOUR LIFE IN THAT MOMENT, BECAUSE THERE ARE NO CHANCES TO MAKE MISTAKES."

— VAUGHN GITTIN JR.



▲ Drifter Vaughn Gittin Jr. demonstrates skill and showmanship in his No. 25 Mustang during the 2019 Formula Drift championship series.

4

THF Magazine >

Where do drifting and racing come together?

Gittin > Drifting is the epitome of car control, arguably one of the most challenging sports — the precision required and the commitment and the mental capacity to be the absolute best you have ever been in your life in that moment, because there are no chances to make mistakes. When you take that focus that has been built from drifting, and the car control and the feeling of the vehicle, it really translates to just about every other single motorsport or anything you could ever do that involves managing the vehicle, managing weight and pushing yourself outside perceived limits.



5

THF Magazine ▶

What's harder, being behind the wheel or in front of the camera?

Gittin ▶ I've always been in front of the camera. My mom used to have a camera on us all the time, and I was always a little ham with it. I was never shy of the camera and love being in the car. I would say both are equally as easy!

6

THF Magazine ▶

What led to your love of and loyalty to Ford?

Gittin ▶ Growing up, I wouldn't have considered myself a Ford guy; I was an import guy. But when Ford came out with that '05 Mustang, I just fell in love with the look. I thought: "Man, I'd love to bring some American muscle into this import-dominated sport." I've been working with Ford since 2007, and I beat the door down for a couple of years before I got an answer. Since then, I've met some really great people that speak my language and love the things that I do.

7

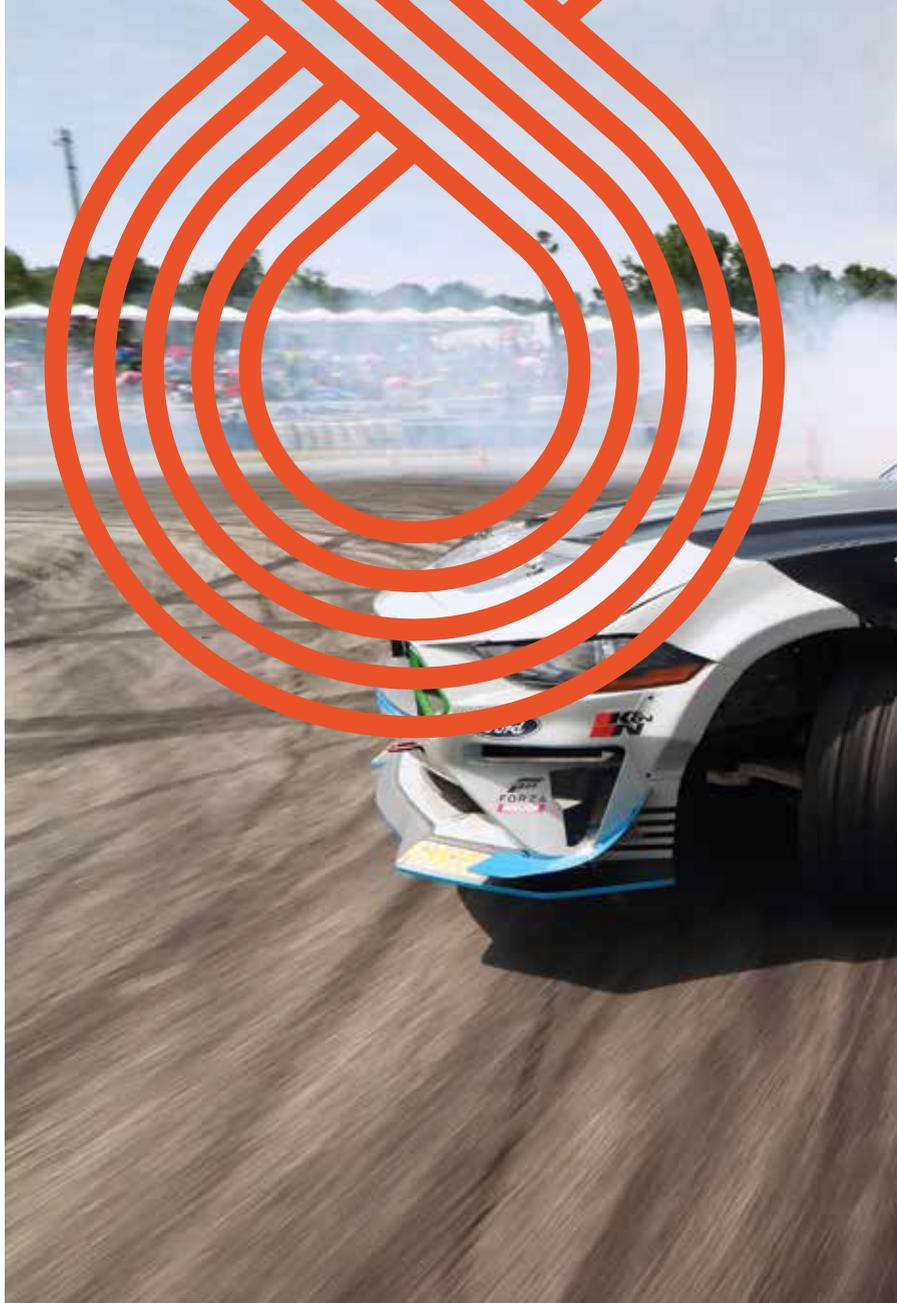
THF Magazine ▶

How did you come to launch your own brand of customized Mustang?

Gittin ▶ When I first got into Mustangs in 2005, I was looking for a way to customize it and personalize it, but there was nothing that spoke to me. It inspired me to launch a new generation of Mustang. Ford was doing a phenomenal job building cars for everybody, and I wanted to build something that was for me. That's when I conceptualized the idea of RTR. I wanted to have a Mustang that was Ready to Rock — it was representative of me from the exterior, and the performance was ready for anything I might want to do.

RESEARCH

Female drifters with some serious skills — Jutta Kleinschmidt, Stina Hübinette, Melyssa Grace, Bailey Campbell, Hiromi Kajikuma and Leona Chin ▶



8

THF Magazine ▶

Do you have any advice for those who would like to follow your path?

Gittin ▶ I think it's very important to keep your reality and passion in check. These things that we're passionate about can very easily suck us in and make us forget reality. I maxed out credit cards that took me years to pay off. I think it's important to pay attention and enjoy your passion, but always keep your reality one foot forward so you don't get yourself in trouble. Most importantly, have fun!





DID YOU KNOW? /
Vaughn Gittin Jr. is the first crossover driver in Ultra4 Racing to finish the 2019 King of the Hammers off-road race within the top 10, finishing in seventh place in the toughest and most difficult 4400 class.

DID YOU KNOW? /
Motorcycling legend turned driver Kunimitsu Takahashi was the foremost creator of drifting techniques in the 1970s.

◀ Drifter Vaughn Gittin Jr. (at bottom right with tire model Christen Dye) admits that his love of drifting is about more than his Mustang RTR race car (above). “I fell in love with the culture, the scene, the people and the camaraderie,” he said.



“IT’S IMPORTANT TO PAY ATTENTION AND ENJOY YOUR PASSION, BUT ALWAYS KEEP YOUR REALITY ONE FOOT FORWARD.”

— VAUGHN GITTIN JR.

