EXCLUSIVE! MEMBER MOVIE NIGHT
The Aviator

Directed by Martin Scorsese, The Aviator follows the life of billionaire Howard Hughes, starting with his early filmmaking years as owner of R.K.O. Pictures with a focus on his role in designing and promoting new aircraft. Hughes was a risk-taker spending several fortunes on designing experimental aircraft and eventually founding TWA as a rival to Pan Am Airways. Come see it again on the Big Screen!

WILLIAM L. ALLEN THEATER
Friday, Nov. 8 | Movie starts at 6 p.m. (Doors at 5:30 p.m.)
RSVP to membership@museumofflight.org.

MUSEUM MODELERS
Join us for a model airplane building workshop! Each family will have the chance to step into the role of an aerospace engineer and build a model of the Spirit of St. Louis, a single-engine aircraft designed by Charles Lindbergh. 

SOUTH VIEW LOUNGE, 2ND FLOOR
FEE: $8.35/model
RSVP to membership@museumofflight.org

APOLLO EXHIBIT PREVIEW AND ARMSTRONG DOCUMENTARY SCREENING

Now that Destination Moon has left, the Museum is reinstalling its permanent APOLLO exhibit in time for the anniversary of Apollo 12 in mid-November. Though much of the exhibit will look as it did when it first opened in 2017, we are adding some new small artifacts. Armstrong tells the life story of Neil Armstrong from his childhood in rural Ohio to his first steps on the Moon and beyond. With the support of his surviving family, the film includes previously unseen home movie footage, and Harrison Ford narrates using Neil’s words from interviews and writings.

SOUTH VIEW LOUNGE, 2ND FLOOR
FEE: $25/adult, $20/senior, $10/student or child, $75/family
RSVP required to membership@museumofflight.org

See artifacts in the Museum Collection not normally on view! Coffee and light snacks provided. Featuring Red Bank Blend coffee, available exclusively at the Museum Store.

RSVP to membership@museumofflight.org.

FOOD IN AVIATION

Brunch this November as we dive into the world of flying food! Our Collections department staff will present objects, archival, and library materials relating to the history of food in aviation.

NORTHWEST AEROCLUB ROOM
Saturday, Nov. 23 | 11 a.m. to 2 p.m.
VIEW LOUNGE, 2ND FLOOR
RSVP required to membership@museumofflight.org

The Aviator
Big Screen!

EXCLUSIVE!

In an effort to fulfill a personal wish of billionaire Howard Hughes, starring with his early filmmaking years as owner of R.K.O. Pictures with a focus on his role in designing and promoting new aircraft. Hughes was a risk-taker spending several fortunes on designing experimental aircraft and eventually founding TWA as a rival to Pan Am Airways.

Due to limited space, admission to this event is restricted to two adults and any children or grandchildren under age 18 as covered by your membership level.

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LETTER FROM THE EDITOR

Welcome aboard!

Irene Jagla, Editor-in-Chief

IF THIS IS YOUR FIRST TIME reading Aloft, congratulations on becoming a Member of The Museum of Flight!

You may have signed up for membership while visiting the Destination Moon: The Apollo 11 Mission exhibit or after partying at HangarFest (see photo above!) in August. No matter when you decided to join, we welcome you to the Museum family and are excited to share this magazine with you.

Every other month, you have the chance to stay up to date on the Museum’s exciting events and activities and learn more about what happens behind the scenes. Our Curator’s Corner section features questions from readers who are curious about rare artifacts and incidents from aerospace history with researched answers from our Curator. What’s New In the Collection shows you the newest acquisitions in our collection along with their back-stories, and the Education Update shares the achievements of students in our Boeing Academy for STEM Learning. You can learn more about the people who dedicate their time and energy to the Museum in the Volunteer Profile, and read about how donors make an impact in The Power of Giving.

Along with these recurring columns, we feature original stories related to the past, present, and future of aerospace. In this issue, Ted Huetter explores one man’s journey on one of the very last Concorde flights. Geoff Nunn investigates the role of Apollo 12 in space flight history, and Louisa Gaylord introduces you to our new curator, Matthew Burchette.

