

the
**Henry
Ford**

MAGAZINE
JUNE-DECEMBER 2019

Gain perspective.
Get inspired.
Make history.

90
1929
2019
YEARS

**THE
PUSHING
BOUNDARIES
ISSUE**

**What's the
unexpected
human
story behind
outerwear
for outer
space?**

PAGE 28



**UTOPIAN
OUTPOSTS
OF THE '60S, '70S**

**THE WOMEN
BEHIND THEATER
PERFORMED VIA
DESKTOP**

**THE HENRY FORD
90TH ANNIVERSARY
ARTIFACT TIMELINE**

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WHEN IT'S TIME TO SERVE, WE'RE **ALL SYSTEMS GO.**

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KEEP CLIMBING



THE POWER TO build a stronger community



What would you like the power to do?

At Bank of America we are here to serve, and listening to how people answer this question is how we learn what matters most to them, so we can help them achieve their goals. We had one of our best years ever in 2018: strong recognition for customer service in every category, the highest levels of customer satisfaction and record financial results that allow us to keep investing in how we serve you. That translates to a great team delivering the best capabilities for our clients and for our communities.

We are proud to serve Michigan and help drive it forward by sharing our success, through the lending, investing, giving and volunteering that you need to remain vibrant and vital.

<p>\$19 Billion</p> <p>Total FDIC deposits¹</p>	<p>\$470 Million</p> <p>Home loans²</p>	<p>\$3.5 Billion</p> <p>Loans outstanding to commercial business</p>	<p>\$472 Million</p> <p>Credit provided during 2018 by Bank of America to small businesses in Michigan</p>
<p>\$14 Million</p> <p>in grants and matching gifts during the last five years addressing economic mobility and community needs³</p>		<p>\$3.5 Million</p> <p>pledged by employees to local nonprofits and community needs in the last five years⁴</p>	<p>106K</p> <p>employee volunteer hours contributed locally during the last five years</p>



Detroit is home for me and my team. We know this community and we are here to serve your needs and help you achieve your goals. That's why we're always asking:

What would you like the power to do?

Let me know at:
matthew.b.elliott@baml.com

Matt Elliott
Detroit Market President



As always, protect your personal data. For assistance with a personal financial issue, please visit your nearest financial center.

¹ Total deposits within this market as of June 30, 2018, which may be inclusive of Consumer, Global Wealth and Investment Management (GWIM), Global Banking, and Global Markets deposits.

² Home loan dollars reflect a rolling 12-month total of First mortgage loan production figures including Consumer Banking and GWIM.

³ Community involvement amounts represent a cumulative 5-year period of contributions.

⁴ Employee local nonprofit pledges may include: disaster relief, deceased/retirement dollars, volunteer grants and volunteer service awards.

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THE

PUSHING

BOUNDARIES

ISSUE



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NASA IMAGE 63-APOLLO-106,
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STILL PHOTO COLLECTION,
COURTESY OF NATIONAL
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COLLEGE PARK, MD.

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 the 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 MOTIVATES YOU TO PUSH YOUR PERSONAL BOUNDARIES?

Our contributors tell us.



ALASTAIR GORDON

Fear of mediocrity, fear of boredom, fear of obsolescence — along with an overwhelming lust for discovery, originality and creativity in its rawest forms. When I wrote *Spaced Out*, colleagues, fellow writers, literary agents, editors and publishers warned me not to go there. This only sparked curiosity and made me persist in my research with a deepening passion.

Alastair Gordon is an award-winning critic, curator, cultural historian and author. He has written on architecture and environment for *The New York Times* for more than 20 years and has published more than 28 books on the human environment, including *Weekend Utopia*, *Naked Airport*, *Spaced Out*, *Unfolded* and *Wendell Castle: Wandering Forms*. In 2016, he launched Poetics of Place, a critical writing program at Harvard University's Graduate School of Design.

Gimme Shelter,
Page 18



CLAIRE L. EVANS

Being a writer. It's the ultimate life hack. In the process of researching a story, I often find myself face to face with new realities and new personalities that force me to re-examine everything I take for granted.

Claire L. Evans is a writer and musician. She is the singer and co-author of the pop group YACHT, the founding editor of *Terraform*, *VICE* magazine's science-fiction vertical, and the author of *Broad Band: The Untold Story of the Women Who Made the Internet*. She is the former futures editor of *Motherboard* and a contributor to the publications *Rhizome*, *The Guardian*, *Quartz*, *Wired* and *Aeon*. She is an adviser to design students at Art Center College of Design and a member of the cyberfeminist collective Deep Lab. She lives in Los Angeles.

Set in Cyberspace,
Page 38



FEDOR KOSSAKOVSKI

The thrill of the unknown. What does a dried grasshopper taste like? It tastes like sweet, dried bean paste. Well, the thrill isn't always fun ...

Fedor Kossakovski is a freelance science writer and a producer at Miles O'Brien Productions, which makes science TV content for the likes of *PBS NewsHour* and *PBS' NOVA*. He is especially interested in the connections between science and art.

Suits for the Stars,
Page 28



JUDE BUFFUM

So far, the most crucial, pivotal moments in my life have happened when I've stepped outside of my comfort zone. That's where new experiences live and old patterns die.

Jude Buffum is an illustrator and designer from Philadelphia, whose clients have included Sony, BMW, Kellogg's, ESPN and HBO. His work has received awards from *Graphis*, *Communication Arts*, *3x3* and *Print* magazines, *American Illustration*, AIGA and the Society of Illustrators.

Set in Cyberspace,
Page 38



MELISSA MCFEETERS

My natural curiosity and active imagination. Both make it hard for me to "settle." There is always a concept to be discovered, another detail to explore.

Melissa McFeeters is a full-time freelance illustrator and graphic designer. She is constantly diving headfirst into new projects in multiple fields and industries, including magazine and book publishing design, editorial and brand illustration, interactive design and more. She lives in Philadelphia with her partner and their dog.

Gimme Shelter,
Page 18

For decades, The Henry Ford has been committed to pushing boundaries with its collections, visitor experiences and ground-breaking educational resources.

Today, we are pushing even harder, not only reimagining what a museum can and should be but working diligently to extend our global reach with relevant innovation, invention and entrepreneurial learning opportunities.

In 2019, we are celebrating The Henry Ford's 90th anniversary and its unprecedented legacy of collecting objects and stories based on significant moments in the history of American innovation. This year, we have also been laser focused on aggressively and intentionally leveraging our world-renowned collections and stories of innovation to inspire and launch the workforce of tomorrow. This past fall, we launched The Innovation Project, a \$150 million comprehensive fundraising campaign, which has already raised more than \$95 million.

The Innovation Project will enable us to build digital and experiential learning tools and create programs and initiatives to advance innovation, invention and entrepreneurship. The goal of the campaign is to achieve greater accessibility, inclusivity and exposure to give every child the opportunity to reach their greatest potential.

One example of programmatic efforts within the campaign is the William Davidson Foundation Initiative for Entrepreneurship that launched this spring. This initiative will allow us to develop programming that will provide the next generation of entrepreneurs with hands-on learning opportunities, mentorship and guidance from seasoned entrepreneurs in a variety of fields. Through this initiative, we launched our all-new Entrepreneur-in-Residence Program this year. Melvin Parson, founder of We the People Growers Association (WTPGA) in Ypsilanti, is our first resident entrepreneur and will be on-site regularly at The Henry Ford through mid-July, conducting workshops and developing new

programming around agriculture and social transformation. As an urban farmer and social justice and equality activist, Parson founded WTPGA to empower people to contribute to their communities through education and positive social networks, using gardening and farming as vehicles for change. You can learn more about Melvin and others who push boundaries and challenge the rules to make our world a better place on Page 14. Our second resident entrepreneur, who joins us later this summer, will focus on the themes of design and making and information and communication.

Inspiring future innovators, inventors and entrepreneurs is at the very core of our mission here at The Henry Ford. Whether it's through our collections, stories, two television shows (*The Henry Ford's Innovation Nation* and *Did I Mention Invention?*), special exhibitions such as *Star Trek: Exploring New Worlds* or annual programs like Invention Convention U.S. Nationals and Maker Faire® Detroit — which is celebrating its 10th year in 2019 — all of these contribute to our larger purpose. We want to unlock the most powerful resource on earth: the next generation.



Patricia

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



THE INNOVATION PROJECT

Campaign in Action



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 extend inspiration to include 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

We've made so much progress already.

▲ From left: Pathways to Success High School students Ronnie Gary, Theidotis Jones and Anthony Terrell, along with Melvin Parson, Lauren Bush Lauren, student D'K'Len Brann and Pathway High School's principal Shaenu Micou at the Lauren Bush Lauren Youth Roundtable.

PHOTO BY DOUG COOMBE

We've raised \$95 million to date to help The Henry Ford advance innovation, invention and entrepreneurial learning for people of all ages and backgrounds.

We've hosted pioneering entrepreneurs in innovative ways. Through the William Davidson Foundation Initiative for Entrepreneurship, we welcomed our first speaker in our Entrepreneur Speakers Series, Lauren Bush Lauren, a woman dedicated to ending world hunger, as well as our first Entrepreneur in Residence, Melvin Parson, founder of We the People Growers Association. Lauren spoke to an impressive crowd in the museum as well as during a roundtable with students earlier this year. Parson will be on-site regularly at The Henry Ford through mid-July, working with our curatorial teams and doing workshops around the themes of agriculture and social justice.



PHOTO BY KMS PHOTOGRAPHY

We've made physical improvements to our facilities, such as new digital columns in Henry Ford Museum of American Innovation (see Page 50).

We've acquired new artifacts to inspire, including one of General Motors' first self-driving test vehicles to operate on public roads autonomously. The Cruise Automation 01 (above), donated to The Henry Ford by its Partner in Innovation, GM, represents a milestone for the educational institution since it is the first autonomous car to be added to The Henry Ford's collection. It is currently on display in the *Driving America* exhibition in Henry Ford Museum of American Innovation.

For details on specific programs and initiatives comprising The Innovation Project, visit theinnovationproject.org.

1929
2019
90
YEARS

CELEBRATING DECADES OF COLLECTING

On October 21, 1929, luminaries from around the world gathered at Light's Golden Jubilee to celebrate the 50th anniversary of the incandescent electric lamp and the dedication of the Edison Institute of Technology. This was the official beginning of The Henry Ford — though Henry Ford had begun gathering its collections more than a decade earlier.

As we celebrate The Henry Ford's 90th anniversary in 2019, we're looking back on a century of collecting. These artifacts are among the most popular in our Digital Collections — your favorites, each of which joined our collection in a different decade.

— ELLICE ENGDAHL, MANAGER OF DIGITAL COLLECTIONS AND CONTENT, THE HENRY FORD

ONLINE To see more of our collecting over the decades, visit thf.org/90 ▶



1 1910s

MONKEY BAR DIORAMA

While a prisoner at Massachusetts State Prison, Patrick J. Culhane created this diorama, using monkeys to depict the pitfalls that had put him and fellow inmates on the path to incarceration. He sent his work to Henry Ford, known to hire ex-convicts. In 1916, out of prison, Culhane was hired to work at a Boston-area Ford plant.

2 1920s

MENLO PARK LABORATORY

In the late 1920s, Thomas Edison's Menlo Park Lab complex was re-created in Greenfield Village, incorporating original buildings and salvaged materials.

3 1930s

FIRST TRICOLOR, FOUR-DIRECTIONAL TRAFFIC SIGNAL, 1920

First to incorporate an amber "caution" light, this signal, designed by Detroit traffic officer William Potts, was installed at Woodward Avenue and Fort Street in Detroit. Donated in 1938 by the Detroit Police Department, it still blinks away above the safety section of the *Driving America* exhibition in Henry Ford Museum of American Innovation.

4 1940s

FOLDING PORTABLE SPINNING WHEEL USED BY MAHATMA M.K. GANDHI

In response to a letter from Henry Ford, Mahatma Gandhi sent this signed spinning wheel as a gift in 1941. The Indian leader used the spinning wheel as a symbol in the struggle for India's independence and economic self-sufficiency.

5 1950s

1931 BUGATTI TYPE 41 ROYALE CONVERTIBLE

As Curator of Transportation Matt Anderson said, the Bugatti Royale "has everything going for it: beautiful styling, superb engineering and a princely price tag — not to mention, as one of only six in the world, exceptional exclusivity." Given to The Henry Ford by Buick engineer Charles Chayne and his wife, Esther.

6 1960s

FIRST FORD MODEL T PRODUCTION CARD, SEPTEMBER 27, 1908

In 1964, The Henry Ford received the historic business records of Ford Motor Company, the institution's single largest archival accession. This card is a record of the first Ford Model T built.

7 1970s

1961 LINCOLN CONTINENTAL PRESIDENTIAL LIMOUSINE USED BY JOHN F. KENNEDY

This vehicle was used by Presidents Lyndon Johnson, Richard Nixon, Gerald Ford and Jimmy Carter, but most famously by John F. Kennedy, who was assassinated while riding in it. Donated to The Henry Ford by Ford Motor Company in 1978.

8 1980s

FIRESTONE FARMHOUSE

Henry Ford would likely approve of the inclusion of Firestone Farmhouse in Greenfield Village for its connections to rural life and friend Harvey Firestone. The house passed from the Firestone family and Firestone Foundation to The Henry Ford in the 1980s, where it is now the centerpiece of Firestone Farm.

9 1990s

HENRY FORD'S PRIVATE RAILROAD CAR, FAIR LANE, 1921

The personal railcar of Henry and Clara Ford was used by the St. Louis Southwestern Railway as a business car and by the Cherokee Nation as a tourist office before ending up with Richard and Linda Kughn, who donated it to The Henry Ford.

10 2000s

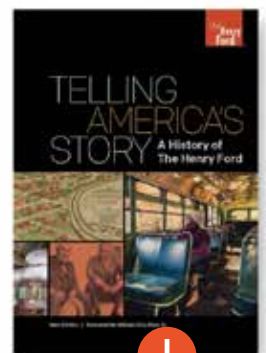
ROSA PARKS BUS

The Henry Ford competed into the wee hours with other online auction bidders for the Rosa Parks Bus. Our winning bid was followed by an extensive restoration of the bus, which is now the pinnacle artifact in the *With Liberty and Justice for All* exhibition in Henry Ford Museum of American Innovation.

11 2010s

COGNITIVE DRESS, DESIGNED BY IBM AND MARCHESA, 2016

Lights on the Cognitive Dress, a collaboration between IBM and fashion brand Marchesa, use IBM's Watson technology to respond to emotional content of social media. Worn by supermodel Karolina Kurkova at the 2016 Met Gala, the dress was donated by IBM the following year, representing our strong collections in both tech and design.



SHOP

Telling America's Story, A History of The Henry Ford. This new book edition has updated content, including an all-new chapter that brings The Henry Ford's history forward to the present day. Learn how The Henry Ford continues to evolve, face new challenges and embrace opportunities. Available for purchase in late summer in The Henry Ford gifts shops and online at thf.org/shop ▶

READ

A Look Back on Page 80 to discover the first artifact collected by Henry Ford that remains in our collection today ▶

WHAT ARE WE READING + WATCHING?