Drifting Deconstructed

The breakdown of one of the fastest-growing forms of motorsports

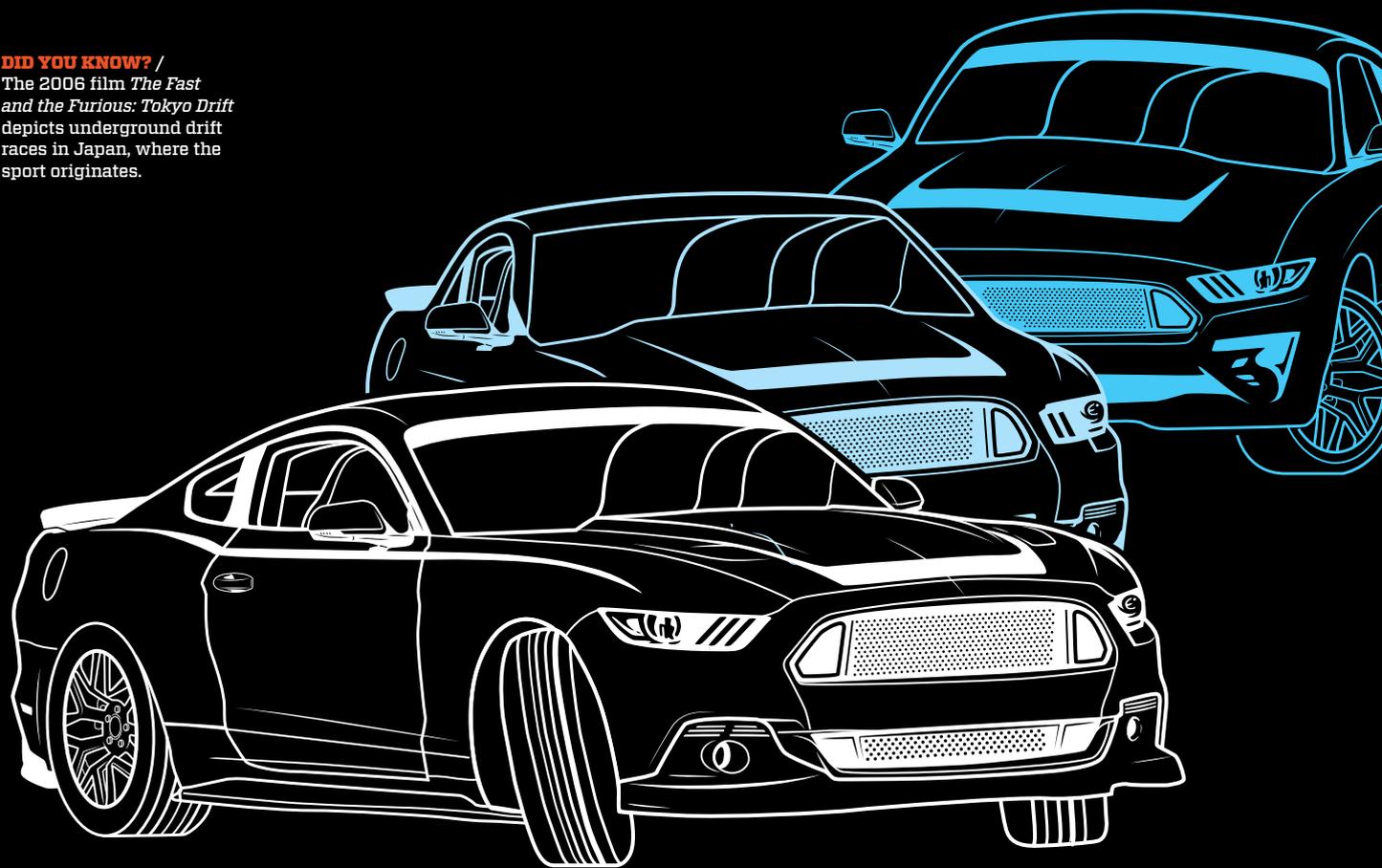
Drifting is the sport of losing traction, a driving technique where a driver purposely oversteers and causes the rear tires (or sometimes all the tires) to lose grip on the road. A car is said to be drifting when the rear slip angle is greater than the front slip angle, and the front wheels are pointing in the opposite direction to the turn. Basically, the car is turning left, but the wheels are pointed right. What's extreme here is that the driver is controlling these factors the entire

time. Drifters don't cause a car to drift and then try to straighten things out. They just over-counter so the car goes into another drift. That's the whole point.

Today, drifting is one of the fastest-growing forms of motorsports in the world. It's not about being the fastest or crossing the finish line first. Drifting is all about skill and showmanship, with each driver being assessed and awarded points for things like speed, angle, line and a driver's X factor.

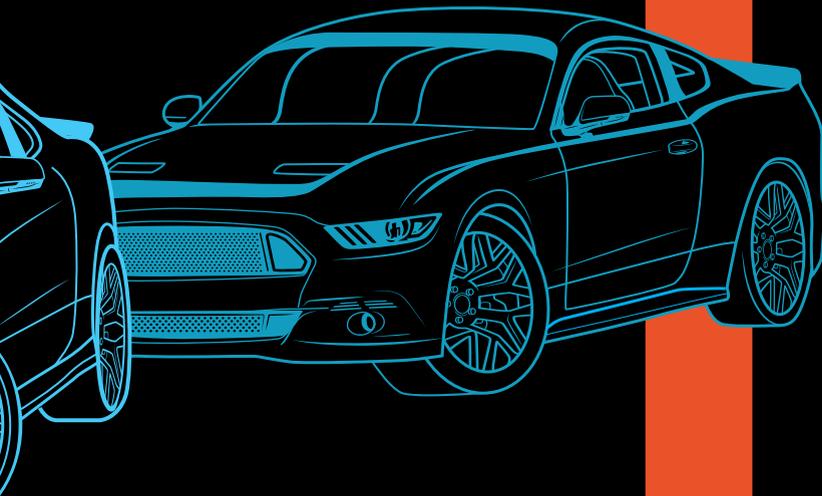
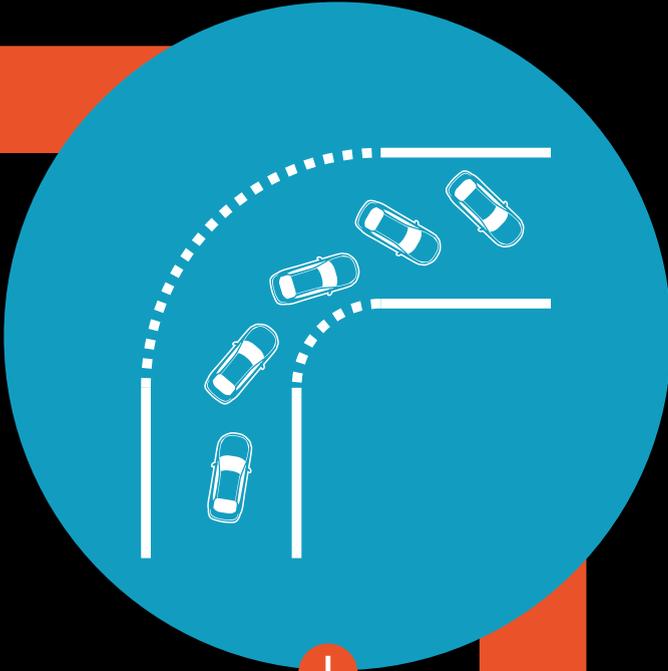
DID YOU KNOW? /

The 2006 film *The Fast and the Furious: Tokyo Drift* depicts underground drift races in Japan, where the sport originates.



Mustang Matchup

Take a little side-by-side look at what more than 50 years of evolution and a passion for high performance can bring to an iconic vehicle brand. We're comparing, spec for spec, the 1965 Mustang Serial Number One, which is part of The Henry Ford's collections, against Vaughn Gittin Jr.'s 2019 Mustang RTR Spec 3.



TURN BY TURN
 In a drift turn, the frictional force acts centripetally, meaning that it pulls the car in a circular motion, precisely the motion that is required to maneuver a turn. During a drift, you essentially make a turn too fast, causing the rear tires to lose their grip on the road. As a result, the rear tires over-rotate in the direction of the turn, which makes them go into a spin. To compensate for this over-rotation and spinning of the rear tires, you have to turn the front tires in the opposite direction of the turn that you were originally making. Drifters balance the amount of traction they lose on the rear wheels by constantly balancing the wheel speed and the slide.

ILLUSTRATION BY T.M. DETWILER; MUSTANG SERIAL NUMBER ONE FROM THE HENRY FORD ARCHIVE OF AMERICAN INNOVATION; 2019 MUSTANG RTR BY LARRY CHEN

1965 Ford Mustang Convertible, Serial Number One

ENGINE: V-8, overhead valves, 260 cubic inches

HORSEPOWER: 164 at 4,400 rpm

TRANSMISSION: 3-speed automatic

FRONT SUSPENSION: Independent coil springs

REAR SUSPENSION: Semi-elliptic leaf springs

TIRES: 6.50" x 13" four-ply rayon

WEIGHT: 2,740 lbs

TOP SPEED: 110 mph (estimate)

PRICE: \$3,334



DID YOU KNOW? /

The salesman who sold Mustang Serial Number One in 1964 was invited to The Henry Ford in 2019. Harry Phillips, now in his 80s, was reunited with the vehicle he mistakenly sold to a customer while working at George G.R. Parsons Ford in St. Johns, Newfoundland. The preproduction car should have been returned to Ford Motor Co., where it might've been scrapped.