On behalf of the contributors, the Membership Department, and the Museum, I hope you enjoy this issue and every future issue of Aloft! And remember, you can always write in with questions or comments and pose questions to our Curator’s Corner at aloft@museumofflight.org.

Welcome aboard!

Irene Jagla, Editor-in-Chief
LIKE LIGHTNING

QUESTIONS ANSWERED BY JOHN LITTLE, ASSISTANT CURATOR AND RESEARCH TEAM LEADER

Q: DOES THE MUSEUM HAVE A LOCKHEED P-38 LIGHTNING ON DISPLAY?
A: The Museum most definitely has a P-38 Lightning on display, right in the middle of the Ely McCaw Personal Courage Wing! The Museum's Lightning is a P-38L-S-LQ. U.S. Army Air Forces serial number 44-53097, which was one of the last P-38s to fly in World War II. It was over and 097 never saw combat. In 1997 it was purchased by the museum. From Lockheed's factory in Burbank, California, '097 went straight to the Lockheed Modification Center, at Dallas, Texas, to be converted into a radar-equipped, two-seat P-38M-6-LO night fighter, one of 75 P-38As to have been converted. By the time of '97's conversion, however, World War II was over and '097 never saw combat. In 1998, the late Doug Chaplin acquired '097 from Cecil Harp and Bob Ennis of Modesto, California, returned '097 to its original P-38 configuration, and put it into the markings of all the P-38s that were in use during World War II.

Q: IN THE NEW EXHIBIT, THIS WAY UP, I NOTICED THAT THE ROLLS-ROYCE MERLIN ENGINE HAS NO DATA PLATE. DO YOU HAVE ANY INFORMATION ABOUT THAT ENGINE?
A: Unfortunately, we do not know much about our Merlin, except that it is a Packard-built V-1650-7, making it a license-built, American version of the famous British engine. All of the American-made Merlins were built by the Packard Motor Car Company, in Detroit. "V" describes the engine's configuration, a V-12. 1650 is the engine's displacement, measured in cubic inches and rounded to the nearest ten liters. The 7 indicates the production series, which was similar to the British Merlin 66 series and was used extensively to power the legendary North American P-51D Mustang. We believe that the Museum's Merlin last served in an Unlimited Class hydroplane, but we do not know which boat(it) it powered. The Museum acquired its Merlin in 1989 and the engine was restored by Museum Volunteer Dana Dilgard.

Q: I'D LIKE SOME INFORMATION ABOUT THE LOCKHEED P-38 LIGHTNING, ESPECIALLY WHAT IS MOUNTED IN THE TOP OF THE TWO WINGS.
A: The items that are mounted in the upper surfaces of the Lightning's wings are turbochargers, or "turbos" for short. A turbocharger is an air pump that is driven by the heat of the engine's exhaust gases. As the hot gases leave the engine, they are ducted through the turbocharger's turbine, which is shaped like the shell of a nautilus. As the hot gases seek to expand, the turbine's nautilus-like shape allows expansion in only one direction, which makes the turbine spin at extremely high speed—about 50,000 revolutions per minute. The turbine's rotation spins the compressor, which is the part that actually forces air into the engine, thereby allowing the engine to operate at higher altitudes than can an engine without a turbocharger. Many historians believe that the ability to fly higher than Axis aircraft was the greatest advantage enjoyed by American aircraft during World War II.

Q: THE LOCKHEED P-38 LIGHTNING, WYANDOTTE, MICH. WAS JACK'S HOMETOWN. HOW CAN I LEARN MORE ABOUT HISTORIC AIRCRAFT OF THE MICHIGAN AREA?
A: The Museum of Flight is proud to be the home of the Museum's P-38 Lightning on display in the WWII gallery of the J. Elroy McCaw Personal Courage Wing! The Museum is dedicated to preserving and exhibiting aircraft from around the world, with a particular focus on those that played a significant role in World War II. The Museum's collection includes a wide range of aircraft from different eras and locations, including the P-38 Lightning. If you are interested in learning more about historical aircraft of the Michigan area, we encourage you to visit the Museum's website or contact the Curator's Office for more information.