California Crazy. American Pop Architecture

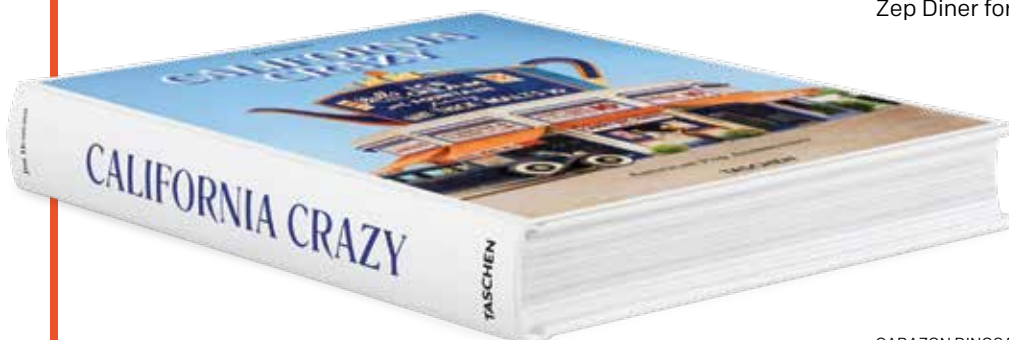
Kristen Gallerneaux, The Henry Ford's curator of communications and information technology, looks back at her first glance at Jim Heimann's ode to architectural oddities.

I first encountered *California Crazy* in a library a decade ago. My eyes locked onto the spine of Jim Heimann's book, and there was no turning back. On the cover, there was a hamburger stand shaped like a giant grimacing bulldog. Depictions of 1920s Los Angeles revealed in images like The Brown Derby restaurant with its glowing neon sign: "EAT IN THE HAT." As if passers-by wouldn't be intrigued enough by a building-sized bowler hat.

First published in 1980, *California Crazy* is canon among vernacular architecture publications. Now it has been republished in a new hardcover edition with lush image reproductions and definitive essays about roadside architecture. We find bold approaches to advertising, experimental use of materials and fantasies created on Hollywood back lots spilling out into the world. The "newness" of California cities is hinted at through images of sparsely populated streets, the desert creeping in from the corners of the frame and ever-present automobiles — the driving force that made these kinds of structures necessary.

When I first encountered *California Crazy*, I had yet to visit California; a year later, I was living there. One day during a refueling stop, I found myself giddily climbing the stairs into the belly of the dinosaur in Cabazon that I first saw in this book. Today, I wish more of these rowdy buildings survived. If only we could visit Hoot Hoot I Scream (an ice cream stand complete with rotating owl head) or maybe drop into the zeppelin-shaped Zep Diner for a nice cup of afternoon coffee.

DID YOU KNOW? / Novelty architecture is often shaped like the thing it sells: giant oranges selling juice, barrel-shaped bars, pig-shaped BBQ pits.

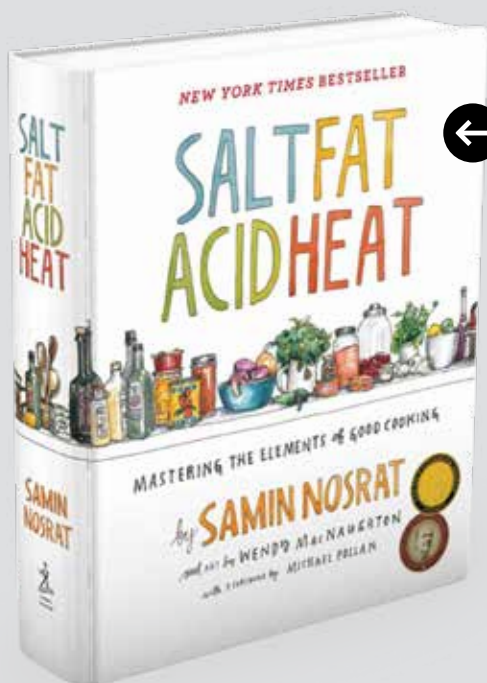
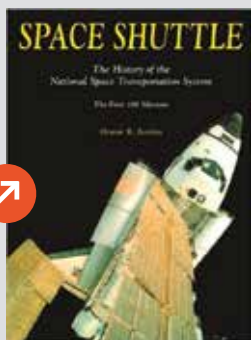


CABAZON DINOSAURS, CA. 1993. DESIGN: CLAUDE BELL
© JIM HEIMANN COLLECTION / COURTESY OF TASCHEN;
CALIFORNIA CRAZY COVER COURTESY OF TASCHEN;
SALT, FAT, ACID, HEAT COURTESY OF SIMON & SCHUSTER

Matt Anderson
Curator of
Transportation,
The Henry Ford

Space Shuttle:
*The History of the
National Space
Transportation System*
by **Dennis R. Jenkins**

For those born post-Apollo and pre-SpaceX, the space shuttle embodies the final frontier. This thorough history chronicles the shuttle's conception, development and first 100 missions. Support facilities at Cape Canaveral and Edwards Air Force Base are explored, and the Challenger disaster is examined. Last published in 2001, the book begs for an update through the shuttle's retirement in 2011.



Sarah Andrus
Technical Services
Specialist,
The Henry Ford

Salt, Fat, Acid, Heat
by **Samin Nosrat**

Salt, Fat, Acid, Heat turns the practice of food writing on its head. Samin Nosrat spends most of her cookbook turned Netflix series teaching the basic principles of food but, in a twist, ignoring recipes as much as the industry would allow. Nosrat focuses on flavor combinations with colorful illustrations and proper practices of these titular four major components of cooking. Furthermore, her work pushes the food world forward by imparting her readers with knowledge and skills, not just a grocery list and a handful of must-follow instructions.



Jim Johnson
Director,
Greenfield Village,
Curator of Historic
Structures &
Landscapes,
The Henry Ford

**The Golden Tresses
of the Dead**
by **Alan Bradley**

The 10th book in the Flavia de Luce mystery series does not disappoint, with the unlikely 11-year-old detective genius/scientific savant continuing to amaze with her skills of deduction to solve complex murder mysteries. The stories' setting is the English village of Bishop Lacey during the early 1950s. The de Luce ancestral home, Buckshaw, hosts amazing amenities, including a Victorian-era laboratory and scientific library — a personal favorite that makes me think of Edison's Menlo Park. Without detailing the book's plot, Flavia does it again, with a little help.

This series is a delightful read, and I would highly recommend beginning with its first book, *The Sweetness at the Bottom of the Pie*, and then working your way through the other titles, which are all literary quotes skillfully woven into the story line.

GAME CHANGERS

The Benson Ford Research Center at The Henry Ford can help you discover unexpected stories of innovation behind the game changers who helped shape America, from those instrumental in the space race to those on the racetrack. For help with access, write to research.center@thehenryford.org.

SPACE

Man in Space
by David Anderton

*Women in Space:
Reaching the
Last Frontier*
by Carole Briggs

*How to Make a
Spaceship: A Band of
Renegades, an Epic
Race, and the Birth of
Private Spaceflight*
by Julian Guthrie

*Hidden Figures: The
American Dream and
the Untold Story of
the Black Women
Mathematicians Who
Helped Win the Space
Race* by Margot Lee
Shetterly

WOMEN IN FLIGHT AND RACING

*The Fun of It:
Random Records of
My Own Flying and
of Women in Aviation*
by Amelia Earhart

*Lyn St. James: Driven
to Be First* by Robert
Ross Olney

ARCHITECTURE AND DESIGN

*Building the Modern
World: Albert Kahn
in Detroit* by Michael
Hodges

ARCHIVAL COLLECTIONS

• Accession
32.351 - Jenny
Young Chandler
Photographs
Collection

A rare female photojournalist working in the early 20th century, Chandler used her sensitivity and insight to capture life in Brooklyn and its vicinity.

Find New Inspiration.



Series 6 Diversity in Design
Discover our artists at LIFEWTR.com

LIFEWTR[®]

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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.

Entrepreneur-in-Residence Program **14**
Programming, Resources + Events **16**

→ ENTREPRENEUR-IN-RESIDENCE PROGRAM

BE THE SPARK

Lighting the way to big ideas

Earlier this year, The Henry Ford launched the William Davidson Foundation Initiative for Entrepreneurship. Poised to be an industry game changer, this endeavor gives The Henry Ford the opportunity to explore multiple learning platforms and leverage its assets to engage emerging and seasoned innovators and entrepreneurs to collaborate, learn and grow (see Letter from the President on Page 6). The Entrepreneur-in-Residence Program is a signature element of this initiative, which invites an entrepreneur to devote time on-site at The Henry Ford to work with staff, identify early-stage growth opportunities throughout the museum, nurture product development and optimize The Henry Ford visitor experience. The residency is a collaborative opportunity that has the potential to attract entrepreneurs of all backgrounds and disciplines to build a healthier entrepreneurial ecosystem in southeast Michigan and beyond.

“Our Entrepreneur-in-Residence Program is the first of its kind and will be reflective of diversity in not only demographics and background but disciplines as well,” said Carol Kendra, The Henry Ford’s vice president of business development, strategic growth and engagement. “We want this program to attract individuals that will help us redefine what an educational institution such as The Henry Ford can be.”

In 2019, The Henry Ford is offering two residencies. The first Entrepreneur in Residence, Melvin Parson, will be on campus through mid-July, focusing on two designated areas of innovation — agriculture and social transformation. The second Entrepreneur in Residence will be on-site starting in midsummer and will focus on areas of innovation related to design and making as well as information and communication.

SIX YEARS AGO, when Melvin Parson inherited a neighbor’s small vegetable bed, he had never farmed. Tending it, something happened. “I could feel Verna’s spirit come over me,” said Parson of his neighbor. “I looked up into the heavens, and I said, ‘Look, Verna, you know I don’t know what I’m doing here, but I’m going to do the best I can in honor of you.’”

That bed grew into We the People Growers Association (WTPGA), now a tract at the back of Ypsilanti’s Grace Fellowship Church. This year, Parson plans to supply organic vegetables consistently to 11 restaurants in Ann Arbor and Ypsilanti as well as to St. Joe’s Farm Share. As its overarching mission, WTPGA reconnects people to the soil by demonstrating the benefits of its cultivation and sharing how it can enrich the body and mind as well as help sustain communities. WTPGA also provides workforce opportunities for those re-entering society after incarceration.

Parson knows those particular difficulties personally; for a time, that was him. He credits his late grandmother and others for the strides he has made. “People who didn’t give up on me or people who treated me as though I was relevant,” said Parson, “even in those times where I didn’t feel that way.”

Alongside the farm work, Parson graduated from Eastern Michigan University with a degree in social work. Though public speaking can induce panic for him, when urged to talk by a We the People client at a fundraiser, Parson gave in.

Coincidentally, Lucie Howell, chief learning officer at The Henry Ford, was in the crowd. Howell was struck by what she heard. So much so, she put forward Parson’s name for The Henry Ford’s inaugural Entrepreneur-in-Residence Program. With the nomination, Parson immediately inquired about the possibility of bringing students he works with to events and workshops held during the residency. For him, being an

active, present role model to those who might have a background similar to his own affords him the opportunity to offer up more positive life choices.

To Parson, investing in students might further help them sidestep the mistakes he has made. No deal breaker there: It perfectly aligned with The Henry Ford’s goal to provide barrier-free access to its collections and inspire the next generation of innovators and entrepreneurs.

“Melvin’s mission of improving the soil in people’s lives spoke clearly to our mission and purpose to inspire people to learn from American’s traditions of ingenuity, resourcefulness and innovation to help shape a better future,” said Howell. “It has been wonderful to see the ways in which he can enrich our soil and how we can help enrich his and that of those he works for.”

Debra Reid, curator of agriculture and the environment at The Henry Ford, agrees. “Melvin cares about people and puts his care into action by growing things to eat. His perspective on artifacts and authentic stories documenting farming and food history can help us see our collections in a new light.”

With his six-month residency, a generous stipend and the resources and connections of The Henry Ford, Parson’s sights remain trained on a nearly 10-acre parcel where Ypsilanti’s Kettering Elementary once stood. He wants to farm the land and build a nonprofit We the People Opportunity Center that focuses on providing skills development and work for troubled youth and those once incarcerated like Parson. The center could one day house a world-class culinary arts program and community center. Cultivating others brings Parson something that had once seemed elusive. “I think a purpose-driven life is — if you follow in that purpose ... it’s fulfilling, it’s rewarding, it’s nurturing, it’s soul resurrecting,” he said.

ONLINE To learn more about the Entrepreneur-in-Residence Program and the William Davidson Foundation Initiative for Entrepreneurship, visit theinnovationproject.org ▶

ONLINE To learn more about We the People Growers Association, visit wethepeoplegrowersassociation.com ▶

Agri-pioneer Melvin Parson is The Henry Ford's first Entrepreneur in Residence. His residency term runs through July 22, 2019.

NAME:

Melvin Parson

ORGANIZATION:

We the People Growers Association



DID YOU KNOW? / As The Henry Ford's first Entrepreneur in Residence, farmer Melvin Parson will be on the campus of The Henry Ford weekly throughout his residency. In addition to working with The Henry Ford's historical resources team, including the curators of the agriculture and environment collections, Parson will be collaborating with The Henry Ford's food service department and Greenfield Village farming program.

PHOTO BY JILLIAN FERRAIUOLO

PROGRAMMING, RESOURCES + EVENTS

What to Watch, Read, Do
to Inspire Big Thinking



THE HENRY FORD'S INNOVATION NATION

Showcasing past and present-day
changemakers and the possibilities
for future progress

Looking for ways to inspire that entrepreneurial spirit in yourself or others? Watch the Emmy Award-winning *The Henry Ford's Innovation Nation*, which showcases innovators young and old who are applying their ideas to help solve everyday problems.

For its fifth season, the show traveled to Denmark, filming three segments that first aired earlier this year.

Watch and find out how the team at Danish startup LIZN crafted its "hearpiece," which acts as both an earphone and hearing device, helping people talk one-on-one more easily in noisy environments. Go "wow" as Denmark-based window maker Velux shows how a sealed rooftop window can be transformed into an open-air balcony in seconds. See how fog-creating experts Protect have repurposed fog cannons with on-stage entertainment origins into thief-thwarting devices for the home.

Plus, get a closer look at artifacts, experiences and collections of The Henry Ford with show host Mo Rocca and guest curators, who tell the stories of innovation behind everything from Thomas Edison's talking dolls to The Henry Ford's curated sets of toasters, typewriters, tractors and more.

Watch *The Henry Ford's Innovation Nation* with host Mo Rocca on Saturday mornings during CBS' block of educational programming called *CBS Dream Team* ... It's Epic. Check your local listings. See thf.org for episode guides for season five and previous seasons.

The Henry Ford's Innovation Nation Awards

2 Emmys • 8 Tellys • 6 Cynopsis Kids
Imagination Awards - Honorable
Mentions • 1 Parents' Choice Award

Seasons one and two
of *Innovation Nation*
on DVD are available only
at thf.org/shop and
The Henry Ford gift stores.



DID I MENTION INVENTION?

Giving acclaim to what it takes to create

Did I Mention Invention?, like *The Henry Ford's Innovation Nation*, celebrates the human ingenuity behind innovation, sharing stories of invention while shining a light on everyday innovators. Host Alie Ward, also a correspondent on *Innovation Nation*, uses Henry Ford Museum of American Innovation as the show's central hub.

Watch Ward show off a smart doorbell from home security manufacturer Ring that allows you to answer your doorbell remotely — even if you're hundreds of miles away. Marvel at Robird, a robotic bird of prey that can patrol the skies around airports and help push flocks that threaten a collision far away.

Stay tuned for the show's segment "Inventors of Tomorrow," which features youth inventors from Invention Convention Worldwide, now powered by The Henry Ford. Invention Convention Worldwide, which is supported by a coalition of global affiliates dedicated to the invention education movement, is a competitive showcase for thousands of young critical thinkers from around the world that culminates in a national event held annually in Henry Ford Museum of American Innovation. It's a go-to global community where the next-generation innovators, inventors and entrepreneurs get their start through hands-on experiences, exposure and mentorship opportunities.