Vaughn Gittin Jr.'s 2019 Mustang RTR Spec 3

ENGINE: V-8, Supercharged 5.0L

HORSEPOWER: 700 and 610 lb-ft of torque at 12psi with 91-octane fuel

TRANSMISSION: 6-speed manual

FRONT SUSPENSION: RTR tactical performance adjustable front struts w/RTR tactical performance lowering springs

REAR SUSPENSION: RTR tactical performance adjustable rear shocks

TIRES: RTR 20" Tech 7 wheels w/Nitto NT555 G2 ultra-high-performance tires (275/35R20)

WEIGHT: 3,532-3,825 lbs

TOP SPEED: 165 mph (estimate)

PRICE: \$47,395 (starting)



ONLINE Visit Vaughn Gittin Jr.'s official website, vaughngittin.com, and explore his RTR brand of vehicles at rtrvehicles.com ▶



Will is fascinated by LEGOs, Epcot Center and video games like SimCity, so it's no surprise that he dreams of a future in architecture and urban design. Meanwhile, the Henry Ford Academy student is happy to immerse himself in the work of 1950s-era designers like Charles and Ray Eames, with a little Sinatra crooning in the background.

INSIDE EVERY CHILD IS THE POTENTIAL TO CHANGE THE WORLD

“The Henry Ford believes every child should have the opportunity to reach their potential. With the launch of **The Innovation Project**, we're on a mission to realize it. Our \$150 million comprehensive campaign will advance innovation, invention and entrepreneurship for a whole new generation of learners and leaders, regardless of barriers or backgrounds — a value that The Henry Ford prioritizes at every level of our organization.

If one spark can change a life and change the world, imagine what a million can ignite. **Join us.**”

— Patricia E. Mooradian, President and CEO
The Henry Ford



THE INNOVATION PROJECT

THEINNOVATIONPROJECT.ORG

Driving a Brighter Future

As the philanthropic arm of Ford Motor Company, Ford Fund's mission is to strengthen communities and help make people's lives better. Working with dealers and nonprofit partners in more than 60 countries, Ford Fund provides access to opportunities and resources that help people reach their full potential. Since 1949, Ford Fund has invested more than \$2 billion in programs that support education, promote safe driving, enrich community life and encourage employee volunteering.



Ford Motor Company Fund is proud to partner with the Henry Ford Museum of American Innovation to bring learning and inspiration to life.



www.FordFund.org
#fordgivesback @fordfund_





Nourish your next big idea, and taste American farm-fresh foods at the new Plum Market Kitchen in **Henry Ford Museum of American Innovation**. Stop by for a Zingerman's pastry and coffee in the morning or a lunch featuring organic, sustainable and artisanal soups, salads, sandwiches and entrees.

MEMBERS: Show your card to save 10% on dining and grab-and-go meals.

No museum admission is necessary to visit Plum Market Kitchen at The Henry Ford.

Visit thf.org/plummarketkitchen for menus and more information.





2020 HOURS

Henry Ford Museum of American Innovation

Open 7 days a week,
9:30 a.m.-5 p.m.

Greenfield Village

April 17: Open exclusively
to members and guests
covered by their
memberships

April 18-Nov. 1:

Open 7 days a week,
9:30 a.m.-5 p.m.

Nov. 2-29:

Open Fri.-Sun.,
9:30 a.m.-5 p.m.

Nov. 30-Dec. 31: Closed;
open select evenings
for Holiday Nights

Giant Screen Experience

Open daily with
extended hours

Ford Rouge Factory Tour

Open Mon.-Sat.,
9:30 a.m.-5 p.m.
(Call for bus times
and seasonal hours)

Benson Ford Research Center

Reading room open
Mon.-Fri., 9:30 a.m.-5 p.m.

All attractions closed
Thanksgiving and
Christmas days.

The Henry Ford is an independent nonprofit organization. We depend on ticket purchases, income from our stores and restaurants, and tax-deductible contributions and memberships for support.

Sign up for our e-newsletter
at [thf.org/enews](https://www.thf.org/enews)

INSIDE THE HENRY FORD

Flip through the following pages to find out what's happening inside this mind-blowing cultural institution and how to make the most of your annual membership.

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AT THE FINISH LINE

New *Driven to Win: Racing in America* exhibition puts visitors in the driver's seat of America's innovative motorsports past, present and future

THE NOISE, THE EXCITEMENT and the anticipation of race day. Visitors to the new permanent exhibition, *Driven to Win: Racing in America*, in Henry Ford Museum of American Innovation will get a sense of it all, said Matt Anderson, curator of transportation at The Henry Ford.

The exhibition opens in June 2020. It's more than a decade in the making, a perfect pairing with the museum's *Driving America* exhibition. "As part of our *Driving America* research, we found that people were interested in the artifacts and stories of American racing of this institution," said Anderson. "Not many museums have as many cars as The Henry Ford does, from as many different branches of racing."

Anderson is referring to significant milestone vehicles such as the 1906 "Old 16" Race Car that won the 1908 Vanderbilt Cup, Jim Clark's game-changing Lotus-Ford from the 1965 Indy 500 and the 1965 Goldenrod Land Speed Record Race Car, just to name a few: all vehicles in The Henry Ford's collections that will be a part of the new multizoned racing exhibition (see Page 50).

But visitors will experience much more than traditional static vehicle displays. In the sports car performance center, for example, guests can get hands-on with materials — like carbon fiber and aluminum — and auto parts — such as brakes and tires — tied to the 2016 Ford GT that drivers Sébastien Bourdais, Joey Hand

and Dirk Müller took to a class victory at the 24 Hours of Le Mans. They will learn how teams test their cars before race day, from engine stress tests on the dynamometer to aerodynamics studied in a wind tunnel. Kids can compete in gravity races with miniature derby cars on a designated run. In the pit crew experience, visitors can prowl around two half-car cutouts and take a turn raising the jack and changing a tire. A zone dedicated to driver training is also part of the experience, demonstrating to visitors the mental fortitude and athletic ability race car drivers must have to compete in the sport. According to Anderson, driver training gym interactives will be based on designs of Jim Leo of PitFit Training in Indianapolis, an industry leader in motorsports performance training. See Leo's story on Page 24.

The quality, not the quantity, of what *Driven to Win: Racing in America* is set to offer is what really gets Anderson pumped up. And he's grateful to all the racing communities, corporate partners and private donors for their willingness to help make the exhibition the best it could be, from General Motors Co. to individuals like rally driver Ken Block and NHRA drag racer John Force. "We want visitors to understand how much it takes to race," said Anderson. "How hard drivers, designers, engineers and crews work through failure after failure and keep going again and again for the win."



SAVE THE DATE

Exhibition Opens
June 2020
thf.org/driventowin ▶

ONLINE For more information, hours and pricing for Henry Ford Museum of American Innovation, visit thf.org/museum ▶

THE HENRY FORD'S DRIVERS CLUB

Looking to immerse yourself in The Henry Ford's automotive collection? A new opportunity just drove up. Consider joining The Henry Ford's Drivers Club, which offers its members unlimited access to Henry Ford Museum of American Innovation and Greenfield Village, along with other exclusive experiences dedicated to the automotive enthusiast. Club exclusives can range from special events on-site at The Henry Ford to rallies, tours and travel opportunities to visit private automotive collections.

"The Henry Ford is known for its world-renowned automotive collections. A passion for all things automotive is at our core. By becoming a member of The Henry Ford's Drivers Club, you can be a part of a community dedicated to sharing the story of how automotive innovations have changed our lives and influenced American culture," said Patricia Mooradian, president and CEO of The Henry Ford.

For more information, call 313.982.6115 or visit thf.org/driversclub.

DID YOU KNOW? /

The exhibition's In the Driver's Seat experience will give visitors the opportunity to drive the world's fastest cars on the most challenging tracks through six interlinked full-motion racing simulators and the latest virtual reality technologies. (There's an additional fee for the racing simulators.)

► Artifacts from *Driven to Win: Racing in America*: **1** Stock Car Racing: Kevin Harvick's racing suit from his 2014 championship season; **2** Sports Car Racing: trophy from 1967 24 Hours of Le Mans; **3** Drag Racing: cap commemorating John Force's 15th NHRA championship; **4** Indy Car Racing: Lyn St. James' gloves from 1992 Indianapolis 500; **5** Early Racing: face mask worn by Joe Tracy; **6** Land Speed Racing: Goldenrod scale model

FROM THE HENRY FORD ARCHIVE OF AMERICAN INNOVATION



THE EXHIBITION:

Driven to Win: Racing in America presented by General Motors is a sensory attraction with 15 zones covering 24,000 square feet. Take an exhilarating ride and immerse yourself in the images, lighting, speed and sounds of auto racing.