Q: WHAT'S NEW IN THE COLLECTION?
A: In the early 1980s the Red Barn was refurbished, a process that included removing original maple plank flooring. A box of this maple flooring was given to a long-time Museum volunteer in 1992, along with a letter authenticating the source of the wood. Shortly after the Port Townsend Aero Museum opened in 2001, this same volunteer donated his box of maple flooring. In 2018, Steve Roberts, a volunteer at the Port Townsend Aero Museum suggested that he use this wood to build aircraft models. Building the models was an extensive process. Over the course of five months, he constructed 33 wooden models. A Boeing B-29 and a biplane were donated to The Museum of Flight along with wood samples showing the extensive wood preparations that was involved.

A donation is requested at the entrance of the Red Barn for the support of continuing projects and programs at The Museum of Flight. Please consider making a gift, so students can enjoy hands-on learning in the largest educational air and space museum!
S
ince Dan Hagedorn stepped down and retired as the senior curator in 2016, The Museum of Flight has been searching for the right person to fill his shoes—someone who is incredibly knowledgeable and passionate about aerospace, but also who is intensely curious about the world and will thrive at the Museum.

Matthew Burchette previously worked at the Wings Over the Rockies Air and Space Museum in Denver, Colorado for nearly 15 years, and his friends and family describe him as a “quirky history geek.” He is probably best known as the host and curator of the Behind the Wings video series on YouTube; his videos portray him as relatable, enthusiastic and recognizable. “Behind the Wings was so much fun, especially how it resonates with kids,” says Matthew. “People would come to the museum because they want to try and meet me, people stopped me in stores. It has done wonders for [Wings Over the Rockies] by drawing people in and increasing our social presence.”

Matthew grew up in Texas, where his parents helped him cultivate an appreciation for history and art. As a child, he would go to church every Sunday and read the books in the library. “The library had a pretty good section on military history,” says Matthew. “I remember poring over these books on the air wars, I knew them backwards and forwards.” His parents would also take him to the natural history museum in Austin, where they would spend “umpteen bazillion hours looking at the dioramas of history through the ages.”

Matthew’s dad started taking him out west to see their museum visits. Matthew first studied interior design at Baylor University because it was the closest thing to architecture that the school offered. “My mom had said, ‘They have museum studies, you would like that!’ But as a teenager I wasn’t too enthused with the idea,” he says. Matthew worked as a graphic artist after graduation, but it just didn’t feel like a good match for a lifelong career. He decided to return to Baylor and remembered his mom’s words about museum studies. Matthew says, “I’ve always been interested in history. I look to the past instead of the future.”

As he was completing his museum studies undergraduate courses, Baylor launched its graduate program. Matthew was one of the first students to earn a Master’s degree in Museum Administration from the school.

The Governor Bill and Vera Daniel Historic Village, a Civil War-era living history museum, was established on the school’s campus while Matthew was there. “I was studying Civil War history at the time and I told my supervisor, I’d love to do restoration work out there,” Matthew says. “I learned blacksmithing and historic carpentry, it was awesome!”

Matthew was offered a job as a project manager at Southwest Museum Services, a company that designs museum exhibits. While there, he worked on a little bit of everything: researching artifacts for exhibit use, photographing items for their database, writing exhibit descriptions and developing project schedules. Needless to say, to do these many skills and interests are excellent qualities for a curator overseeing a team of creative individuals, enabling them to jump in and help whenever necessary. “I get to do a lot of fun things that many people don’t get to do,” Matthew says.

“There’s an amazing history attached to aviation. In your own plane, the world is literally yours. The kind of freedom that aviation gives you—you can literally decide on a whim to go anywhere.” Many people take for granted how incredible modern flight is because they are too preoccupied with standing in the TSA line, taking off their shoes or sitting next to a stranger who won’t stop talking. “What people don’t realize is how much general aviation contributes to the United States economy and what it accomplishes.”