Watch *Did I Mention Invention?* with host Alie Ward weekends during The CW Network's block of programming called *One Magnificent Morning*. Check your local listings or visit facebook.com/CWInventionTV or onemagnificentmorning.com.

THE HENRY FORD'S INNOVATION NATION PHOTO BY LITTON ENTERTAINMENT; ALIE WARD PHOTO BY KMS PHOTOGRAPHY



SAVE THE DATE

**2019 Invention Convention
U.S. Nationals
May 30-31
Henry Ford Museum of
American Innovation**

Through Invention Convention Worldwide, students are introduced to a world in which they will solve their own problems and gain the confidence and 21st-century skills to invent their own future — through hands-on, real-world, project-based learning activities and exciting events at school, state and national levels. More than 100,000 K-12 inventors from across the United States and elsewhere compete at local events to showcase their inventions at the Invention Convention U.S. Nationals event 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

Focused on the Future

Our purpose is to inspire human progress. As a company built on innovation, we are proud to inspire the next generation of scientists, engineers and entrepreneurs through our support of The Henry Ford and Invention Convention.

UNITED BY INNOVATION
Learn more at utc.com.



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GIMME SHELTER

The man who coined the term
“Spaceship Earth” and his
influence on utopian outposts
of the radical '60s and '70s

By Alastair Gordon





drove north through California's Marin County, past Petaluma, and turned onto Old Redwood Highway. There were small farm lots, old barns, prickly hedges and honeysuckle.

DID YOU KNOW? /

When R. Buckminster Fuller first saw Jay Baldwin's Pillowdome, he declared it to be the "next iteration of the geodesic dome" and then promptly laid down on the water bed and took an hour-long nap inside the 20-foot-diameter structure. When he awoke, he asked Baldwin to build one on his family island in coastal Maine. Baldwin agreed, if Fuller would pay all the material expenses.



COURTESY OF THE ESTATE OF R. BUCKMINSTER FULLER

"It's not a commune," said Jay Baldwin, who greeted me in 2013 among tiers of chicken coops restored by old hippies and student squatters. Baldwin had been living here since 1963, writing and experimenting with bizarre new offshoots of visionary architect and inventor R. Buckminster ("Bucky") Fuller's dwelling prototypes.

"Everything Bucky did was to help us succeed as a planet," said Baldwin, as he led us through his Airstream-trailer studio parked at the back of the property.

Baldwin first met Fuller in Ann Arbor, Michigan, circa 1965, after one of Fuller's rambling lectures. They met up again in 1969 when Fuller came to visit Pacific High, a free-form school in the Santa Cruz Mountains where Baldwin was teaching students how to build variations of Fuller's now-famous geodesic prototype. They built more than 17 domes, each one slightly different, including one that Baldwin called the Pillowdome, which was made from vinyl pillows inflated with nontoxic, nonflammable argon gas.

"The Pillowdome represents a new marriage between high-technology and biology," wrote Baldwin in *Bucky Works*, his 1996 homage to Fuller's genius. "It is probably the strongest, lightest, permanent transparent building yet devised."

MORE WITH LESS

Even though Fuller was well into his 70s and could have been their grandfather, he became this generation's prophet and master guide for building the proverbial "City on the Hill."

Sixties radicals lionized him. They were his natural offspring. They attended his epic lectures. They played his societal problem-solving

World Game. They read his rambling, cryptic texts, including *Nine Chains to the Moon* and *Operating Manual for Spaceship Earth*, and they quoted his pithy aphorisms: "I seem to be a verb ...," or "We are all passengers on Spaceship Earth ..."

Stewart Brand's *Whole Earth Catalog* — official supply source for alternative communities in the late '60s, early '70s — was inspired by and dedicated to the master. They followed Fuller's philosophy of "ephemeralization," doing more with less, an outlook that would seem to have more relevance today than ever.

It was Fuller's geodesic dome, however, that offered the greatest promise for liberation and personal transformation. The dome's simple yet complex geometry suggested a multifaceted crystal, the eye of God, a circle of fellowship and the mysterious oneness that so many had experienced on popular drugs of the times such as LSD and psilocybin. "You merge with the dome, its skin becomes your skin," wrote one ecstatic dome builder of the period.

It seemed as if the children of the counterculture of the '60s adopted Fuller's dome as a symbol of both resistance and solidarity as they were reaching against the plastic consumer society of the post-war era: the soulless suburban subdivision, TV dinners, polyester clothing, as well as darker, deeper issues such as social uniformity, puritanical mores, political corruption and inequalities of race and gender. Indeed, the dome could be seen as the seed for a whole new civilization, one that was communal, self-supporting and nonhierarchical. Square was bad, round was good. "Corners constrict the mind," wrote one hippie builder. "Domes break into new dimensions." ▶

► Geodesic pioneer Jay Baldwin (bottom left) and friend Kathleen Whitacre lounge inside the first Pillowdome prototype in Pacific High, California, in 1969. Baldwin called the Pillowdome, which was made from vinyl pillows inflated with nontoxic, nonflammable argon gas, “the strongest, lightest, permanent transparent building yet devised.”

PHOTO BY JACK FULTON





Drop City, an early commune in southern Colorado, featured more than a dozen such domes, including one of the earliest solar-heated shelters in America. Fuller was so impressed by the ingenuity of Drop City's founders that he presented them with the first (and only) Dymaxion Award, along with a check for \$500 to help them construct more.

"Houses in our society are walls, blocking man from man, man from the universe, man from himself," wrote Bill Voyd, a founding member of Drop City. "We want our homes to spring from the soil like trees," explained another long-haired builder.

Here, conventional ideas of cities, community, family and housing were rejected, seen as a part of the same mindset that had brought carpet-bombing to Vietnam.

OUTLAW BUILDERS

Baldwin, who passed away recently, was just one of the many back-to-the-earth outlaw builders I interviewed as part of my research when writing *Spaced Out: Radical Environments of the Psychedelic Sixties*. Visiting sites of former communes and radical outposts across the country, I sought out the womb rooms, geodesic domes, infinity chambers, biomorphic shelters, tensile cocoons, yurts, inflatable environments, tree houses and contemplation pods of this lost but ecstatic generation.

By the time I arrived at the forgotten outposts of New Buffalo, Hog Farm, Red Rock and other tribal collectives, most if not all of the evidence was gone. Communal buildings at Morning Star and Wheeler's Ranch in California's Sonoma County, for example, had been bulldozed into oblivion, while others had burned to the ground. The search, however, turned out to be more about the seeking than the finding.

Those I did find included the sustainable "arcology" and experimental Arizona town of Arcosanti, built in the 1970s by Paolo Soleri, a charismatic visionary who had been preaching a combination of architecture and ecology since the 1950s. Instead of just theorizing, he'd wandered out

into the Sonoran desert like an Old Testament prophet and actually built a poured-concrete prototype for a whole new kind of organic, high-density city without cars and surrounded by wilderness.

"We must redefine the American dream before we rebuild the infrastructure on which it is based," said Soleri, always thinking on a macro scale.

Deep in Colorado's Huerfano Valley, I searched out Libre, one of the longest-lasting communes of the counterculture era, and talked to co-founders Dean and Linda Fleming. Libre recently celebrated its 50th anniversary and is still going strong today, with eight or more domes, zomes and variations thereof discreetly placed about the hillsides. According to the Flemings, secrets to the commune's success include being located high in the mountains, almost impossible to find by runaways and "crazies"; abiding by a few basic guidelines set down by the tribal council; and offering ample space on the 360-acre site to embrace solitude and keep to oneself.

Then there was Charles Harker, who'd built the undulating folds of his Earth House outside of Austin, Texas, using polyurethane foam sprayed over PVC armatures. "All design was spontaneous," said Harker, who compared his design-build process to the metamorphosis of a butterfly. Polyurethane was soon thereafter deemed toxic, and Harker's house was abandoned.

Not every destination was easy to find, with many of the outlaw enclaves built illegally and far off the radar — hidden on public land, deep in a forest, out in a desert or high in a mountain valley. While I never found Furthur, the old school bus that Ken Kesey and his Merry Pranksters had transformed into a rolling commune, painted with cryptic words and psychedelic swirls, I did rediscover Kesey's legendary cabin in San Mateo County, about a mile past a biker bar called Apple Jack's. The cabin was still largely intact, under new ownership, perched on the banks of a creek, beneath a towering redwood. ▶

▶ **Opposite page:** In the '60s, back-to-earth builder Jay Baldwin and his students constructed a number of variations on R. Buckminster Fuller's geodesic dome, neatly tucking them in the woods in Pacific High, California. Just hours away in Arcosanti, Arizona, in the '70s, Paolo Soleri was building his own experimental community and earthen apses (below) in the desert.

DOMES PHOTO BY JACK FULTON;
ARCOSANTI PHOTO BY ALASTAIR GORDON



DID YOU KNOW? /

A copy of Stewart Brand's *Whole Earth Catalog* — a popular Fuller-inspired resource for those building alternative communities in the late '60s — can be found in *Your Place in Time* in Henry Ford Museum of American Innovation. Look for it along the generational wall on the exhibit's left side.

ONLINE To learn more about guided tours of the studio of experimental builder and architect Paolo Soleri and see his designs and hand-crafted structures, visit arcosanti.org ▶

Some utopian outposts could never be found and had only ever existed in the imagination to start with, like USCO's Solux, a "spiritual dude ranch" that was supposed to be built on a mountainside near Taos, New Mexico. Or some were in existence for only a flash of time, like Whiz Bang City East, a pop-up commune built near Woodstock, New York, in the summer of 1972. Environmental artist Aleksandra Kasuba had created a cocoon dwelling there by pulling stretch fabric between the branches and trunks of different trees.

IT'S PERSONAL

In this funky, self-build revolution, making shelter was seen as an act of personal transformation and revelation. "Building is like yoga," said an anarchist builder named Douglas. "You can't do it any other way than one nail at a time ... As within, so without."

"All you have to do is start," said a homesteader named Feather, who moved into the forest of northern California determined to live on the land as lightly as her adopted name suggested. A free-land hippie named Teddy made a cocoon-shaped dwelling from rubberized macramé that he hung 50 feet up a redwood in northern California. When this proved to be impractical (and dangerous), he settled for a mushroom-shaped house closer to the ground, a fitting statement for someone who had found his inner calling on magic mushrooms.

There was much scrounging and recycling of old materials, living off the spoils of straight society. "Trapped inside a waste economy, man finds an identity as a consumer," wrote Drop City's Voyd. "Once outside the trap, he finds enormous resources at his disposal — free."

Voyd and other self-build pioneers chopped the metal tops out of junked cars and shaped them into

building panels. Other free-form builders learned to work with bottles, mounds of earth, mud bricks, old tires and bales of hay. Hippie surfers in Big Sur fabricated driftwood houses, but the U.S. Coast Guard soon bulldozed the funky structures into the sea. Bob de Buck built a house that resembled a giant anthill in the desert near Truchas, New Mexico, using scrap wood scavenged from building sites around Albuquerque. "Tools not to have: straightedge, square, level, plumb," advised de Buck.

ON THE HORIZON

A few months after meeting Baldwin, I did make it out to Bear Island, Fuller's windswept island in Penobscot Bay, Maine, and the spiritual birthplace of some of his most innovative creations. There, near the very center of the island, I stumbled across the ruins of Baldwin's 1970 Pillowdome. The original vinyl "pillows" had disintegrated a long time ago, but the main structure — the galvanized geodesic skeleton, struts, connectors and bolts — were in remarkably good shape, considering it was 46 years old and had endured the salt air and brutal winters of coastal Maine.

Looking out from within the dome, there was no sense of a roof pressing down or of walls closing in. It was more of a floating, bubble-like sensation. The tetrahedral poetics of the hemisphere, now black and naked, stripped clean of its original translucent shell, manifested itself as an alternate sky — if that makes any sense — and looking through the prism-like veil created a peculiar inversion of scale. The horizon appeared oblique, distant and displaced.

It felt like a future that hadn't happened yet, a future of infinite possibilities that hadn't been fully digested or understood. •

"CORNERS CONSTRICT THE MIND," WROTE ONE HIPPIE BUILDER. "DOMES BREAK INTO NEW DIMENSIONS."

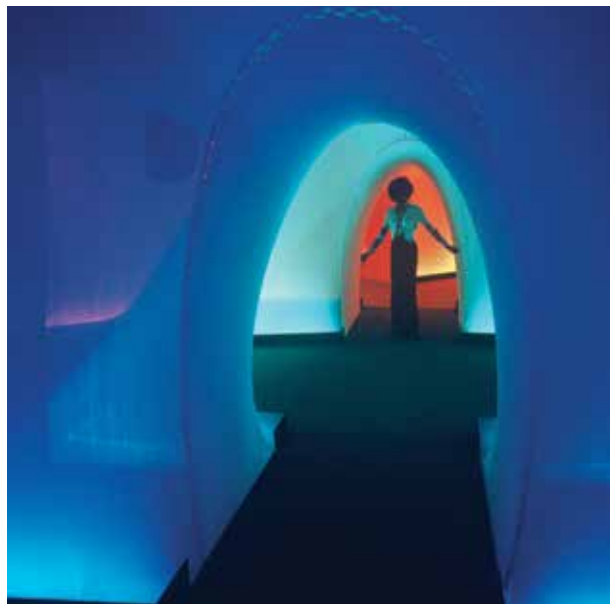
DID YOU KNOW? /

Buckminster Fuller coined the phrase "Spaceship Earth" to describe planet Earth. He felt that all human beings were passengers on Spaceship Earth and, like the crew of a large ship, people had to work together in order to keep the planet functioning properly.

WATCH

The House of Tomorrow, writer-director Peter Livolsi's film adaptation of Peter Bognanni's 2010 book of the same name. It's a coming-of-age tale featuring the legacy and teachings of Buckminster Fuller ▶





MAKING A STATEMENT
 For many of the radical builders of the '60s and '70s, constructing shelter was viewed as an act of personal transformation and revelation, from (clockwise from bottom right) the Spectral Passage stretched-cloth environment designed by artist Aleksandra Kasuba and Bill Voyd's early commune Drop City (bottom left and top right) to Charles Harker's Earth House in Westlake, Texas, and 1970 adobe structures in New Mexico.

SPECTRAL PASSAGE COURTESY OF ALEKSANDRA KASUBA; DROP CITY PHOTOS BY CLARK RICHERT; EARTH HOUSE COURTESY OF CHARLES HARKER; ADOBE FIREPLACE COURTESY OF WAYNE MCCALL

HOME SWEET HOME



Defining what's outside the mainstream when it comes to where we dwell is a bit relative. Most today would consider single-family homes in cookie-cutter subdivisions, apartments, town houses and condos the norm, while the latest crazes in tiny and tree houses and shipping container living complexes gain traction as alternatives. What happens when we push back against the conventional four walls and imagine ways to live more with less?



WOMB ROOM

Just as it sounds: a softly enfolding space for meditation, soul searching and lovemaking. Classic example: Wendell Castle's biomorphic Environment for Contemplation (1970) with its Hobbit hatchway and darkly padded interior. Also search online for London boutique hotels that are putting their own unique spin on this concept.

ZOME

A laterally expanded and easier-to-build version of the geodesic dome. Outlaw builder Steve Baer is a zome specialist, building a bunch in '60s communes like Drop City and Libre in Colorado and Manera Nueva in New Mexico.

YURT

A circular tent made from cloth or animal skins stretched around a collapsible framework. Based upon nomadic shelters of Mongolia.