1 THE DAWN OF RACING ENTRANCE
Explore American racing's early years and its first signature event.

2 IGNITING THE PASSION
Explore the many kid-centric avenues that can arouse passion for the sport.

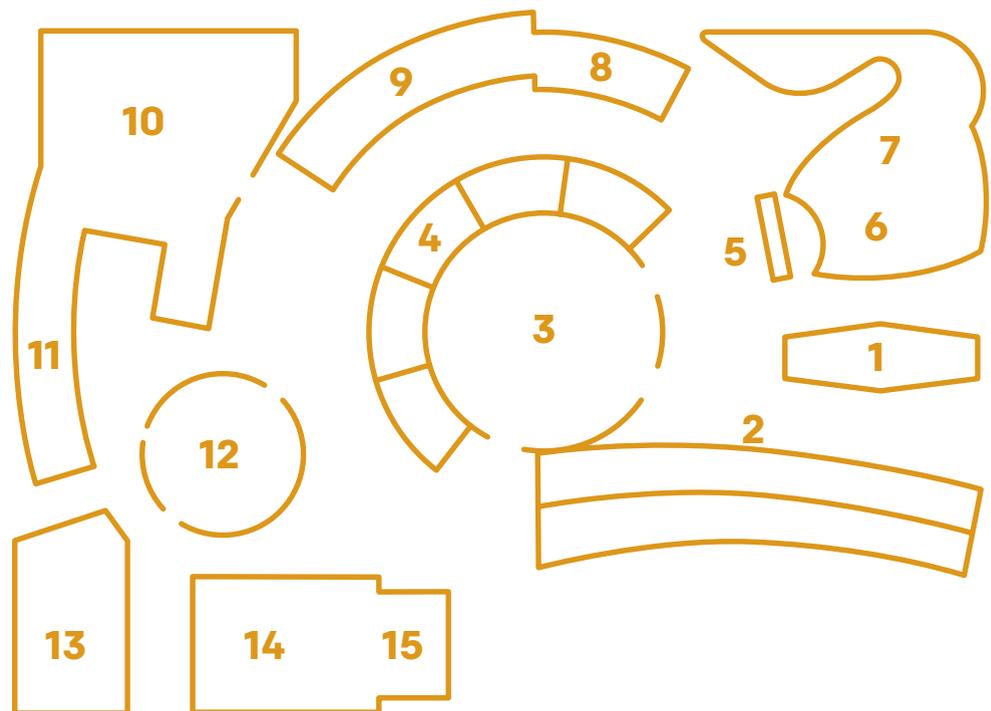
3 FUELED BY PASSION
Get an intense, multisensory feel for what a day at a racetrack holds.

4 IN THE WINNER'S CIRCLE
Five remarkable cars, their drivers and teams are celebrated.

5 GRAVITY RACERS
Build your own wooden kit car and race it.

6 SHOWMANSHIP
Race car drivers are as charismatic as they are talented.

7 LAND SPEED RACING
Find some answers to the question: How fast can it go?



8 HILL CLIMB RACING
Get schooled on one of the very earliest forms of automobile competition.

9 INDY CAR RACING
Immerse yourself in "The Greatest Spectacle in Racing."

10 SPORTS CAR PERFORMANCE CENTER
Learn how teams test their cars before race day.

11 STOCK CAR RACING
A look at what's often called racing's "contact sport." Become a part of the pit crew.

12 IN THE DRIVER'S SEAT
Race against each other on six simulators. Car and track combinations will change throughout the year.

13 MOTORSPORTS PERFORMANCE TRAINING
Get a better understanding of the physical skill and mental fortitude of driver athletes.

14 DRAG RACING
Loud, fast, intense. Find out why drag racing is high-tech and supercharged.

15 HOT ROD ENTRANCE
Discover racing's influence on American pop culture, from movies and music to magazines.



DID YOU KNOW? / Fueled by Passion, the showcase film in the *Driven to Win: Racing in America* theater, was produced by BRC Imagination Arts, which also created the *Manufacturing Innovation* film that's part of the Ford Rouge Factory Tour. The new film shares stories of the passion common to those who have dedicated themselves to racing.

FIELD TRIPS

If you're a teacher, youth group leader or homeschooler, you can align a field trip to *Driven to Win: Racing in America* with your curriculum. Call 313.982.6001 and press 1 to get started.

EXHIBITION EXPOSED: DRIVEN TO WIN STATS AND FUN FACTS

7,400+

racing-related artifacts digitized over the last year in anticipation of the exhibition

225+

artifacts in the exhibition

36K+

total artifacts related to auto racing in The Henry Ford's Digital Collections

20

video interview clips included

26

cars in the exhibition

240+

new racing-related artifacts acquired

250+

images in the exhibition

10K+

cubic inches of engine displacement in the exhibition

13K+

combined horsepower produced by all engines in the exhibition

70+

combined wins and championships among all cars in the exhibition

SWEET SPOT

Nearly 90 years ago, engineers were sent in secret to Greenfield Village to design Ford's game-changing V-8

IT'S BEEN SAID THAT when the Ford flathead V-8 went into production in 1932, Ford Motor Co. revolutionized the automobile industry — again. And the engine put the hot rod movement into high gear.

What made this engine revolutionary? It was the first V-8 light enough and cheap enough to go into a mass-produced vehicle. The block cast in one piece. The design conducive to backyard mechanics' and gearheads' modifications.

With so much at stake, you would think Henry Ford would set up his engineers tasked with the engine's design in the most state-of-the-art facility he had at his disposal. Not so. Instead, Ford sent a handpicked crew to Greenfield Village to gather in Thomas Edison's Fort Myers Laboratory, which had been moved from Fort Myers, Florida, to Dearborn not long before.

"Henry Ford likely used the building because it provided his engineers with privacy and freedom from distraction," said Matt Anderson, curator of transportation at The Henry Ford. "I imagine he also thought the team might be inspired by the surroundings."

Ford's plan worked. In just two years, Ford's engineering crew left the lab in Greenfield Village with a final design. Manufactured at the Rouge (see story on Page 54), Ford's V-8 went to market

in 1932. It proved so popular, the company stopped selling its four-cylinder engine by the '35 model year.

Less than a year after the V-8's debut, vehicles powered by the motor were breaking racing records, dominating the 1933 Elgin National Stock Car Road Race and clocking speeds of 109 mph at the 1934 Indy 500. By 1936, modified vehicles with the Ford V-8 had also won the first Daytona Beach stock car race, even impacting European motorsports with overall victories in the '36 and '38 Monte Carlo rallies.

"The American hot rod hobby was built around Ford's flathead V-8," noted Anderson. "The engines were cheap and plentiful, and a host of speed shops sold everything from performance manifolds and camshafts to cylinder heads."

And when boisterous street racers gave the hobby a bad name, *Hot Rod* magazine editor Wally Parks organized the chaos, staging competitions on purpose-built drag strips under the supervision of the National Hot Rod Association — the same NHRA that governs professional drag racing today. "Nearly every form of American auto racing has been touched by the Ford V-8," said Anderson. "And it all started in a historic lab preserved in Greenfield Village."

MOTOR MUSTER

Every Father's Day weekend marks the return of Motor Muster to Greenfield Village.

One of the country's most important automobile shows, Motor Muster introduces visitors to an unparalleled collection of historic vehicles — yes, you can expect to get a glimpse of a bunch of Fords with the flathead V-8 under the hood as well as a variety of gems from Chevrolet, Dodge, Studebaker and others. This event provides a rare opportunity to step inside immersive vignettes from the American auto industry's most influential decades. Mingle with car owners, and listen as experts share the history of auto design at pass-in-review parades and special presentations.

This year's Motor Muster is themed around auto racing to tie in with the new *Driven to Win: Racing in America* exhibition opening in Henry Ford Museum of American Innovation in June. "Pontiac had the Bonneville, the Le Mans and the Trans Am. Studebaker and Dodge both used Daytona, while Ford claimed Talladega. Chevrolet topped everyone, naming its entire brand for Swiss-American racing driver Louis Chevrolet," said Matt Anderson, The Henry Ford's curator of transportation. "In 2020, we'll remember the cars, the drivers and the tracks that made racing in America so special."