As the first professional curator at Wings Over the Rockies, Matthew is incredibly proud of what he accomplished there. He wrote a $200,000 grant to replace the roof of an old 1938 hangar and worked with the Colorado Historical Society to restore it to the original 1930’s look. “Projects like this to improve the structure of the museum…they start to tell a story,” Matthew says. “I left the museum a much better place than I found it.”

When I spoke with Matthew, he was driving his car from Denver to Salt Lake City, excited to start a new chapter in his life. He had been preoccupied with packing up his house and moving, but he’s definitely ready to embrace the Pacific Northwest lifestyle. “I’m a bike rider, and I’m excited to take up kayaking again,” Matthew says. “One of the first things I’m going to do is climb Mount St. Helens, since I figured out you can actually climb the thing!” He loves seafood, especially Copper River Salmon, and is looking forward to all of the craft breweries that Seattle offers.

And the new senior curator’s timing couldn’t be better, as The Museum of Flight is starting to plan its exhibits and programs around the 75th anniversary of the end of World War II coming up in 2020. Matthew is part of a historical reimbursement group that meets up to follow the same route that the Second Armored Division took through Europe during World War II. “We slept in foxholes, it was really awesome!” Matthew says. “These guys are great; I have friends literally across the globe because of it.” Matthew will be overseeing the development of new content that will be installed in the J. Elroy McCaw Personal Courage Wing next year, “I’d love to talk about the WASPs, the Night Witches from Russia, and test pilot Hanna Rettsch.”

“To me, the thing that captures the imagination is the sheer freedom that you have to do whatever you want,” says Matthew. “I am humbled to be selected as the curator of such an amazing facility.”
the evolution and impact of aviation engine design over the past 120 years

BY: RENE JAGLA, CONTENT MARKETING MANAGER

UPON ENTERING THIS WAY UP, our newest exhibit that traces the history of powered flight, one is greeted by a towering arch of an 11-by-13-foot Boeing 777 engine inlet, an artifact that represents how far aviation technology has progressed during its short 120-year history.

The exhibit, which opened August 17, occupies a small space in the T.A. Wilson Great Gallery, to the north side of the Museum’s M/D-21 Blackbird spy plane, but every square inch packs enough information and hands-on experiences to immerse visitors in the incredible achievements of engine design.

Exhibit Developer Cody Othoudt notes that the shortage of space was an obstacle that had to be creatively overcome during the planning phase of the exhibit. “We decided that we couldn’t fit more modern engines in the exhibit due to their size, so we focused on artifacts through the WWII era and then other elements to exemplify the size and scale of engines post-WWII. Through the idea to display engines from the Museum’s Collection for the public to enjoy had been discussed for more than two decades, it was a meeting between The Museum of Flight and GE Aviation leadership in 2015 that provided the spark to bring this project to life. Tony Mathis, President and Chief Executive Officer of GE Aviation’s Military Systems, then GE Aviation’s senior account executive for Boeing, and his Seattle team proposed a sponsorship of an exhibit to detail the history of propulsion, of which GE has played a leading role for the past century. “We knew the Museum of Flight was best poised to pull this together, though needed the financial support and encouragement to do so,” noted Tony. “We were pleased to get behind the concept and proud that GE Aviation would be the lead sponsor for the exhibit.”

Trip Switzer, the Museum’s Vice President of Development, said unequivocally, “Without Tony—and now Chris Drew, Vice President—Boeing Aircraft Programs GE Aviation, and their team’s commitment, This Way Up never would have happened.”

By the winter of 2017, Othoudt and his team were working with subject matter experts—including Museum docents and aerospace industry veterans Barry Lutter and Doug McLean—to discuss how that history should be told. The team had to prioritize certain milestones, events, and engineers and decided to tell the story focusing on engine types and their evolutions through the years. This story was augmented using engines from the Museum’s collection. “We started with the Wright Flyer in 1903, the one that kicked it all off,” Othoudt explains. “Then, it was a kind of rapid expansion from there. We get into rotary engines in pre-WWII, inline engines like the Liberty L-12, and radial engines.