COCOON DWELLING BY ALEKSANDRA KASUBA, WHIZ BANG CITY, WOODSTOCK NY, 1972. COURTESY OF ALEKSANDRA KASUBA

◀ THE WOMB-LIKE ZED ROOMS IN LONDON, CREATED BY DESIGN-LED APARTMENT AGENCY CUCKOOZ IN PARTNERSHIP WITH SIMBA. PHOTO BY BILLY BOLTON

GEODESIC DOME

This thin-shell structure with a patented design by R. Buckminster Fuller was the seed for a whole new way of living: "A new kind of space in which to create new selves," as the Red Rock collective put it. Check out the work of domeheads like Jay Baldwin, Steve Baer and Lloyd Kahn and intentional communes like Drop City, Red Rock and Libre. Plus, attractions like Spaceship Earth in Disney's Epcot Center in Orlando or Vancouver's Science World.



TENSILE COCOON

A curvaceous chrysalis made with cables and stretchy fabric to envelop the inhabitant in a mutable but protective, comforting way. Environmental artist Aleksandra Kasuba created a cool one with her Cocoon Dwelling at Whiz Bang City East, 1972.

BIOMORPHIC SHELTERS

Undulating, blob-like buildings made with mud or concrete. See James Hubbell's Ilan-Lael compound in Santa Ysabel, California (1968-70), or Earth House (1970) in West Lake Hills, Texas, by Charles Harker of Tao Design.

INFINITY CHAMBER

Mirrored rooms created the illusion of infinite space, sometimes using strobe lights to re-create the hallucinatory sense of oneness certain illegal substances provided. Yayoi Kusama's Infinity Mirror Room of 1965 and Stanley Landsman's Walk-In Infinity Chamber of 1968 used hundreds of mirrors and light bulbs.

DID YOU KNOW? / Container City in London, built in 2001, turned 20 shipping containers into 15 eco-friendly live-and-work spaces.



RESEARCH

World Game, Buckminster Fuller's proposed "great logistics game" and "world peace game" that was intended to be a tool to facilitate a comprehensive, anticipatory, design science approach to the problems of the world ▶



COURTESY OF THE ESTATE OF R. BUCKMINSTER FULLER



DID YOU KNOW? / Dymaxion House was named for its properties: dynamic, maximum and tension.

Sole Survivor

R. Buckminster Fuller saw things a bit differently. He saw lightweight domes and triangular struts where others saw square buildings with peaked roofs and load-bearing walls. His drive to conserve the world's resources by "doing more with less" led him to create landmark architectural structures, like his Dymaxion House. Fuller envisioned the 1,000-square-foot aluminum dome as the house of the future, challenging all preconceived notions of "home." Designed to be mass-produced — and to sell for about the price of a Cadillac — Dymaxion House was prototyped but never made it onto the market.

The sole surviving Dymaxion House is on display in Henry Ford Museum of American Innovation, where visitors can walk through the front door, tour its rooms and experience Fuller's vision for his domed dwelling from the inside out.



DID YOU KNOW? / While touring Henry Ford Museum of American Innovation in 2008, the now former director of NASA's Jet Propulsion Laboratory, Charles Elachi, looked at Buckminster Fuller's Dymaxion House and said, "You know, this might be the way we could construct buildings on Mars."

WATCH Charles Elachi's Visionaries on Innovation interview conducted with The Henry Ford thf.org/explore/charles-elachi ►

DID YOU KNOW? / Jay Baldwin, Bucky Fuller disciple and geodesic dome specialist, spent the summer of 1992 directing the dismantling of the Wichita (Dymaxion) House that now sits in Henry Ford Museum of American Innovation. The aluminum-and-steel structure was factory built, originally assembled on William Graham's lakeside property in Andover, a suburb of Wichita, Kansas. Baldwin and a crew of workers took more than 23 days to rescue as many of the house's 3,600 parts as possible. In the process, they dealt with corrosion and an army of unruly raccoon inhabitants. The salvaged parts were shipped to Dearborn, where they were painstakingly cleaned, restored and reassembled in the museum. Dymaxion House opened in 2001.



FROM THE HENRY FORD ARCHIVE OF AMERICAN INNOVATION



READ *Spaced Out: Radical Environments of the Psychedelic Sixties* by Alastair Gordon ►

SUITS FOR THE STARS

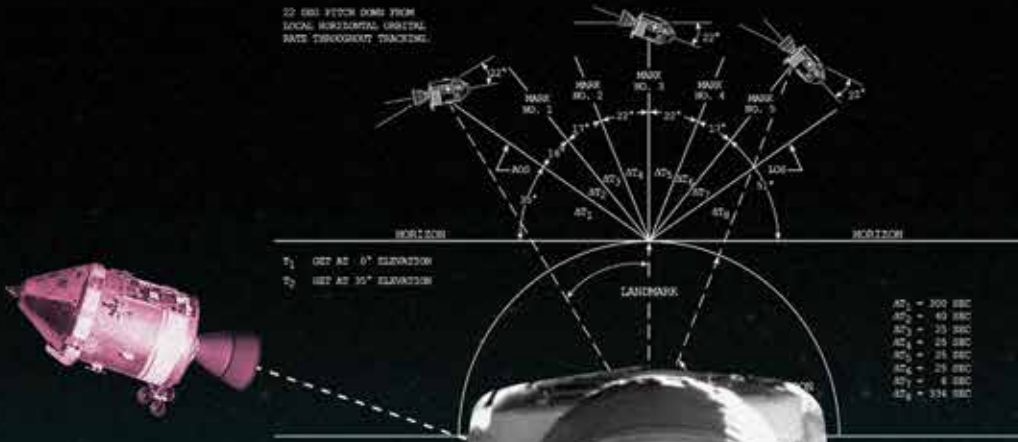
The homespun origin story
of an astronaut's modern marvel
of a moon uniform

By Fedor Kossakovski

ILLUSTRATION BY ISABEL ESPANOL /
FLIGHT PLAN COURTESY OF NASA

CSM TYPICAL LANDMARK TRACKING PROFILE

22 GRI FEET DOWN FROM LOCAL HORIZONTAL ORBITAL RATE THROUGHOUT TRACKING.



T₁ GET AT 0° ELEVATION
T₂ GET AT 30° ELEVATION

AT₁ = 300 SEC
AT₂ = 40 SEC
AT₃ = 20 SEC
AT₄ = 20 SEC
AT₅ = 25 SEC
AT₆ = 20 SEC
AT₇ = 4 SEC
AT₈ = 334 SEC





possibly the most recognizable image in all of human history: Buzz Aldrin on the surface of the moon, his left arm drifting up as if checking the time during a stroll through the park.

The photo sticks in the imagination more than any image of sleek rockets on the launchpad or metallic modules landing on an inhospitable world. Perhaps it's the casual, individual bravado oozing off of Aldrin's puffed-up frame that truly captures the essence of humans pushing past the ultimate boundary: space.

And yet the spacesuit is rarely the star of the human spaceflight epic. Which is a shame, since this was the most intimate component of the engineering endeavor that landed man on the moon 50 years ago — intimate also because the surprising winner of NASA's spacesuit contract was a spinoff of Playtex, the underwear manufacturer which still makes items from bras to feminine products to this day.

"The suits that other companies provided were stiff, they were bulky, they couldn't fit the narrow confines of the mission parameters," said Nicholas de Monchaux, professor of architecture at University of California-Berkeley's College of Environmental Design and writer of a deeply researched book called *Spacesuit: Fashioning Apollo*.

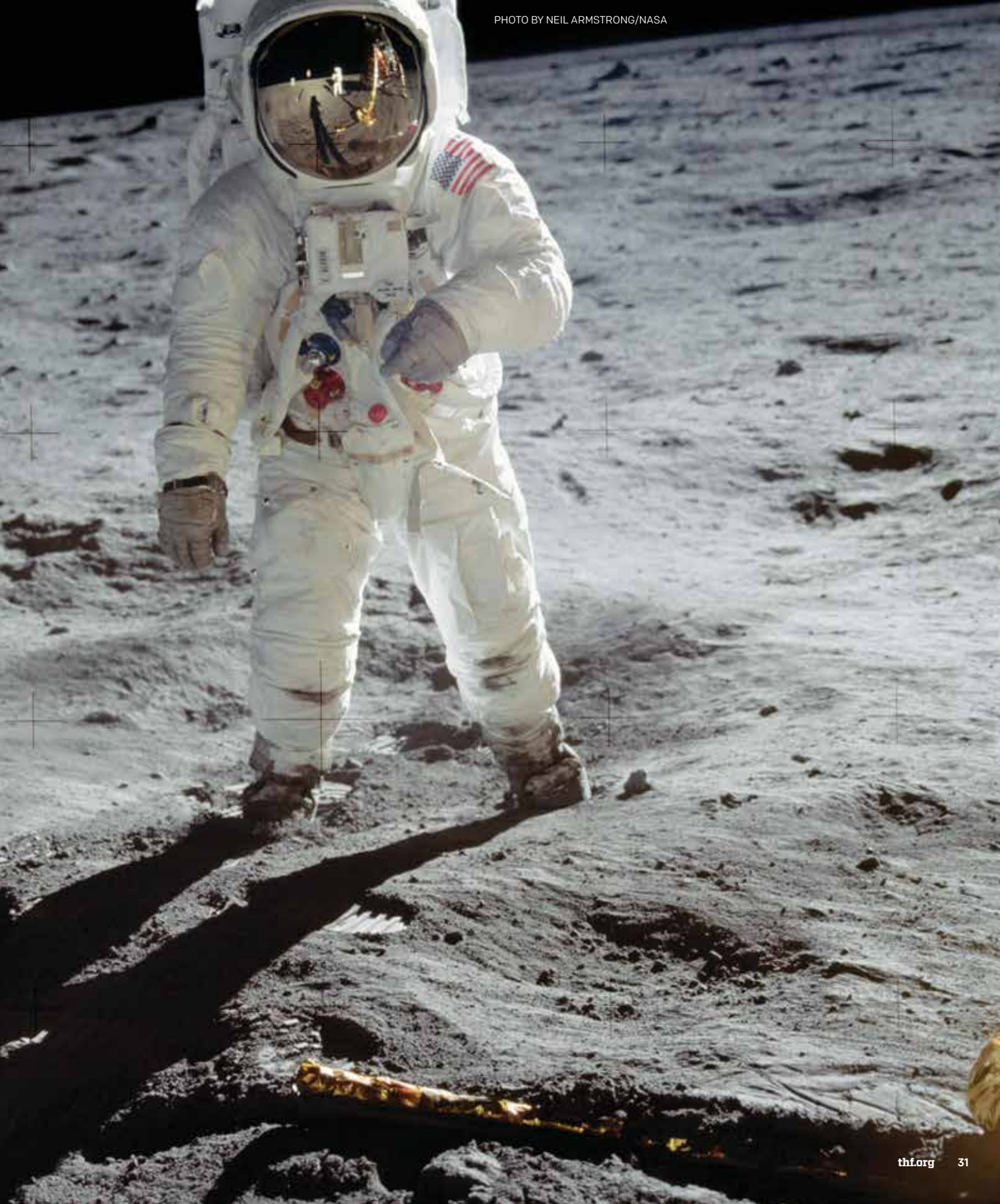
At the core is the idea of the "human factor," often overlooked by engineers in their quest to reach the lunar surface. The Saturn V rocket and the lunar module were exquisitely engineered, with sharp, clean lines governed by the unchanging forces of physics: thrust, gravity, air resistance. But the same equations are blurred when dealing with the human form. "The human body doesn't operate from first principles," said de Monchaux.

In the race to win the initial suit contract, companies such as David Clark Company, which made the Mercury mission suits, and Hamilton Standard, a division of conglomerate United Aircraft, produced concepts informed by their decades-long experience with high-altitude pressure suits. These options proved much more difficult to maneuver than the suit produced by ILC Dover, the Playtex spinoff whose patented "convolutes" included rubber identical to what was filling Playtex's girdle molds as well as nylon tricort and webbing taken from the supplies feeding its brassiere assembly lines. ▶



◀ Cocooned within 21 layers of synthetics, neoprene rubber and metalized polyester films, Apollo 11 astronaut Buzz Aldrin was well protected from the airless moon's extremes of heat and cold, deadly solar ultraviolet radiation and even the off chance of a hurtling micrometeorite.

PHOTO BY NEIL ARMSTRONG/NASA



In 1966, events came to a head when a new ILC suit had to compete once more against prototypes from Hamilton Standard and David Clark. Test subjects using the competing suits had trouble moving around, operating switches and fitting in and out of the mock landing module. Imagine if Aldrin and Neil Armstrong had touched down successfully on the moon only to not fit through the hatch and step on the surface!

Though each competing suit was custom fitted, only the 21-layer ILC Dover soft suit was sewn by hand by a hotshot crew of the best seamstresses taken from Playtex's sewing floor — eschewing paint-by-numbers engineering in favor of highly personalized, artisanal craftsmanship.

Their knowledge, gained by fashioning bras and girdles for women's activewear, proved indispensable to creating a superior product. The material itself was co-opted: "The rubber that made the suit was literally from the same tank that was, originally at least, supplying the girdle-making that had made Playtex's fortune," said de Monchaux.

The ILC Dover suit bested the others in official NASA tests, but the systems-engineering bureaucracy of the Apollo program was still skeptical of an untested spinoff holding such a critical contract. When again faced with competition for the last phase of Apollo's missions (numbers 14-17), the ILC Dover team even resorted to filming a test subject playing football in a pressurized suit for several hours.

"And, as became clear on watching the films, the suited subject's attempts were at the very least equivalent to those of an engineer in shirtsleeves and slacks who joined him on the field," wrote de Monchaux. "ILC Dover, née Playtex, had won the Apollo game." ▶



DID YOU KNOW? / ILC Dover seamstresses had to piece together 21 gossamer-thin layers of highly technical fabrics for the spacesuit — including a Teflon-coated silica-fiber cloth and a woven form of stainless steel. And they used just regular Singer sewing machines to do it.



UNLIKELY ENGINEERS

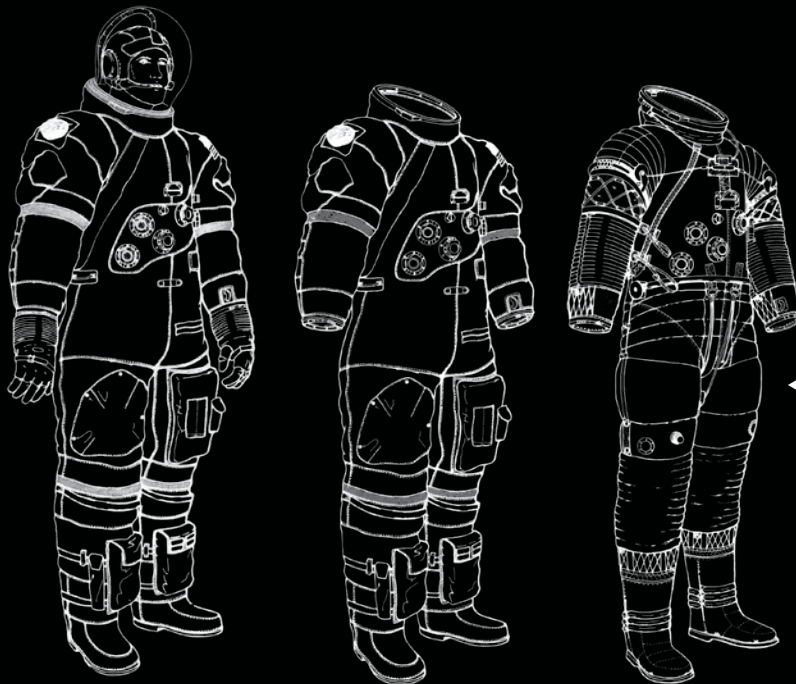
Clockwise from top: Many ILC Dover seamstresses and employees making everyday women's girdles like those shown in this ad took the unlikely jump to producing clothing for the moon in the 1960s, including Velma Breeding, seen here installing a bladder into a boot, and Arlene Thalene, inspecting the suit's mylar insulation layers.