SAVE THE DATE

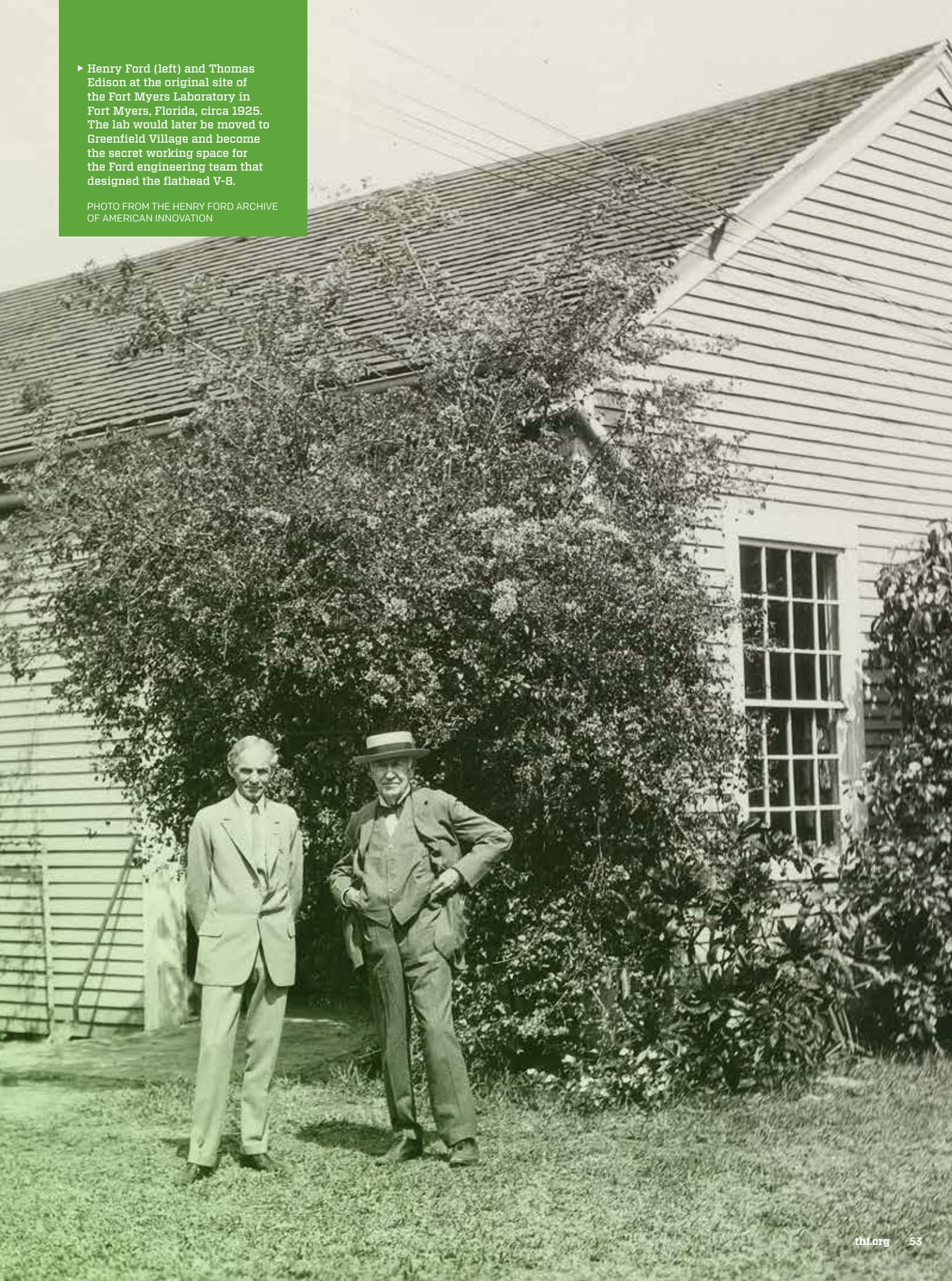
Motor Muster
Greenfield Village
June 20-21

ONLINE For more information, hours and pricing for Greenfield Village, visit thf.org/village ►

MOTOR MUSTER PHOTO
BY KMS PHOTOGRAPHY

► Henry Ford (left) and Thomas Edison at the original site of the Fort Myers Laboratory in Fort Myers, Florida, circa 1925. The lab would later be moved to Greenfield Village and become the secret working space for the Ford engineering team that designed the flathead V-8.

PHOTO FROM THE HENRY FORD ARCHIVE
OF AMERICAN INNOVATION



BREAKING THE MOLD

Rouge complex is where Ford's revolutionary flathead V-8 came to be

TODAY, VISITORS TO THE Ford Rouge Factory Tour see the final assembly steps in building the best-selling Ford F-150 at the Dearborn Truck Plant. Long before the F-150 called the massive manufacturing complex home, the Rouge plant was the site where the famous Ford flathead V-8 was forged, cast and mass-produced.

In the late 1920s, the Rouge plant was cranking out Ford Model A's with a four-cylinder engine. But Henry Ford could see the writing on the proverbial wall, his competitive nature ruffled by Chevrolet's recent introduction of an affordable, more powerful six-cylinder engine.

As Ford leaned on the design prowess of a secret crew of engineers to not only meet but beat Chevrolet's six (see

story on Page 52), it was with the skill and determination of his foundrymen at the Rouge that their ideas came to life. While most V-8 engines of the day were constructed with separately cast cylinder banks and crankcases, Ford was insistent on simplicity and determined to create a one-piece block with integral cylinders. By 1931, the engineers' concepts on paper became prototypes forged and built at the Rouge and first road-tested in Model A's.

Eventually, 3,000 of the famed flathead engine blocks were rolling off the lines at the Rouge each day. And they continued rolling until production of the engine stopped more than 20 years later and once more than 25 million Ford cars and trucks with the V-8 were on the road.

THE LEGACY GALLERY

When visitors to The Henry Ford take the Ford Rouge Factory Tour, the Dearborn Truck Plant's living sedum roof and final-assembly line experience are not the only entertainment and educational options on deck. The Legacy Gallery also gives tourgoers the opportunity to see some of the most famous Ford vehicles manufactured at the Rouge complex over the last nine decades.

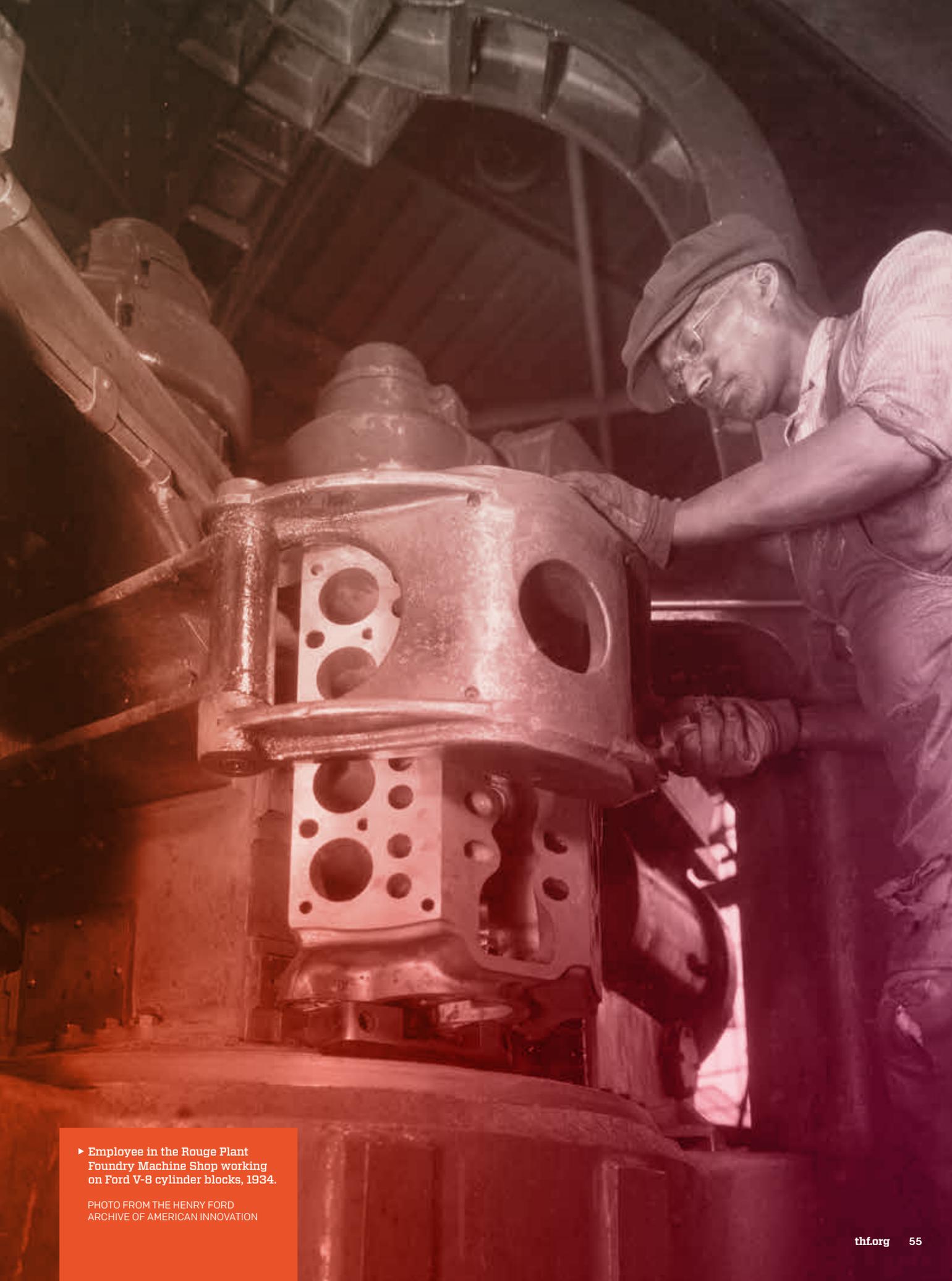
Be sure to search out the 1932 Ford V-8 on display — it's powered by the flathead V-8 engine Ford engineers designed in Greenfield Village (see story on Page 52) — and then go explore more stories about the engineering of vehicles and related digitized artifacts at the gallery's Truth About Trucks and Collections Explorer kiosks.