Patrick Kam, Exhibits Manager, says that the 3D elements his team created for the exhibit illustrate the rapid expansion of engine design. “The engines were laid out chronologically, starting with a copy of the Wright engine and ending with the Pratt and Whitney J-58, which powered the SR-71. We wanted the layout to work in conjunction with the timeline graphic mounted on the wall. We also wanted the furniture decks containing the interactives to resemble pistons from an engine. I used the predominate shape which was the circle or cylinder to influence the furniture design.”

And unlike most of the artifacts already in the Museum, the engines on display in This Way Up are interactive. One can touch the valves, levers, and pipes that make up the manifolds in order to gain a basic understanding of how internal combustion engines work. After walking through the Boeing 777 jet inlet, visitors are immediately introduced to a cutaway piston that shows how an engine works as the crank is turned and lights beneath the glass indicate where the spark plug ignites the engine. In another display, buttons can be pressed to see the difference between piston movement in inline and radial engines.

In addition to the hands-on, interactive component of the exhibit, the timeline on the back wall illustrates major milestones in the history of powered flight. Othoudt adds that, “Shannon McCafferty, our contract graphic designer, did a good job of using the background graphics in the timeline to show schematic designs of engines throughout history so people can see how they changed over time.” Given the smaller amount of space that the team had to work with, the timeline is a novel way to extend the story of engine development beyond the artifacts on display.

But it’s not just hands-on experiences with real engines and fun interactive displays that make This Way Up worth a visit. It’s the stories behind the engines themselves, and every story is different. Some, like the Liberty L-12, were conceptualized and designed very quickly. Automotive engineers Elbert Hall and Jesse Vincent met in Washington, DC on government orders and designed the Liberty L-12 in a hotel room in five days. By contrast, Hans von Ohain took several years to develop the Junkers Jumo 004. He theorized the concept of the Jumo jet engine before completing his PhD in 1935, and the Jumo 004 was first tested in 1940. The Jumo was the primary aircraft engine of World War II. This Way Up is open in the T.A. Wilson Great Gallery until May 2020.
BRITISH AIRWAYS CONCORDE, G-BOAG (or “Alpha Golf”) made its retirement flight on November 3, 2003. It was a 3-hour, 55-minute, 12-second record-setting journey from New York City to Seattle, and ultimately into our collection. The last-ever Concorde flight was a few weeks later, bringing an end to the 27-year era of supersonic commercial airline travel. To some travelers, Concorde seems as warmly remote as Camelot, a congenial spot in aviation history, never since equaled, forever special.

Last June a group of Concorde enthusiasts and former Concorde engineers from the UK visited Alpha Golf during a leg of their quest to see all of the Concordes. Leading the troop was Paul Evans, author of the book, The Last Concorde. He flew on our plane in 2003, and I asked him what it was like.

Evans explained that the experience began with check-in at London Heathrow airport’s exclusive Concorde desk, then it was off to the Concorde Lounge for food and drink. The adjoining Molton Brown Spa offered showers, massages, and other indulgences. The lounge overlooked the tarmac, where all could see their plane, G-BOAG, towed into place directly in front of them. Soon another Concorde was stationed next to it, just in case Alpha Golf had a last-minute glitch.

When it was time to board, you entered through frosted glass doors embossed with the Concorde Speedbird logo. You might have to duck through the plane’s door, but Paul maintains that even for a big guy like him the stylish Conran Blue Connolly leather seats offered ample legroom and space.

As the plane taxied for departure, the Captain welcomed the passengers over the intercom and told them what to expect during takeoff and the beginning of the flight. Most of the passengers were on their first Concorde journey. The Captain’s microphone was also patched into Heathrow airport’s exclusive Concorde desk, then it was off to the airport tower, so all could hear “Speedbird Concorde 002, you have clearance, “ followed by “three, two, one—Now!”