PLAYTEX PHOTO COURTESY OF WIKIMEDIA COMMONS; MIDDLE AND BOTTOM PHOTOS COURTESY OF ILC DOVER, LP



► An Apollo mission prototype spacesuit is shown without its outer cover (left), known as a Thermal Micrometeoroid Garment (TMG). Once securely attached to the spacesuit's inner pressure garment, the multilayered TMG (right) protected astronauts against micro-meteoroid impacts, solar and galactic radiation, thermal conduction and abrasion as well as provided fire protection.

PHOTOS BY MARK AVINO, SMITHSONIAN IMAGE 2003-27279 AND 2003-27277, COURTESY OF SMITHSONIAN INSTITUTION, NATIONAL AIR AND SPACE MUSEUM



◄ A composite of the final drawings from ILC Dover depicts (from right to left) an Apollo 11 spacesuit's pressure garment assembly, a suit with its Thermal Micrometeoroid Garment (TMG) attached and an astronaut wearing a suit with TMG outer cover, gloves and helmet.

SUIT DRAWINGS COURTESY OF ILC DOVER, LP

▼ Astronaut Neil Armstrong — shown here aboard the Apollo 11 Lunar Module Eagle, the first crewed vehicle to land on the moon — later quipped that his spacesuit was one of the most widely photographed spacecrafts in history.

PHOTO BY NASA / EDWIN E. ALDRIN JR.



Neil Armstrong wrote a note to the team that designed the spacesuit, sending it 25 years after he stepped onto the moon. In the letter, he complimented the team and the spacesuit, calling it “tough, reliable and almost cuddly.”



▲ Health giant Essity is currently working with NASA to create a compression suit that astronauts will wear upon re-entry to Earth. The garments, shown separately here for illustrative purposes, will prevent or avoid the sudden redistribution of fluids to the lower extremities upon return to Earth's gravity.

PHOTO COURTESY OF ESSITY

DRESSED FOR HEALTH

More than 50 years after the Apollo 11 astronauts donned their spacesuits on the moon, I'm sitting in an office at hygiene and health giant Essity's facility in North Carolina trying to pull on what looks like your average thick knee-high black socks.

Kevin Tucker, the global technical innovations manager for a division of Essity, chuckles as I struggle with the fabric as it tightens like a vice. Tucker is in charge of the company's work with NASA to develop a compression suit for astronauts returning from space. He points out as he puts the socks away that future NASA astronauts will wear something with twice the compression power.

Essity's bread and butter is making compression garments for people with venous and lymphatic diseases. That's when the body has issues with pumping fluids against the pull of gravity, causing symptoms from lack of feeling in extremities to loss of consciousness.

It's something we have all experienced to some degree, said Tucker: "If you're sick in bed with the flu and you're lying down for a long period of time and you have to go run to the bathroom, the first step you usually take you end up on your nose."

Astronauts also have trouble with fluid control. First, when they get up into space and gravity is no longer a factor, fluids get pumped more into their torso and head. That's why new arrivals to the International Space Station have puffy faces.

After awhile, the body adjusts and pumps less to accommodate the lack of gravity. But the problem rears its head again upon re-entry and the rapid reintroduction to gravity. Now the body's fluid pumping is weakened, and astronauts often have to be carried out of the capsule.

"This sudden rush of fluid away from the head and heart down into the legs can affect your consciousness," said Tucker. That's something his team is trying to change.

To help NASA, Essity is applying its expertise in designing compressive socks, sleeves and girdles to create a compression suit future astronauts would wear on re-entry to prevent or avoid the sudden redistribution of fluids to the lower extremities upon return to Earth's gravity. When Tucker lays out the current design on a table, it's a crisscross of tight black fabric and a few zippers, woven in a way reminiscent of those fancy yoga pants that have sheer patterns.

It's slated to be the first layer of gear NASA astronauts will put on as they prepare to splash down — so getting stuck as you pull on the suit is simply not an option. Another "soft"

consideration is that the astronauts will have to wear these for hours in a seated, upside-down position, and tests of earlier designs irritated subjects' bent knees. The newest version of the compression suit comes slightly pre-bent at the joint, making it more comfortable.

THE HUMAN FACTOR

The human body was not meant for space travel, and the soft problems it presents require innovative solutions with intimate knowledge of the human body (see sidebar at right). Unfortunately, it's not always something the engineering culture of rocket scientists takes into account.

"We're still thinking about the engineering and the propulsion systems and the vehicle, but we're not thinking enough about the pink, squishy things that are in the middle of that vehicle," said Diana Dayal, who did a year-long apprenticeship at the National Space Biomedical Research Institute (NSBRI). Funded by NASA's Human Research Program, NSBRI, which closed in 2017, was NASA's lead partner in space biomedical research and provided hands-on lab opportunities for young scientists, engineers and physicians such as Dayal to access careers in human spaceflight.

On future, longer space missions, the human factor will be amplified. New challenges will arise from the long stint in low gravity. "The deconditioning of your bones and muscles is going to be an unavoidable problem on a three-year Mars mission," said Dayal. "How are you supposed to send people to Mars and expect them to set up a habitat?"

One of the solutions being explored is enhancing the spacesuit with an exoskeleton — essentially empowering the humans by linking them to a stronger robotic carapace. A good idea, but the prototype Dayal saw at NASA's Johnson Space Center was so large and cumbersome, it was hard to imagine it on an average person.

"It's so cool that you basically have all this circuitry that simulates nerves, but at the same time, who did you build this for? Who's going to wear it?" They were questions posed by Dayal's group, she said, pointing out that current designs lack sufficient modularity to adjust to different body types.

While the lessons learned in developing the soft Apollo suit decades earlier may have to be revisited as we look to longer missions, it's also an opportunity to push the boundaries of design.

"All of your constraints are out the window; everything is a variable," said Dayal. "If anything, designing for space should help us better design for Earth." •

Saved by the Suit

HUMAN CHALLENGES OF SPACEFLIGHT ABSORBED IN UNIFORM



THE VACUUM

Exposed to the vacuum of space, a body's fluids would start boiling away as the body puffs up. A spacesuit protects you — but, be warned, it will puff up, too.



THE TEMPERATURE

Outside the International Space Station, the temperature swings wildly from 250F to -250F. But, with no atmosphere to transfer heat or cold, a well-insulated spacesuit keeps you comfy.



THE RADIATION

Above the protection of the Earth's atmosphere and magnetic field, cosmic radiation is the most consistent health concern. A spacesuit provides very limited protection — as does the space station.

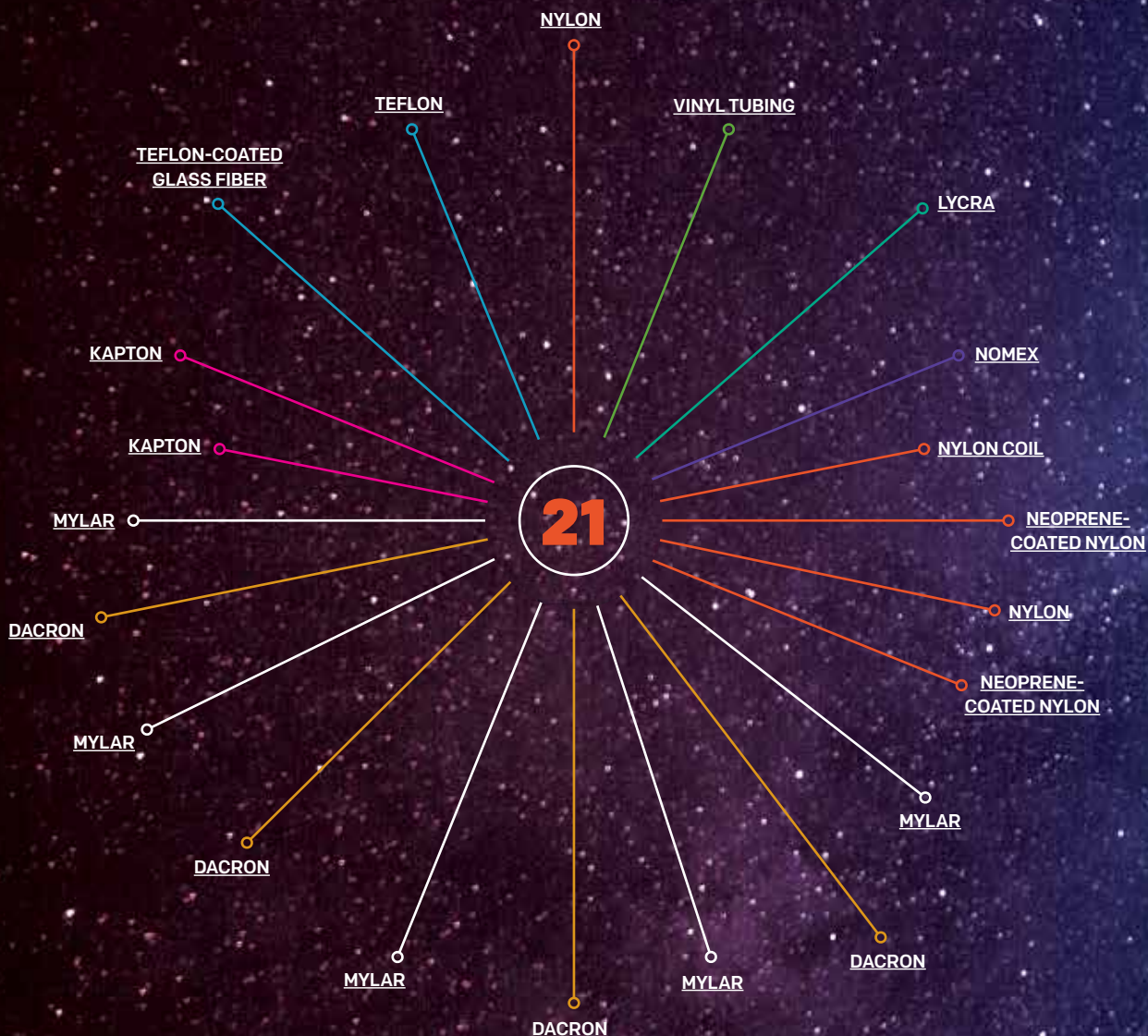


THE LACK OF GRAVITY

Makes muscles atrophy, bones lose density and fluids redistribute. NASA is, um, working on it.

21 LAYERS: WHAT WAS THE APOLLO SPACESUIT MADE OF?

The spacesuit designed by ILC Dover and worn on the moon had 21 layers — 20 of which were created with synthetics made by chemical giant DuPont. Familiar household names like nylon, Lycra and Teflon were found in various layers, a fact DuPont proudly advertised at the time.



WATCH *Apollo 11: First Steps*, a documentary showcasing the real-life moments of the first lunar landing, opening June 10 at The Henry Ford's Giant Screen Experience ▶



PHOTO BY MARK AVINO, COURTESY OF SMITHSONIAN INSTITUTION, NATIONAL AIR AND SPACE MUSEUM

DID YOU KNOW? / The U.S. made its first foray into space living with the space station Skylab in the 1970s. Design renderings commissioned by NASA for Skylab in the 1960s and '70s are in The Henry Ford collections. Drawn by industrial designer Raymond Loewy, the renderings show livable arrangements of consoles, cabinets and chairs in space station interiors.



FROM THE HENRY FORD ARCHIVE OF AMERICAN INNOVATION

DID YOU KNOW? / Each spacesuit created by the ILC Dover team bore a laminated photograph of the astronaut it belonged to in order to create a connection to the person whom they were literally keeping alive with their craftsmanship.



READ *Spacesuit: Fashioning Apollo* by Nicholas de Monchaux ▶

SET IN CYBERSPACE

A media artist and a punk rocker
harness the early internet to
experiment with newfound freedoms
in terms of identity, gender,
poetry and prose

By Claire L. Evans



It began as productions of *Waiting for Godot* always begin. Two tramps stood alone in a desolate landscape. The one calling himself Vladimir cleared his throat. “Nothing to be done,” he announced. His companion, Estragon — whom Vladimir calls Gogo in moments of tenderness — responded: “I’m beginning to come round to that opinion.” As in every production, the pair waited for someone who might never come. As one critic famously put it, *Waiting for Godot* is a play in which “nothing happens, twice.”

Except this time, something did.

To be fair, this particular *Godot* production wasn’t traditional. Instead of a spare black-box theater, the play took place in a chat room, a postcard-sized window on an online service called The Palace, popular in the mid-1990s with early netizens worldwide. In this staging, the main characters are played by a pair of bobble-headed smileys, generic twin avatars standing in for playwright Samuel Beckett’s harried everymen. When lines are spoken, they appear in cartoon speech bubbles, pop-ups of text hovering over each avatar. The audience, as the performers, was remote, represented by avatars — of the industrial singer Trent Reznor, of a bleeding head and of the toylike customized “dollz” that later became popular all over the growing World Wide Web. That the audience and performers were jumbled up together in one corner of cyberspace lent this production of Beckett’s tragicomedy its greatest difference from all others; it’s why *Godot* was finally able to show up.

Call it guerrilla digital theater, call it post-post-modernist clap-trap or call it what its practitioners eventually would: cyberformance.

A CARTOON COMMONS

Cyberspace seems to have invited this kind of digital theater from the outset. Long before social media

as we know it today, the internet’s earliest common spaces were populated by aliases, avatars and characters, as users worldwide experimented with new identities — and even genders — in the undefined new world of computer-mediated communication. In this nebulous free-for-all, many early adopters envisioned themselves part of a new, egalitarian society, a “civilization of the mind” where individuals could finally communicate freely, unbound from the presuppositions associated with class, ability, race, age or gender.

It also made this *Godot* possible. Beckett so strongly opposed the casting of women in *Waiting for Godot* that he tried to block all-female productions throughout his life; in cyberspace, however, Vladimir and Estragon could freely be played by anyone. In this case, two women: Adriene Jenik (Didi), a media artist who’d cut her teeth making interactive CD-ROMs, and Lisa Brenneis (Gogo), a punk bassist turned Hollywood production genie. The two were co-teaching a graduate seminar at the University of California in Los Angeles and dabbling with multiplayer role-playing games like *Ultima Online* until they found their real medium in The Palace, a free platform with a negligible learning curve and unprecedented levels of customization.





It was “an easy place to have an alternate persona, or 10,” Brenneis explained. “You could just draw what you wanted, and you could change your body whenever you wanted ... there was a lot of latitude, if you didn’t mind that it looked, in general, kind of cartoony.”

With their *Godot*, the pair entered into a slim lineage of dramatic pioneers, beginning with a British troupe called the Hamnet Players, who performed clipped, acronym-riddled Shakespeare on Internet Relay Chat, or IRC, as early as 1993, and the Plaintext Players, led by the artist Antoinette LaFarge, who claimed the nebulous space of Multi-User Domains, or MUDs, for productions that merged traditional theater with live coding performance. Brenneis and Jenik’s troupe, which they eventually dubbed Desktop Theater, was the first to bring such experiments out from the realm of pure text and into a graphical interface; to perform *Godot* in the “cartoony” The Palace, they chose a public room called The Moor, a grim, pixelated landscape dotted with leafless trees, because of its resemblance to Beckett’s famously austere stage direction: A country road. A tree. Evening.