DID YOU KNOW? /

Along with the '32 Ford Victoria with the flathead V-8, the Ford Rouge Factory Tour's Legacy Gallery displays a 1929 Model A, 1949 Club Coupe, 1956 Thunderbird and 1965 Mustang. All but the Model A have a version of a Ford V-8 engine under the hood.

ONLINE For more information, hours and pricing for the Ford Rouge Factory Tour, visit thf.org/rouge ►



► Employee in the Rouge Plant Foundry Machine Shop working on Ford V-8 cylinder blocks, 1934.

PHOTO FROM THE HENRY FORD
ARCHIVE OF AMERICAN INNOVATION

A LESSON IN SAFETY

The remains of an Indy 500 race car are the springboard for discussions about tougher standards on the racetrack

SEARCH THE 1973 INDIANAPOLIS 500

on the internet, and you won't find a bunch of happy headlines. Words like "fatal," "tragedy," "cursed" and "unforgettable" pop up.

Three deaths and multiple crashes are attached to the ill-fated race. One of the day's most dramatic headlines, and still considered one of the worst crashes in Indy 500 history, involved driver David "Salt" Walther and his 1972 McLaren M16A, an artifact in The Henry Ford's collections that will now be on display in the new *Driven to Win: Racing in America* exhibition opening in Henry Ford Museum of American Innovation in 2020 (see story on Page 48).

On the race's first lap, Walther's car crashed into the outside wall, exploded and overturned. Images of the ripped-apart vehicle with Walther's feet dangling outside of it are disturbing. Although badly burned, Walther did survive the accident. Miraculously, he didn't lose his passion for auto racing either, coming back to the sport to drive again in 1974.

"Safety advancements in helmets, roll cages and fire-resistant materials allowed Walther to survive that dramatic

wreck," said Matt Anderson, curator of transportation at The Henry Ford. "And even more safety changes and rules came after his crash."

Fuel capacity of cars was reduced, for example, to lower the risk of fire. Rescue procedures on the track were also reviewed and improved. And seating was moved back at the Indianapolis Motor Speedway to further protect spectators from flying debris.

Anderson said bringing Walther's mangled car out of storage and putting it on display in *Driven to Win: Racing in America* will help The Henry Ford tell one of auto racing's more cautionary tales. It also speaks to the inventive spirit and dedication that American auto racing's drivers, crews and engineers have to make their sport as safe as possible. Nearby will be a display of The Henry Ford's significant collection of past and more recent racing helmets, an evolving safety innovation that has saved many lives on and off the track. (See sidebar at right.)

Said Anderson, "Walther's car is our reminder to everyone that auto racing can be made safer but is never completely safe."

CONVERSATION PIECE

Bringing driver Salt Walther's race car wreck from the 1973 Indianapolis 500 out of The Henry Ford's artifact storage and putting it on display in *Driven to Win: Racing in America* isn't about a morbid fascination with disaster. It's a conversation starter for innovations in human safety. Just a few steps from the crumpled remnants of Walther's 1972 McLaren M16A will be a collection of The Henry Ford's racing helmets, a testament to the sport's passion for learning how to better protect its much-loved drivers. Headgear belonging to the likes of Dan Gurney, A.J. Foyt, Phil Hill and Mario Andretti will be included, among others.



GEORGE ROBERTSON'S SIMPLE HEAD COVER THAT TOOK HIM TO VICTORY IN THE 1908 VANDERBILT CUP RACE ON "OLD 16."

ONLINE

For more artifacts documenting the American experience of innovation, ingenuity, and resourcefulness, visit thf.org/collections ▶

DID YOU KNOW? /

Race car driver Salt Walther started in seven Indianapolis 500s — five of which occurred after his terrible crash — with his best finish being ninth in 1976.



► The Henry Ford is bringing the mangled wreck of driver David "Salt" Walther's 1972 McLaren M16A out of storage and putting it on display in *Driven to Win: Racing in America*. Walther's crash in the 1973 Indy 500 is still considered one of the worst in the race's history.

PHOTO FROM THE HENRY FORD
ARCHIVE OF AMERICAN INNOVATION

MEMBER
SPOTLIGHTWHAT'S
YOUR
SPARK?

Member Blake Almstead finds inspiration in a farmhouse and a man's passion to preserve America's story



DERIVING INSPIRATION from all over The Henry Ford, Blake Almstead is drawn to amazing places of innovation like Dymaxion House in the museum. A former New Englander, he also feels the pull of Daggett Farmhouse (left) in Greenfield Village. The Connecticut saltbox structure reminds him of home, and he revels in the working farm's accurate representation of a period of America's agricultural history. As president of the Corktown Historical Society, he also meanders through the streets of Greenfield Village with a profound sense of gratitude to Henry Ford for his passion to preserve American landmarks and America's stories of innovation, invention and entrepreneurship. Village structures such as Cohen Millinery and Grimm Jewelry Store were once small businesses located and operating in Detroit's Corktown, the city's oldest surviving neighborhood, for which Blake now leads efforts to help protect, preserve and restore.

PHOTO OF BLAKE ALMSTEAD
NEAR THE DYMAXION
HOUSE BY JAMES SALESKA;
DAGGETT FARMHOUSE
BY EE BERGER

WHAT'S YOUR SPARK? Let us know what inspires you from your visit and what takes you forward from your membership. Email us at membership@thehenryford.org.

NAME:

Blake Almstead

**NUMBER OF YEARS
AS A MEMBER:****10****MUST-DO EVENT:**

Coffee at Sir John Bennett Sweet Shop in Greenfield Village on a Sunday morning. "I'm able to think, take notes, sketch and be surrounded by so much that has affected and influenced history ... You can't help but feel inspired."

FAVORITE**MEMBER PERK:**

That free feeling I have knowing I can go to The Henry Ford whenever I want. My mother's favorite thing is having tea. We'll just go in Greenfield Village, walk together, have tea at Cotswold Cottage, then take a stroll and maybe pop in to the gift shop. When you're a member, you have this unlimited access to experiences that you didn't expect.

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ONLINE [thf.org/
membership](https://thf.org/membership) ▶

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2020 EVENTS

▼ Travel through the mysterious mirror dimension of Doctor Strange (at right), examine assets attached to the creation of Captain America (inset) and see some of the costumes from Marvel Studios' *Black Panther*, the 2019 Oscar-winning film for costume design, in *Marvel: Universe of Super Heroes* in Henry Ford Museum of American Innovation.



MARVEL UNIVERSE OF SUPER HEROES

HENRY FORD MUSEUM OF AMERICAN INNOVATION

Open to the public: **March 28-Sept. 7**



Marvel: Universe of Super Heroes will thrill both avid collectors and casual fans, bringing the Marvel Universe to life through immersive set pieces, soundscapes and interactive elements.

Showcasing some of Marvel's most iconic and sought-after pages, costumes and props, the exhibition is Marvel's biggest ever and travels to Henry Ford Museum of American Innovation with more than 300 artifacts. Within the exhibition will be life-size scenes straight from the Marvel Universe, displays of rare hand-drawn images of the brand's characters and interactive elements, including an experience that allows you to travel through the mysterious mirror dimension of Doctor Strange. Visitors can also expect to get up-close views of famous Marvel film props such as Mjölnir, Thor's hammer, as well as costumes from Marvel Studios' blockbuster film *Black Panther* — some worn by Chadwick Boseman, who portrayed T'Challa (aka Black Panther), a character that also appears in Marvel Studios' films *Avengers: Infinity War* and *Avengers: Endgame*.