Despite being the “crudest possible representation” of theatrical space, Jenik explained, “completely 2D, totally virtual, all of that — if somebody moved their avatar next to my avatar, I felt that.” The surprising bodily thrill of the virtual stage drove the pair to push their avatar characters into all manner of performances across The Palace. At its best, Brenneis described it as an “immersive state,” just like acting on an IRL stage. “It never made sense to watch Desktop Theater,” she said. “It only made sense to do Desktop Theater.”

In a sense, we all do the same. Desktop Theater perceived, earlier than most, that we all perform online. Today, even though our words and actions are linked to our real names and faces, social media remains a big show. We crop our selfies. Celebrities stage dramas in the windows of their Instagram Stories. A good online performance can translate to real-world celebrity; YouTubers land

movie deals, Twitter jokesters write books and viral meme makers end up on *The Ellen DeGeneres Show*. These performances are the social currency of our age. But when Desktop Theater was experimenting in The Palace, Facebook was not yet a twinkle in Mark Zuckerberg’s eye, and the places where people met online were pseudo-anonymous and free, dominated by avatars in fantasy landscapes and rich with the possibility of new forms of interaction.

FREEDOM OF CHAT

Brenneis and Jenik never did find out who their *Godot* was, but he became a kind of mascot for the troupe. His action was precisely what they found so thrilling about this kind of theater: at the fulcrum between performance and conversation, any stray word could tilt the balance.

“Those of us committed to breaking down the barrier between actor and spectator find immediate interest in the arrangement of participants sharing the same arena, already masked and performing versions of themselves,” Jenik wrote in a paper for *The Drama Review* summing up Desktop Theater’s experiments.

It goes without saying that The Palace was not actually designed for theater. It was conceived during an era when the going presumption for entrepreneurial success in online social platforms was a subscription model: Many early chat systems, bulletin boards and commercial online services charged by the hour and designed their communities to maximize the kind of engagement that kept people logged in as long as possible. The Palace, however, was unusual; built as a decentralized network, it allowed users to host their own Palace servers for free, charging only for optional upgrades to the client, and this low barrier to entry encouraged long-tail diversity. There were countless Palace clubhouses, dungeons and hangouts, and even commercial iterations; the band Korn, for example, had its own promotional Palace, as did the 1996 film *Independence Day* and that year’s Super Bowl.

That The Palace became a site for experimental performance is a consequence of this openness ▶

and of the affordances of its user experience: the remarkable customizability of rooms and avatars, and the largely unmoderated freedoms of the chat space itself.

“The whole decentralized model of The Palace was amazing,” said Jenik. “I mean, it was just an explosion of creativity and subculture and things that could happen, as opposed to a top-down overlord that plans out everything.”

NOTHING TO BE DONE

Artists have always been the greatest beta testers. No other class of person is so driven to deliberately misuse tools, technologies and platforms, bending them all to idiosyncratic and evolving needs unanticipated by their designers.

In the early days of the World Wide Web, this tendency dovetailed neatly with the nebulous nature of cyberspace as both an emerging technology and unformed social commons, producing new art forms with as much variety and viability as any of the era’s starry-eyed startup web businesses. After all, when the technology is social, creative social innovations are as important as any bug fix or feature update; they are coeval with the platform itself, and their instigators, like Desktop Theater or the countless uncompensated sources of meme and mirth on the social web today, are life forces of innovation without which networked computing technology would not only be limited but essentially lifeless.

When Godot first crashed Desktop Theater’s production of *Waiting for Godot*, it clearly signaled the interactive possibilities of theater in cyberspace. It was an outcome made possible by the medium and facilitated by the artists driven to discover its boundaries. It’s difficult to say who, or what, our modern-day Godot might be. Few social platforms on the web today allow for the kind of creative adaptation The Palace made possible in the mid-1990s; our online interactions today are endlessly proscribed, hemmed in by inflexible aesthetic boundaries and indefatigably catalogued, surveilled and monetized by hugely powerful corporations with very little incentive to nurture or protect the stirrings of creative adaptation.

Unanticipated disruptions on places like Facebook, Twitter and Instagram are vanishingly rare and most often have negative connotations: With unfettered access to personal information, trolls are more likely to weaponize identity than be playful with it.

We may be more connected than ever, but when it comes to the freedom required to take authentically innovative actions, to delight and surprise one another with creative engagement beyond likes, shares and targeted ad buys, it may be there is — as Vladimir tells Estragon in the opening act of *Waiting for Godot* — simply “nothing to be done.” •

“THE WHOLE DECENTRALIZED MODEL OF THE PALACE WAS AMAZING. I MEAN, IT WAS JUST AN EXPLOSION OF CREATIVITY AND SUBCULTURE AND THINGS THAT COULD HAPPEN, AS OPPOSED TO A TOP-DOWN OVERLORD THAT PLANS OUT EVERYTHING.”

— Adriene Jenik

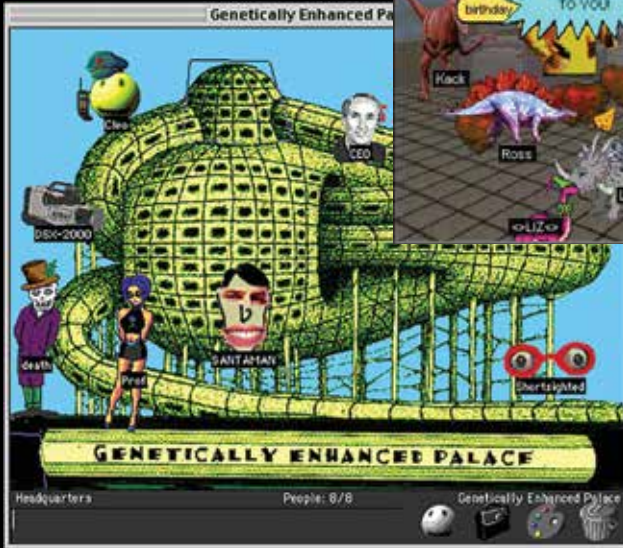
► Adriene Jenik and Lisa Brenneis’ Desktop Theater troupe staged 60-odd online productions in The Palace’s cartoony platforms from the late ‘90s through early 2000s, including Samuel Beckett’s tragicomedy *Waiting for Godot* and the duo’s original play called *Santaman’s Harvest*.



▲ PALACE SCREEN COURTESY OF JIM BUMGARDNER

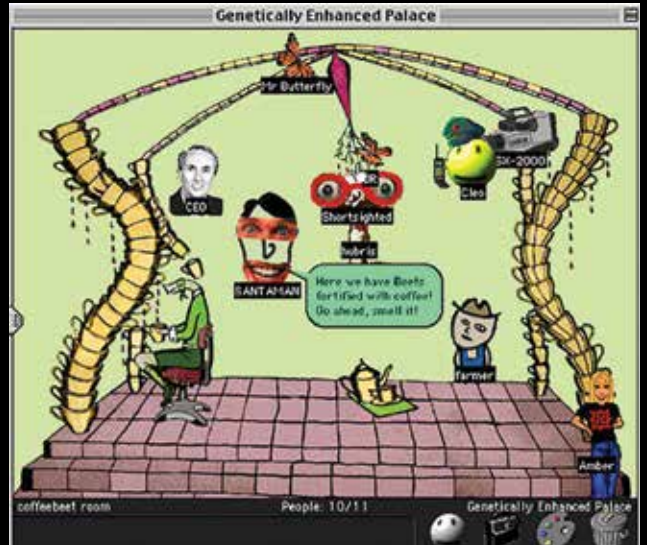


▼ SANTAMAN'S HARVEST, ARTWORK BY ADRIENE JENIK ADAPTED FROM PAUL LAFFOLEY DRAWING



▲ PALACE SCREEN COURTESY OF JIM BUMGARDNER

▼ WAITINGFORGODOT.COM ARTWORK BY THE PALACE, COURTESY OF ADRIENE JENIK



▲ SANTAMAN'S HARVEST, ARTWORK BY ADRIENE JENIK ADAPTED FROM MARTIN RAMIREZ DRAWING



▲ SANTAMAN'S HARVEST, ARTWORK BY ADRIENE JENIK



▼ WAITINGFORGODOT.COM ARTWORK BY THE PALACE, COURTESY OF ADRIENE JENIK

HOMEGROWN COMMUNITY

Aдриене Jenik and Lisa Brenneis' Desktop Theater troupe expanded into a cadre of global performers, eventually staging 60-odd online productions of varying complexity in The Palace's cartoony platforms from the late '90s through early 2000s, many of which were screened simultaneously in brick-and-mortar theaters all over the planet.

They did French philosopher Guy Debord; they staged a Yoko Ono text, *Grapefruit in the World of Park*. They did improv, workshops and open mics. Their most ambitious production, an original play called *Santaman's Harvest*, played out in three acts over interlinked rooms in a virtual theater custom-built by the troupe. After performances, the Desktop Theater players would move from public stage rooms to a private "green room," where their avatars, wearing digital props like cigarettes, party hats and martinis, would indulge in that most vaunted of theatrical traditions: the cast party.

The Palace's designer, Jim Bumgardner, then an employee of Time Warner who specialized in the creation of interactive entertainment CD-ROMS, understood that his design would maximize such organic growth and instill a sense of homegrown community in its users — and that its cartoony flatness would only augment his creation's dreamlike quality.

"The universe of ideas is not a 3D space," he explained. "It's a space of ideas rather than a space of real estate. Just as abstract paintings are not about 2D space. They're about form and color and ideas."

Desktop Theater staged performances in this "space of ideas" until the platform became unusable as a consequence of dot-com-boom-fueled purchases and mergers involving several large multinational corporations. Fortunately, a number of cyberperformance practitioners had moved to new platforms and techniques by then, and Desktop Theater's primary inheritors, an international three-piece performance group called Avatar Body Collision, had started to use business video conferencing software for their live productions.

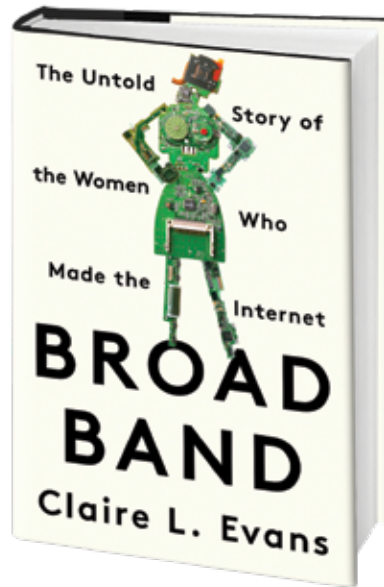
By 2002, they were well at work designing a platform explicitly for cyberperformance, a free, web-based program called UpStage that is still in use today.

RESEARCH

The Palace visual chat service, where online users could interact with one another using graphical avatars on backdrops ▶

DID YOU KNOW? /

One of the earliest uses of the term "virtual reality" comes from theater; the French playwright Antonin Artaud compared theater to alchemy, writing that they were both "virtual arts" that "do not carry their end — or their reality — within themselves."



READ

Broad Band by Claire L. Evans ▶



DID YOU KNOW? /

Generic smiley faces — essentially 3D-modeled tennis balls with eyes and a mouth — were the first avatars available on the online service The Palace, where many cyberperformances were staged. The Palace's creator, Jim Bumgardner, said the selection of more rudimentary icons was deliberate, fearing that offering avatar customization options would fill up the space with less-than-desirable artwork.



DID YOU KNOW? /

Waiting for Godot is playwright Samuel Beckett's tragicomedy. Published in 1952 and first produced in 1953, the play has productions running all over the world in 2019.

THE INTERNET MADE ME FAMOUS

Present-day cyber celebrities and internet personalities

RYAN TOYSREVIEW

Since he was 3 years old, Ryan and his parents have been recording and posting on YouTube his reactions to unboxing and playing with toys. Some four years later, Ryan is a major influencer in the toy industry. Most recently, he landed his own line of toys, to be sold at major retailers like Walmart and Target.

ZACH KING MAGIC

American Vine star Zach King mowed hundreds of lawns so he could get his first camera and MacBook Pro to create and post cool digital sleights of hand online. Now he is officially partnered up with Apple to launch the tech giant's first video lab, called Small Screen Magic, to teach sessions on how to shoot and edit video.

KARINA GARCIA YOUTUBE CHANNEL

A college dropout waitressing to get by, Karina Garcia made her first DIY slime video and posted it on YouTube in 2015. That launched a slime-making phenomenon in 2016 that eventually garnered Garcia a line of at-home craft kits under the Craft City brand sold at Target.

**“THOSE OF US COMMITTED
TO BREAKING DOWN THE
BARRIER BETWEEN ACTOR
AND SPECTATOR FIND
IMMEDIATE INTEREST IN
THE ARRANGEMENT OF
PARTICIPANTS SHARING
THE SAME ARENA,
ALREADY MASKED AND
PERFORMING VERSIONS OF
THEMSELVES.”**

— Adriene Jenik



During her time in The Henry Ford's Youth Mentorship Program, Sylvia became an honor roll student and leader, working with and mentoring elementary school students. She believes life is about more than yourself and when opportunity knocks, you answer. She aspires to pursue a career in medicine.

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



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- More than 100 props and artifacts from the six *Star Trek* television series and films, including an original series tricorder, communicator and phaser, a Borg cube, Klingon disruptor pistol, tribbles and more.
- Rare costumes, including the Spock tunic worn by Leonard Nimoy and Lt. Uhura's (Nichelle Nichols) dress.
- Spaceship filming models, including the U.S.S. *Enterprise*, *Deep Space 9* space station and more.

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7 days a week,
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INSIDE THE HENRY FORD

Three must-see attractions. 250 acres of unexpected. One awe-inspiring experience. 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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MORE TO OUR STORIES

New mobile app will enhance museum experiences, give visitors increased access to artifacts, stories of innovation

IMAGINE YOUR SMARTPHONE doubling as your own personal tour guide at Henry Ford Museum of American Innovation. That's the plan as The Henry Ford launches THF Connect, its first-ever mobile app this year. With it, visitors to the museum can dig deeper, gain exclusive access and digest content and artifact backstories in more interesting ways than ever before. Think audio tours, wayfinding, augmented reality and more.

Matt Elliott, the museum's manager of digital experience, along with the museum's digital team, first tested — with lots of positive user feedback — and launched the app for iOS phones. A sister app for Android directly followed.

"The Henry Ford has such amazing stories

to tell, and now guests can utilize the mobile app to enhance their visit," Elliott said, explaining that the app includes a map of the museum with turn-by-turn directions, 50 featured artifacts and a digital membership card as well as "My Visit," which allows users to document the things they experience at the museum and return to them later. The app also has four audio tours: Prototypes and Beginning, Only at The Henry Ford, Selling an Innovation and Stories of Henry Ford and His Museum.

"We are taking the opportunity to allow guests to provide us feedback on our app," said Elliott, "so we can continuously refine and optimize the experiences we are providing."

— MARTI BENEDETTI

HIGH-TECH RETROFIT

New Wi-Fi went live in Henry Ford Museum of American Innovation a couple of years ago, with enough capacity to handle 6,000 guests connected simultaneously. Now it's time to take The Henry Ford's digital transformation to the next level, with the pending deployment of hundreds of Bluetooth Low Energy (BLE) beacons throughout the museum. The beacons, donated by Hewlett Packard Enterprise, are the backbone for new digital experiences at The Henry Ford, said Matt Elliott, manager of digital experience, including the new mobile app. "Expanding our digital foundation is going to further activate museum innovation," he added. "We are planning to bring forth the innovators behind the artifacts and allow guests to further explore our large digital collection."