As Marvel's biggest exhibition to date, *Marvel: Universe of Super Heroes* chronicles the story of the brand and its influence on visual culture, while also uncovering the narratives of individual characters.

ONLINE To learn more, visit thf.org/marvel ▶

WATCH Episode 140 *Sleep Wristband* from season six of *The Henry Ford's Innovation Nation*. It includes a segment on The Henry Ford's comic book collection with Donna Braden, The Henry Ford's senior curator and curator of public life. Visit thf.org/innovationnation ▶

TICKET PRICING

MEMBERS	GENERAL ADMISSION	SCHOOL FIELD TRIPS
\$10 per person for timed daily admission;	\$35 per person for timed daily admission*;	\$18 per student admission*
\$15 per person for anytime daily admission	\$40 per person for anytime daily admission*	

*price includes museum admission

THOUGHTS ON THE MAKING OF AN EXHIBITION: EXCERPTS TAKEN FROM AN ARTICLE OF THE SAME NAME WRITTEN BY CHRISTOPH SCHOLZ, DIRECTOR OF SC EXHIBITIONS, PRODUCER OF MARVEL: UNIVERSE OF SUPER HEROES

"... We at SC Exhibitions have the privilege and pleasure of immersing ourselves in the work of scientists, scholars and creatives of a particular era. For *Marvel: Universe of Super Heroes*, we embedded ourselves into an 80-year history that's still unfolding, exploring its origins, its changing nature and how social movements have influenced its narrative path. When Disney Germany — which has a long-standing relationship with SC Exhibitions, also based in Germany — approached us in 2014 to produce a Marvel exhibition, we knew we needed to approach the stories, objects and artistic output of Marvel from a scholar's perspective ... We knew every story in the exhibition had to come from the art and the artifacts — holding that door into history open and inviting anyone that comes to the show to step through it."

AN EXHIBITION BY



sc exhibitions © 2020 MARVEL

PHOTOS BY © SANDRO VANNINI & CHRISTINE MITCHELL

2020 EVENTS



When planning a visit to The Henry Ford, give a look-see for what's happening at all of our signature venues, color-coded here for easy reference.

MOTOR Muster

AT THE HENRY FORD

Motor Muster
June 20-21
(Open Saturday
'til 9 p.m.)

★ €

PNC Tinkering for Tots Preschool Program

Second Monday
of each month,
10 a.m.-noon,
May-Oct.

★

Greenfield Village Opens Member Preview

April 17
Open to public
April 18

★

Day Out With Thomas™

April 25-26,
May 2-3 and 9-10

♠

Locally Presented
by Meijer

Railroader's Breakfast
April 25-26, May 2-3
and 9-10

¥ \$

GREENFIELD VILLAGE



Salute to America featuring the Detroit Symphony Orchestra

July 1-4

€ \$

World Tournament of Historic Base Ball®

Aug. 8-9

★

70th Annual Old Car Festival

Sept. 12-13
(Open Saturday
'til 9 p.m.)

★ €

GREENFIELD VILLAGE

History Outside the Box

First Friday
of each month,
1-2 p.m.

★

Make Something: Saturdays

Every Saturday,
10 a.m.-3 p.m.,
Sept.-May

★

PNC Tinkering for Tots Preschool Program

Second Monday
of each month,
10 a.m.-noon,
Nov.-April

★

MLK Day

Jan. 20

★

Free admission and
activities courtesy of
The Henry Ford

Celebrate Black History

Feb. 1-2, 5-9, 12-16,
19-23 and 26-29

★

Presented by Ford Motor
Company Fund

National Engineers Week Celebration

Feb. 16-22

★



Marvel: Universe of Super Heroes

Open to public
March 28-Sept. 7

♠

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Member Appreciation Days

Feb. 7-9,
May 15-17,
Aug. 28-30,
Nov. 21-23

★

Summer Camps

June 22-26,
July 6-10, 13-17,
20-24 and 27-31
and Aug. 3-7

♠

The Henry Ford: \$5 Day

Nov. 7

★

Made possible by
the Ford Foundation

ONLINE For a full movie schedule, visit thf.org/giantscreen ▶

Throwback Thursday Nights

Most Thursdays,
7 p.m.

Black Widow
May 1-24

€ \$

Eternals
Starting Nov. 6

€ \$

thf.org/tbt

National Engineers Week Celebration

Feb. 16-22

★

In Saturn's Rings

Opening early Aug.

★

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admission for
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Sensory-Friendly Saturday

May 2
★\$

Civil War Remembrance

May 23-25
(Open Saturday 'til 9 p.m.)
★€



← **Historic Base Ball Games**

June 13-14 and 20-21;
July 11-12, 18-19 and 25-26;
Aug. 1-2, 15-16 and 22-23
★

Historic Base Ball in Greenfield Village is made possible through the generous support of Cynthia and Edsel B. Ford II

Hallowe'en in Greenfield Village

Oct. 9-11, 15-18 and 22-25
€\$

Presented by Meijer

Hallowe'en Fairy Tale Feast
Oct. 9-11, 15-18 and 22-25
€¥\$

Eagle Tavern Harvest Supper
Oct. 9-10, 16-17 and 23-24
€¥\$

Holiday Nights in Greenfield Village

Dec. 4-6, 11-13, 15-23 and 26-28
€\$

Holiday Nights Eagle Tavern Dinner Package

Dec. 4-6, 11-13, 15-23 and 26-28
€¥\$

Holiday Nights Happy Hour

Dec. 4-6, 11-13, 15-23 and 26-28
€¥\$

Holiday Nights Supper with Santa

Dec. 4-6, 11-13, 15-23 and 26-28
€¥\$

Fall Flavor Weekends

Sept. 26-27 and Oct. 3-4
★

Farmers Markets

Sept. 26 and Oct. 3
★



Invention Convention U.S. Nationals

June 4-5
★
Presented by United Technologies Corporation

Maker Faire® Detroit

July 25-26
(Open Saturday and Sunday 'til 6 p.m.)
€\$

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Apollo: When We Went to the Moon Member Preview

Oct. 16
Open to public
Oct. 17, 2020-
Jan. 3, 2021
★

National Aviation Day

Aug. 16
★
Admission fee waived courtesy of Delta Air Lines

Veterans Day

Nov. 11
★
Free admission for veterans, active-duty military personnel and their families (limit 6)

Members Annual Holiday Lighting Ceremony

Nov. 23
€\$

Visits with Santa

Nov. 27-Dec. 24
★

Invention Convention Michigan

April 25

Driven to Win: Racing in America

June
★

See story on *Driven to Win: Racing in America* on Page 48



CLOSED THROUGH FEB. 2

The Ford Rouge Factory Tour will be closed to the public through Feb. 2 due to construction and operations updates at the Dearborn Truck Plant, which is preparing to launch the all-new Ford F-150 Hybrid later this year.

National Engineers Week Celebration

Feb. 16-22

Sensory-Friendly Saturday

March 14
\$

Outdoor Living Lab Tour

May 1-Sept. 26
\$

Manufacturing Day

Oct. 2

- ★ FREE admission for members
- € Special evening hours
- ¥ Enhanced dining options
- \$ Additional fee and/or advance reservations required

All programs and dates are subject to change. For the latest updates and more information on special events and programs, call 313.982.6001 or visit thf.org.

FORD ROUGE FACTORY TOUR

CONNECT

3 Curators uncover curious connections between artifacts and ideas

A Versatile Ingredient: How do a butter churn, a Heinz pickle ad and a photograph of men on a pier relate?



► **PHOTOGRAPH OF OLD SALTS ON BOATHOUSE, 1890-1915, JENNY CHANDLER**

More than a century ago, photographer Jenny Chandler snapped this shot of some sailors that she would later label “Old Salts.”

MAKE THE CONNECTION:

A sailor’s life on the salty seas and the wisdom and experience that comes with it is why the word “salt” is inserted in several often-said statements, such as “salt of the earth” and “worth one’s salt.”

► **EIGHT-GALLON STONEWARE CHURN, 1850-1875**

With a churn, farm women could turn cream into butter. The salt-glazed stoneware churn was shaped on a potter’s wheel and fired in a kiln to become hard and leakproof.



MAKE THE CONNECTION:

Common rock salt thrown by handfuls into the white-hot kiln is what gives this churn its durability.

“The next time you ask someone to pass the salt at the dinner table, consider the many meanings of this versatile ingredient.”

— Donna Braden, senior curator and curator of public life, The Henry Ford



▼ **STREETCAR ADVERTISING POSTER FOR HEINZ CHOW CHOW PICKLE, CIRCA 1920**

Before refrigerators were invented, people often pickled fresh vegetables to keep them from spoiling. Knowing this process was hot, hard work, an entrepreneur named H.J. Heinz set out to persuade housewives to leave the heavy task to his company.