Augmented reality elements are part of the plan to add a fun storytelling element to the physical experience on the museum floor. Visitors can already experience new digital columns in the museum plaza (see photo below) and near the Dymaxion House. Wrapped on five sides with digital screens, the columns engage as a visitor approaches, revealing stories of innovation.



PHOTO BY BLUECADET

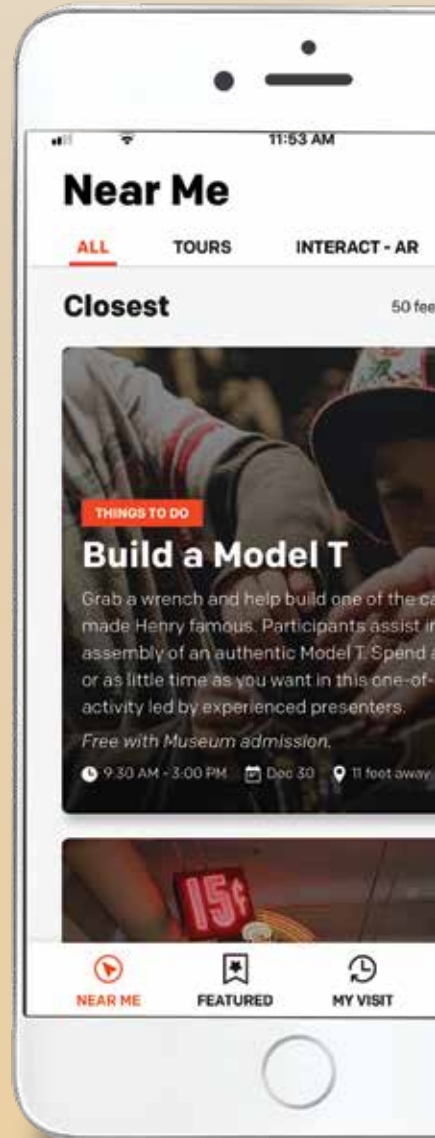
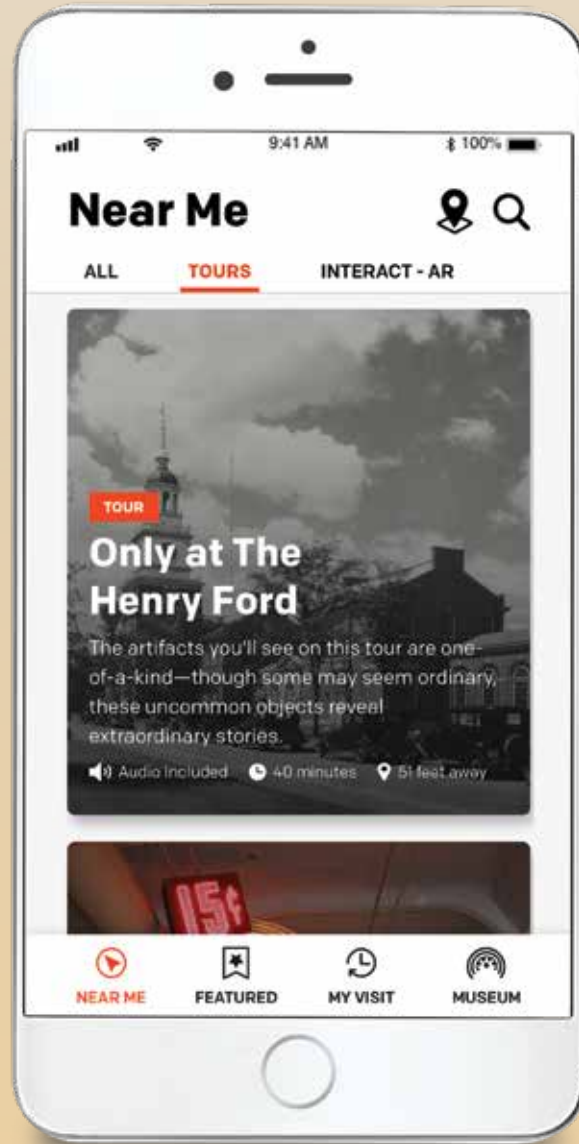
ONLINE For more information, hours and pricing for Henry Ford Museum of American Innovation, visit thf.org/museum ►

ONLINE THF Connect for iOS is available now, with Android coming this summer. To download, visit thf.org/connectapp ►

DID YOU KNOW? /

The Henry Ford's digital team partnered with Bluecadet in Philadelphia to design Henry Ford Museum of American Innovation's mobile app. Bluecadet has an impressive list of institutions it has previously collaborated with to create similar boundary-pushing experiential resources, from the Smithsonian Institution to NASA.

► The Henry Ford's first-ever mobile app, THF Connect, gives visitors handheld access to artifacts, stories of innovation and a digital map of the museum with turn-by-turn directions.



DID YOU KNOW? / As part of the new THF Connect mobile app, members will have access to their digital membership card.

CELEBRITY IN HER OWN RIGHT

Katharine Wright tackled the traditional while pushing boundaries

IT'S AN OLD STORY. Women keeping the home fires burning for their loved ones. Katharine Wright handled household responsibilities for her family, giving her brothers, Wilbur and Orville, the freedom to focus on achieving the first heavier-than-air flight in 1903. Yet, along the way, she pushed a few boundaries of her own — experiencing things most women of her era did not.

After her mother's death in 1889, Katharine took over running the home for her father and older brothers at age 15. Later, after Wilbur and Orville had established their aircraft company, she also handled much of their business correspondence.

Unlike her quiet mother, Katharine was spunky, encouraged by her father to seek education and a profession. She did, graduating not only from high school — something most people, men or women, didn't do at this time — but college as well, which was even rarer. She was, in fact, the only Wright child to complete college.

A Latin teacher at Dayton's Steele High School, she walked away from her beloved profession to help Orville convalesce after a plane crash in 1908. A year later, she would join her two brothers in France as they held public demonstrations of their latest airplane. Unafraid and heedless of the February cold, she made several flights with Wilbur at the controls, flying longer and farther than any American woman at that time. Witty and extroverted, she also delighted foreign reporters with her unaffected Midwestern manner and quickly became a celebrity in her own right — the only woman ever invited to a dinner at the Aéro-Club de France during aviation's early years.

She later would serve on the board of Oberlin College, devote time to causes such as women's suffrage and eventually marry for the first time at age 52. With domestic responsibilities always tugging, she never stopped pushing boundaries.

— JEANINE HEAD MILLER, CURATOR OF DOMESTIC LIFE

ALL THE WRIGHT STUFF

Every year during the Wright Day of Celebration, Greenfield Village challenges visitors to run as fast as the first airplane and explore the rarely seen offices of Orville and Wilbur Wright, where the first flight was conceived. Many of the family's stories of flight also include sister Katharine, who played a vital role in her famous brothers' innovations and her family's public persona.

In the Martha-Mary Chapel, listen as a village master presenter tells Katharine's story of service to her family through words and pictures. Picnic with the three Wright siblings on the Village Green, and enjoy casual conversation and family anecdotes. Make your way to the Wright family home in Greenfield Village's Main Street District, and be transported to the moment in 1903 when the Wright brothers shared news of their first flight with their only sister.

For updates on the annual Wright Day of Celebration (Aug. 18) and related activities inside Greenfield Village, visit thf.org.

DID YOU KNOW? /

The Wright Home and Wright Cycle Shop are located in the Main Street District in Greenfield Village. Henry Ford acquired the home and cycle shop, originally located in Dayton, Ohio, and moved them to Michigan in 1937.



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

SAVE THE DATE

Wright Day of Celebration
Greenfield Village
Aug. 18



► Katharine Wright (left) joins her brother Wilbur for her first flight in France in 1909. At the time, she had flown longer and farther than any American woman.

PHOTO FROM THE HENRY FORD ARCHIVE OF AMERICAN INNOVATION

PEOPLE PERSON

Dearborn Truck Plant's new manager sees the future of manufacturing in every worker

WHEN YOU TAKE THE Ford Rouge Factory Tour, look for an athletic woman with blond hair in a reflective yellow safety vest, the one with smiley-face tape over her wedding ring to avoid scratching the new Ford F-150s on the assembly line. That's Dearborn Truck Plant Manager Debbie Manzano. If you're in the right spot at the right time, she might even stop to talk to you during your tour.

"It gives people a chance to ask questions, see a female in a leadership role, which is significant," said Manzano, who assumed the plant's helm in August 2018 and was an inspiring force for hundreds of students taking the factory tour during last October's Manufacturing Day. "Especially with everything that's going on in the environment, I think it's necessary."

With a career in manufacturing that began nearly 25 years ago, Manzano's elevation to the truck plant's top post goes well beyond her 12-hour-a-day work ethic. "My favorite part of the day is when I walk the floor and talk to the people," said Manzano. "In manufacturing, it really is about the people. They're the ones doing the work every day and making the difference, right? I'm here to support them ... that's my key leadership role."

Manzano is also dedicated to increasing the number of women in her field. According to the U.S. Census Bureau, in 2016, women comprised just 29 percent of the manufacturing workforce, a percentage even lower at many plants. As a co-chair of the Women in Manufacturing resource group at Ford, Manzano and a core team meet weekly, usually on weekends, to tackle tough issues, from how diversity can improve bottom lines to debating flexible or transitional work assignments. "Getting managers to open their eyes to that," said Manzano of adaptable schedules, "can be a good thing. It can be positive. It can make us better."

Manzano regularly speaks with students about career opportunities in manufacturing, the industry that gave her immigrant parents a livelihood. "My mom was always saying, 'Look at your dad. He works long hours on different shifts. It's a tough, dirty job,'" laughed Manzano. But for someone who was always passionate about and excelled at engineering, science and math, nothing could keep her away. "I have always thought this is cool!"

— SUSAN ZWEIG

ANOTHER STEM SUPERWOMAN

In 1955, Suzanne Vanderbilt joined General Motors as a junior designer for Chevrolet interiors. A recent college graduate with an industrial design degree from Pratt Institute, she was part of a new group of women recruited to work in automotive design centers to reflect the industry's growing awareness of the female consumer.

Like today's Dearborn Truck Plant Manager Debbie Manzano, Vanderbilt pioneered her way to a top spot in an industry that, at the time, lacked a significant female workforce. She, in fact, tenaciously worked her way up GM's ranks when most of her female design counterparts departed, eventually becoming one of GM's chief designers.

The Suzanne Vanderbilt Papers, 1958-1986, are part of the collections of The Henry Ford. The papers offer a unique perspective on projects Vanderbilt supervised in GM's design center. Her work was especially evident in her three patents for an inflatable back support for seats, a safety switch for an auto instrument panel and a motorcycle helmet design.

For access to the Vanderbilt papers that are part of The Henry Ford collections, contact the Benson Ford Research Center at research.center@thehenryford.org.

DID YOU KNOW? /

Debbie Manzano earned her bachelor's degree in math and statistics at the University of Michigan, Ann Arbor, and, while working, got her master's in industrial engineering at nearby UM-Dearborn. She also recently graduated with a certificate in yoga teacher training. "Yoga has changed how I think about things and who I am," she said. "It has helped me to understand and not react to things, to be much more mindful."



SAVE THE DATE

Manufacturing Day
Ford Rouge Factory Tour
Oct. 4

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

ONLINE To learn more about the Women in Manufacturing national association, visit womeninmanufacturing.org ▶



► Plant Manager Debbie Manzano is easy to spot on the Dearborn Truck Plant floor. She's the one wearing tape over her rings to help protect the surface of the newly built Ford F-150s she often inspects. When she's off the assembly line, Manzano supports local STEM education efforts and works with resource groups like Ford's Women in Manufacturing on skill set development and creating advocates for women.

PHOTO BY BRITTANY GREESON
FOR THE NEW YORK TIMES

SYMBOLS OF THE SPACE AGE

Kitschy coin collectors convey Americans' changing views of man's ability to go where none had gone before

THERE WAS A TIME when outer space belonged to the realm of fantasy and science fiction. Through movies, radio, television, comic strips and comic books, kids cheered as fantasy space heroes like Flash Gordon, Buck Rogers and Tom Corbett-Space Cadet safeguarded Earth's inhabitants from evil forces. Futuristic space toys proliferated, from atomic ray guns and wind-up robots to toy spaceships.

Then something happened. The United States and the Soviet Union began to explore outer space for real. When the Russians launched Sputnik I in October 1957, the "space race" took off, leading to a new era of more realistic space toys.

The Henry Ford's collection of space-themed banks, dating from 1949 to 1964, captures the span of these two perceptions of outer space — as just a fantasy world to being a real place into which humans ventured. These mechanical banks, produced by Detroit-based companies Duro Mold & Manufacturing and Astro Manufacturing, were offered at individual bank branches as incentives for kids to start bank accounts. Having the branch bank's name affixed to the front of one of these futuristic coin collectors was a sure sign that the financial institution was modern, progressive and in step with the times.

— DONNA BRADEN, SENIOR CURATOR & CURATOR OF PUBLIC LIFE

MAN ON THE MOON MEMORIALIZED

In May 1961, President Kennedy laid out a bold vision for America to land a man on the moon "before the decade is out." When astronauts Neil Armstrong and Buzz Aldrin did set foot on the moon within the decade — on July 20, 1969 — many people considered it America's finest hour.

The historic moment was quickly memorialized on everything from popular magazine covers and commemorative posters that could hang on a household wall or school hall to the pictorial lunchboxes that just about every elementary-grade student was proud to carry.



COMMEMORATIVE POSTER, "THAT'S ONE SMALL STEP FOR A MAN, ONE GIANT LEAP FOR MANKIND," 1969. FROM THE HENRY FORD ARCHIVE OF AMERICAN INNOVATION

ONLINE For more resources documenting the American experience of innovation, ingenuity, and resourcefulness, visit thf.org/collections-and-research ►

► **1** Atomic bank (c. 1949), co-opting a popular word of the Cold War era; **2** Rocket bank (c. 1951), resembling comic-book-style rockets; **3** Strato bank (c. 1953), in which the coin was shot through the “stratosphere” to the moon; **4** Guided missile bank (c. 1957), the first type made by Astro; **5** Plan-It bank (c. 1959), a play on words, depicting the sun surrounded by nine orbiting planets; **6** Satellite bank (c. 1961), by this time resembling a real rocket; **7** Unisphere bank (c. 1964), topped by the iconic centerpiece from the New York World’s Fair; **8** Destination moon bank (c. 1962), featuring the moon atop a realistic-looking rocket.

FROM THE HENRY FORD ARCHIVE OF AMERICAN INNOVATION



MEMBER
SPOTLIGHTWHAT'S
YOUR
SPARK?

Member Mary Aviles finds inspiration in a frog,
two brothers and makers in the raw



DRAWN TO THE Herschell-Spillman Carousel in Greenfield Village, Mary loves hopping on the whimsical bow-tie-wearing frog. The carousel reminds her of stories shared with her children to spark their curiosity and quests for lifelong learning. She's equally inspired each time she walks into Orville and Wilbur Wright's family home in Greenfield Village, knowing that human progress is cumulative and many of our major leaps forward can be traced to specific moments in time. A repeat attendee at The Henry Ford's annual Maker Faire® Detroit, she can't wait to come back each year because she sees great beauty in unfinished ideas and the limitless potential of creativity in the rough.

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.