MAKE THE CONNECTION:

Heavy amounts of salt dissolved in water, creating a brine, is what made pickled produce hold up for long-term preservation.

WATCH The *A Versatile Ingredient* Connect 3 video authored by Donna Braden, senior curator and curator of public life at The Henry Ford thf.org/connect3/a-versatile-ingredient ►



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Family Package

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Contact hotel directly for room availability. Packages and pricing vary by hotel.



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See ad on Page 69



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See ad on Page 75



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See ad on Page 70



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See ad on Page 78



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See ad on Page 69

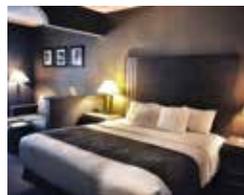


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See ad on Page 71

Accommodations at a Glance

HOTEL	LOCATION AREA	DRIVE TIME*	SLEEPING ROOMS	POOL	PETS	MEETING ROOMS	MEETING SPACE (sq. ft.)	AD ON PAGE	
FULL SERVICE	Best Western Greenfield Inn	Dearborn (I-94 corridor)	10	209	Indoor	•	4	1,047	69
	DoubleTree by Hilton Detroit-Dearborn	Dearborn	10	347	Indoor		16	12,000	75
	The Henry, an Autograph Collection by Marriott	Dearborn	5	323	Indoor	• \$	14	26,000	72
	Detroit Metro Airport Marriott	Airport (I-94)	15	249	Indoor		11	6,600	71
	Sheraton Detroit Metro Airport	Airport (I-94)	15	359	Indoor	•	14	14,000	79
HISTORIC	The Dearborn Inn, a Marriott Hotel	Dearborn	3	229	Outdoor		17	17,000	70
	The Westin Book Cadillac	Downtown	15	453	Indoor/Spa	•	20	36,658	78
LIMITED SERVICE	Comfort Inn & Suites - Allen Park	Dearborn (I-94 corridor)	10	163	Indoor		2 (15 each)		78
	Comfort Inn & Suites - Dearborn	Dearborn	4	116	Indoor		1	250	69
	Comfort Inn & Suites - Taylor	Dearborn (I-94 corridor)	10	78	Indoor		1 (15)		74
	Comfort Suites - Southgate	Downriver (I-75 corridor)	15	78	Indoor		1 (50)		72
	Country Inn & Suites - Dearborn	Dearborn	7	100	Indoor	•	1 (55)		70
	Courtyard by Marriott - Detroit Dearborn	Dearborn	10	147	Indoor		2	1,274	74
	Hampton Inn - Dearborn	Dearborn	3	96	Indoor		0		71
	Hampton Inn & Suites - Allen Park	Dearborn (I-94 corridor)	10	101	Indoor		1	650	72
	Holiday Inn Express & Suites - Allen Park	Dearborn (I-94 corridor)	10	106	Indoor		1	300	72
	Holiday Inn Express & Suites - Southgate	Downriver (I-75 corridor)	15	114	Indoor		1	400	74
	Red Roof Inn - Dearborn	Dearborn	7	111		•	0		71
Staybridge Suites - Dearborn	Dearborn	7	99	Indoor	• \$	1 (35)		71	
BED & BREAKFAST	York House Bed & Breakfast	Dearborn	10	3			0		79
CAMPING	Camp Dearborn	NW Oakland County	45	191	Outdoor		0		79
	Detroit Greenfield Campground/RV Park	I-94 corridor	20	212	On lake	•	Outdoor pavilion	600	79

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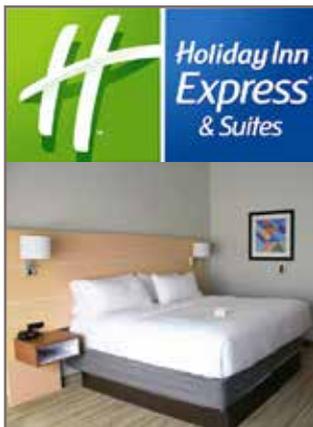
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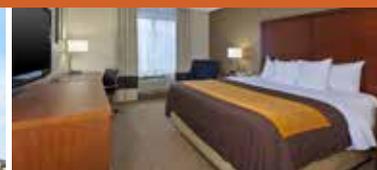
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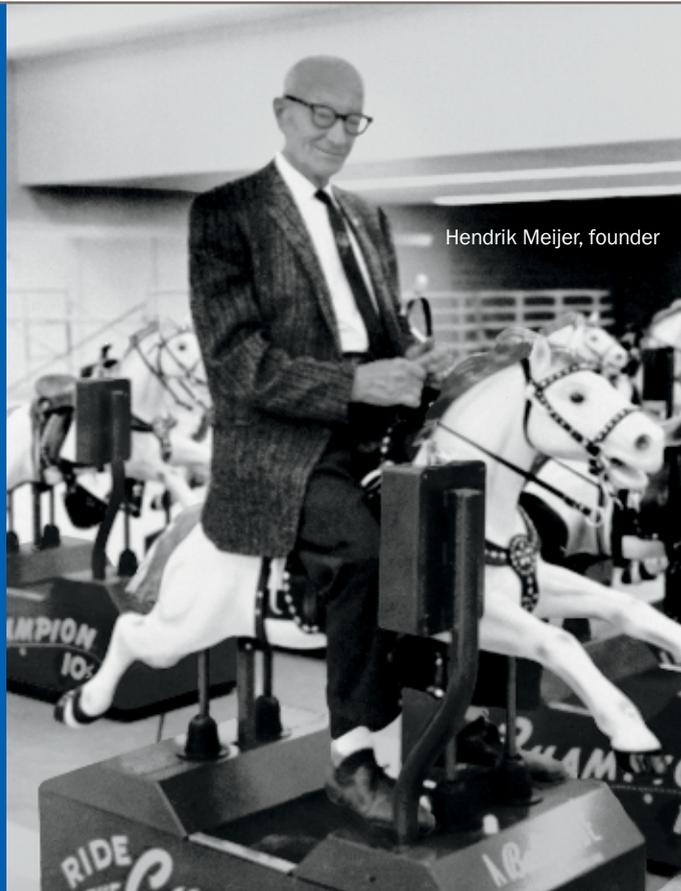
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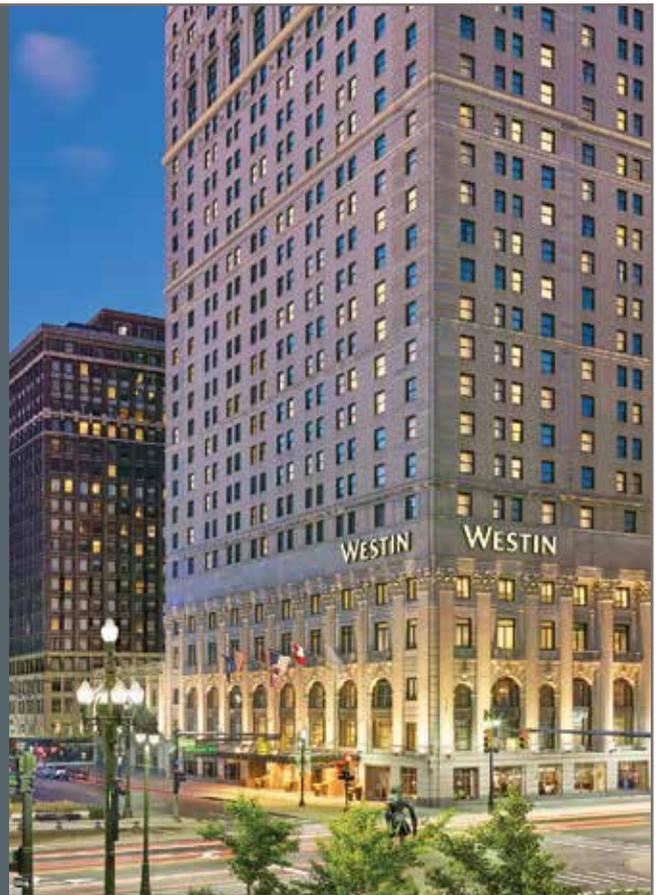
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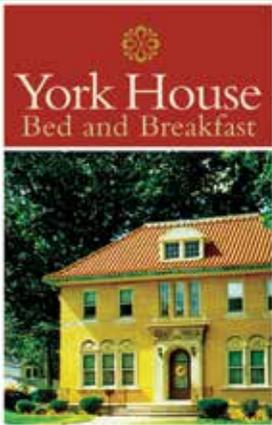
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