PHOTO OF MARY AND SON
MATI IN THOMAS EDISON'S
MENLO PARK COMPLEX BY
JAMES SALESKA; CAROUSEL
BY RUDY RUZICKA

NAME:

Mary Aviles

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

Maker Faire® Detroit

FAVORITE**MEMBER PERK:**

The Henry Ford Magazine.
I use it regularly until it's dog-eared.

I worked for TechTown Detroit with entrepreneurs/ small businesses and continue to do so as a consultant with EarlyWorks. For me, The Henry Ford's Model i framework is also an inspiration. TechTown architects use it as an approach to client relationship management, and I reference the framework consulting with EarlyWorks.

As a qualitative researcher specializing in structuring unstructured data, I am fascinated by how The Henry Ford has synthesized its collection of physical innovator assets to remain relevant in informing issues such as education, workforce and talent development — topics I, along with my clients, are immersed in every day.

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as a Member**

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ONLINE thf.org/membership ▶

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10 YEARS

JULY 27-28, 2019

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AMERICAN INNOVATION™

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LIMITED-ENGAGEMENT EXHIBIT

OCTOBER 12, 2019-JANUARY 5, 2020

Henry Ford Museum of American Innovation™

Step into a larger-than-life LEGO® wonderland featuring 20 of the world's most iconic and astonishing skyscrapers. **Towers of Tomorrow with LEGO® Bricks**, a first-of-its-kind, limited-engagement exhibition, is rising up in Henry Ford Museum of American Innovation.

Let these masterpieces unleash your inspiration, choose from over 200,000 LEGO® bricks to build your own Tower of Tomorrow and contribute to the growing LEGO® metropolis.

FREE TO MEMBERS OR WITH MUSEUM ADMISSION

To learn more, visit thf.org/LEGO.

Traveling Exhibition from



Toured Internationally by



Supporting Sponsor



Photo © James Horan for Sydney Living Museums

the
Henry
Ford®

2019 EVENTS

▼ Visitors to *Towers of Tomorrow with LEGO® Bricks* can see previously filmed clips about the exhibition's creation featuring certified LEGO® professional Ryan "The Brick Man" McNaught.





**FREE
FOR MEMBERS**
Towers of Tomorrow with
LEGO® Bricks is free to
members or with
museum admission.



Other Premier Exhibitions + Events

HENRY FORD MUSEUM OF AMERICAN INNOVATION

Star Trek: Exploring New Worlds

On view: **Through September 2**

A celebration of the *Star Trek* phenomenon, this exhibit showcases the enduring impact the original TV series and subsequent movies and spinoffs have had on our culture.

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

HENRY FORD MUSEUM OF AMERICAN INNOVATION

Towers of Tomorrow with LEGO® Bricks

Member Preview: **October 11**
On view: **October 12, 2019-January 5, 2020**

Step into Henry Ford Museum of American Innovation this fall, and experience a larger-than-life LEGO® wonderland featuring 20 of the world's most iconic and astonishing skyscrapers. We're talking Toronto's CN Tower, New York's Empire State Building, China's Shanghai Tower and Dubai's Burj Khalifa, all built at a 1:200 scale with LEGO® bricks.

Towers of Tomorrow with LEGO® Bricks is a first-of-its-kind, limited-engagement exhibition that's sure to unleash a bit of inspiration and a new or rekindled love for ubiquitous bricks. Explore the skyline of eye-popping towers built to scale with stunning architectural detail. Discover the design and precision it takes to build these mini modern marvels by constructing your own Tower of Tomorrow with the exhibit's 200,000 loose bricks. Listen as one of the world's 14 certified LEGO® professionals, Ryan "The Brick Man" McNaught, tells through film clips his story of the challenges and accomplishments in creating the exhibit.

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



THE HENRY FORD CAMPUS

Maker Faire® Detroit

July 27-28

The Henry Ford and Maker Faire® celebrate 10 years of collaboration in 2019. Roll up your sleeves for hundreds of DIY projects and see profound creations from brilliant hackers, inventors and entrepreneurs.

ONLINE To learn more, visit detroit.makerfaire.com ▶



LEGO PHOTOS BY © JASON MCCARTHY, NATIONAL MUSEUM OF AUSTRALIA; PHASER FROM THE FILM *STAR TREK INTO DARKNESS* BY BRADY HARVEY; MAKER FAIRE® BY NICK HAGEN

2019 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.

- PNC Tinkering for Tots Preschool Program**
Second Monday of each month, 10 a.m.-noon, May-Oct. ★
- Civil War Remembrance**
May 25-27
Open Sat. 'til 9 p.m. ★ €
- Artist in Residence**
Robin Cass: June 4-8
Shelley Muzykowski Allen: July 9-13
Dean Allison: Aug. 13-17 ★

GREENFIELD VILLAGE

World Tournament of Historic Base Ball®
Aug. 10-11 ★

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

Wright Day of Celebration
Aug. 18 ★

69th Annual Old Car Festival
Sept. 7-8
Open Sat. 'til 9 p.m. ★ €



Fall Flavor Weekends
Sept. 28-29 and Oct. 5-6 ★

Farmers Markets
Sept. 28 and Oct. 5 †

GREENFIELD VILLAGE

Make Something: Saturdays
Every Saturday, 10 a.m.-3 p.m., Sept.-May ★
Presented by Macy's

PNC Tinkering for Tots Preschool Program
Second Monday of each month, 10 a.m.-noon, Nov.-April ★

Star Trek: Exploring New Worlds Happy Hour
June 20, July 18, Aug. 15, 5-8:30 p.m. ★ € \$

Star Trek: Exploring New Worlds
Through Sept. 2 ★



Invention Convention, U.S. Nationals
May 30-31
Presented by United Technologies Corporation

HENRY FORD MUSEUM OF AMERICAN INNOVATION

Mark your calendar for double discounts on dining and shopping, plus other exclusive perks just for members.

Summer Camps
June 24-28;
July 8-12, 15-19,
22-26 and 29-
Aug. 2; Aug. 5-9 \$

Member Appreciation Days
Aug. 23-25 ★
Nov. 23-25 ★

The Henry Ford: \$5 Day
Nov. 2 ★
Made possible by the Ford Foundation

Member Movie Series
Select Saturdays, 4 p.m. \$

Throwback Thursday Nights
Most Thursdays, 7 p.m.
thf.org/tbt € \$

Avengers: Endgame
Showing through June 9

Apollo 11: First Steps
Opening June 10 ★

In Saturn's Rings
Opening early Aug. ★

FREE
admission for members to all traditional films at The Henry Ford's Giant Screen Experience (excludes Member Movie Series)

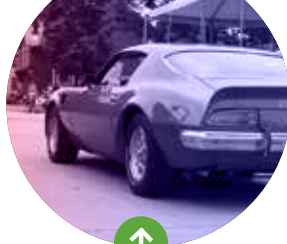
THE HENRY FORD

GIANT SCREEN EXPERIENCE

Historic Base Ball Games

June 8-9, 15-16 and 22-23;
July 13-14, 20-21 and 27-28;
Aug. 3-4 and 17-18
★

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



Motor Muster

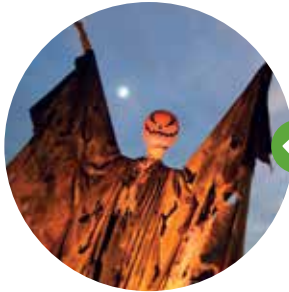
June 15-16
Open Sat. 'til 9 p.m.

★ €

Salute to America featuring the Detroit Symphony Orchestra

July 3-6

€ \$



Hallowe'en in Greenfield Village

Oct. 11-13, 17-20 and 24-27

€ \$

Presented by Meijer

Hallowe'en Fairy-Tale Feast

Oct. 11-13, 17-20 and 24-27

€ ¥ \$

Eagle Tavern Harvest Supper

Oct. 11-12, 18-19 and 25-26

€ ¥ \$

Holiday Nights in Greenfield Village

Dec. 5-8, 12-15, 17-23 and 26-28

€ \$

Holiday Nights Supper with Santa

Dec. 5-8, 12-15, 17-23 and 26-28*

€ ¥ \$

Dec. 26-28 excluding Santa

Holiday Nights Dinner Package at Eagle Tavern

Dec. 5-8, 12-15, 17-23 and 26-28

€ ¥ \$

Holiday Nights Happy Hour

Dec. 5-8, 12-15, 17-23 and 26-28

€ ¥ \$



10 YEARS

Maker Faire Detroit

The Henry Ford
JULY 27-28, 2019

Sensory-Friendly Saturdays
June 22;
Nov. 23
★

Maker Faire® Detroit
July 27-28
Open Sat. 'til 6 p.m.
€ \$
In collaboration with Maker Media

National Aviation Day
Aug. 18
Admission fee waived courtesy of Delta Air Lines
★

Towers of Tomorrow with LEGO® Bricks Member Preview
Oct. 11
Open to public
Oct. 12, 2019-Jan. 5, 2020
★



Veterans Day

Nov. 11

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

★

Members Annual Holiday Lighting Ceremony

Nov. 25

€ \$

Visits with Santa

Nov. 29-Dec. 24

★



Outdoor Living Lab Tour

Through Sept. 28
\$

Manufacturing Day

Oct. 4
\$

- ★ **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.

MOTOR MUSTER BY KMS PHOTOGRAPHY; OLD CAR FESTIVAL BY GARY MALERBA; HALLOWE'EN BY ROY RITCHIE; HOLIDAY NIGHTS BY EE BERGER; MR. SPOCK TUNIC BY BRADY HARVEY; LEGO BY © JAMES HORAN FOR SYDNEY LIVING MUSEUMS; FORD ROUGE FACTORY TOUR BY TEAM DETROIT

FORD ROUGE FACTORY TOUR

CONNECT

3 Curators uncover curious connections between artifacts and ideas

Detection: How do a radio telemetry device, a polygraph and a detective camera relate?

▼ RF RECEIVER

In the 1950s, discerning data from nuclear detonations in Nevada's desert was deemed hazardous to your health. Instead, radio telemetry devices did the dirty work, gathering stats for radio operators tucked away on safer ground.

MAKE THE CONNECTION:

Our desire to know what's hidden inside a bomb's shock wave gives rise to a resourceful way to safely gather facts and figures from far away.



"A black box, a silver suitcase and an invisible camera. These items, hidden from view, ultimately work in the detection of data, in hopes that in the resulting patterns, we can find some measure of evidence about the world, and sometimes ourselves."

— Kristen Gallerneaux, curator of communications and information technology, The Henry Ford

▼ DETECTIVE CAMERA

In the 1880s, taking pictures of people without their permission involved tiny cameras poking through buttonholes. It was a somewhat unethical way to collect visual data to be examined later for emerging patterns of misbehavior.

MAKE THE CONNECTION:

Our desire to survey and speculate about others' misdeeds gives rise to a resourceful tactic for uncovering info incognito.



▼ POLYGRAPH MACHINE AND ACCESSORIES KIT

A machine manufactured to measure and graph a human's fundamental urge to fib was sort of a fail — the info from the body's electrical signals was often inaccurately interpreted.

MAKE THE CONNECTION:

Our desire to know a truth from a lie gives rise to a resourceful attempt at reading our bodies' responses and reactions.



WATCH The *Detection* Connect 3 video authored by Kristen Gallerneaux, curator of communications and information technology at The Henry Ford thf.org/connect3/detection ▶



VACATION PACKAGES

The Henry Ford offers affordable packages through several lodging partners that meet a variety of needs, including full service, limited service, historic charm, B&B style or campground. Pick the partner and package that's right for you at thf.org/vacations.

DOUBLE PACKAGE

Room and two tickets to two attractions (Henry Ford Museum of American Innovation, Greenfield Village, Ford Rouge Factory Tour)

FAMILY PACKAGE

Room and four tickets to two attractions (Henry Ford Museum of American Innovation, Greenfield Village, Ford Rouge Factory Tour)

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

STAY, EXPLORE + SAVOR

Ready to plan your visit to The Henry Ford? All you need to know about available lodging options — including hotel names, locations and contact information — is here. When you book with one of The Henry Ford's official lodging partners, be sure to ask about available double and family vacation packages, which include attraction tickets and overnight accommodations. Packages start at under \$137. Don't wait, book your date with America today at thf.org/vacations.

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dearborn.doubletree.com

See ad on Page 75



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hisouthgate.com

See ad on Page 77

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See ad on Page 79



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michigan/dearborn/
comfort-inn-hotels/mi385

See ad on Page 70



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See ad on Page 69



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countryinns.com/
dearbornmi

See ad on Page 70



HAMPTON INN - DETROIT/DEARBORN

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.hamptoninn.com

See ad on Page 71

HISTORIC



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See ad on Page 79

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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
	Holiday Inn Southgate Banquet & Conference Center	Downriver (I-75 corridor)	15	160	Indoor		8	9,000	77
	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
HISTORIC	The Dearborn Inn, a Marriott Hotel	Dearborn	3	229	Outdoor		17	17,000	79
LIMITED SERVICE	Comfort Inn & Suites - Allen Park	Dearborn (I-94 corridor)	10	163	Indoor		2 (15 each)		79
	Comfort Inn & Suites - Dearborn	Dearborn	4	116	Indoor		1	250	70
	Comfort Inn & Suites - Taylor	Dearborn (I-94 corridor)	10	78	Indoor		1 (15)		69
	Comfort Suites - Southgate	Downriver (I-75 corridor)	15	78	Indoor		1 (50)		77
	Country Inn & Suites - Dearborn	Dearborn	7	100	Indoor	•	1 (55)		70
	Courtyard by Marriott - Detroit Dearborn	Dearborn	10	147	Indoor		2	1,274	72
	Hampton Inn - Detroit/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	77
	Red Roof Inn - Detroit-Dearborn	Dearborn	7	111		•	0		71
	Staybridge Suites - Dearborn	Dearborn	7	99	Indoor	• \$	1 (35)		71
TownePlace Suites by Marriott - Detroit Dearborn	Dearborn	9	148	Outdoor	• \$	0		78	
BED & BREAKFAST	York House Bed & Breakfast	Dearborn	10	3			0		78
CAMPING	Camp Dearborn	NW Oakland County	45	191	Outdoor		0		78
	Detroit Greenfield Campground/RV Park	I-94 corridor	20	212	On lake	•	Outdoor pavilion	600	78

*Drive time in minutes to The Henry Ford.



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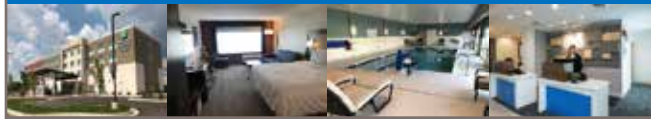
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In 1882, a 19-year-old Henry Ford encountered a steam engine that changed his life. Though initially unsure of his abilities, he served as engineer, overseeing the engine's maintenance and safe operation for a threshing crew organized by Michigan farmer John Gleason. Ford ran the engine for a season, developing the skills of an experienced engineer. It sparked an epiphany that machines — not farming — were his future.

Ford never forgot that engine. Three decades later, as head of the world's largest automobile company, he set out to find it. Discovered in a farmer's field in Pennsylvania, Ford purchased the engine in 1912 and had it completely rebuilt. He even ran it regularly, often in the company of James Gleason, the brother of the engine's original owner.

The Westinghouse steam engine, serial No. 345, is the first item Ford collected that remains in The Henry Ford's collections today.



▼ From left: Hugh McAlpine, James Gleason and Henry Ford with the Westinghouse steam engine. This photograph was taken in 1920 on the Ford Farm in Dearborn.



DID YOU KNOW? /

The Westinghouse steam engine, serial No. 345, is currently on display in Henry Ford Museum of American Innovation. Find it in the *Agriculture: Innovations in Farming* exhibition.



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