The takeoff was “unlike anything you would experience on a conventional jet,” Paul said. “It was Concorde Class, the best of the best. Vintage wines from its own wine cellar, and the finest cuisine. I had a prawn and crab starter with caviar, followed by filet steak and a chocolate dessert with cheese board.”

“On board you simply did not notice the speed at all, and as you were flying so high there was no turbulence.”

Paul added that he only felt the speed was when the plane quickly passed other airliners cruising miles below them. And those small windows? They offered a big, big view. “The Earth’s curvature was clearly visible as the sky above took on a much darker shade of blue.” The onboard service was unique. “This wasn’t Business Class, or First Class, it was Concorde Class, the best of the best. Vintage wines from its own wine cellar, and the finest cuisine. I had a prawn and crab starter with caviar, followed by filet steak and a chocolate dessert with cheese board.”

This was one of the last Concorde flights, and the atmosphere onboard was bittersweet and festive. “Many of the passengers cashed their savings, took out loans or maxed their credit cards for this once in a lifetime trip.” Everyone was given a signed Concorde certificate as the plane descended to John F. Kennedy airport in New York City. “It was without a doubt one of the greatest experiences of my life, and without question the best flight I ever have or will have in my lifetime. It was Concorde, and nothing has come close before or since. The only downside was it was all over too quickly!”

Not every Concorde passenger may agree with Paul’s tale, but some people choose not to believe in Camelot either. See the Museum’s Concorde, G-BOAG on the next page.

MUSEUM MUSINGS

Happily-Everaftering
In Concorde

BY: TED HUETTER, SENIOR MANAGER, PUBLIC RELATIONS AND PROMOTIONS

What it was like.

On November 14, 1910 Eugene Ely (pictured left) completed the first successful take-off from a ship. Ely’s short flight from the light cruiser USS Birmingham was originally conceived by Navy Captain Washington I. Chambers, who set out to prove that landings and take-offs from a ship were possible. Ely flew a Curtiss Pusher aircraft from the cruiser about 2.5 miles away to a stretch of land in Norfolk, Virginia called Willsoughby Spit, but he barely made it. Peter Jakab, Chief Curator of the National Air and Space Museum, notes that the Curtiss at first rolled off the platform and skipped off the water, damaging the propeller. Despite his rocky first flight, Ely paved the way for a new age of aircraft carriers and naval aviation.

I vividly remember being pushed hard against my seat as we hurtled to 250 mph as we rotated (wheels off the ground), and took off at a very steep angle of attack. Then, around 30 seconds after takeoff, it was three, two, one, and then! The re-heats (afterburners) were turned-off and the rush of acceleration and noise ceased, and Concorde became like any other commercial aircraft as it cruised sub-sonically at Mach 0.95. Soon the crew distributed menus and the first of many glasses of Krug Champagne and canapés. As Alpha Golf passed over the South Coast of England, the afterburners were put back on in pairs and “you felt two small nudges in the back of your seat as the extra raw power kicked-in and Concorde accelerated through the sound barrier.” The afterburners were maintained until around Mach 1.7, then turned off as Concorde continued to accelerate to Mach 2, cruising 11 miles high (twice the altitude of conventional airliners). “On board you simply did not notice the speed at all, and as you were flying so high there was no turbulence.”

“On board you simply did not notice the speed at all, and as you were flying so high there was no turbulence.”
The Museum's Concorde, registration code G-BOAG, is referred to as "Alpha Golf." PHOTO: FRANCIS ZERA
90 Years of the Ninety-Nines

IN 1929, A GROUP OF WOMEN pilots banded together to support each other’s pursuit of flight during a time when men dominated the industry and held gatekeeping roles at flight schools and military institutions. Amelia Earhart, one of the founding members, would go on to set world aviation records, and other women in this group embarked on their own journey in aviation history. Out of the 117 women who gathered on November 2, 1929 at Curtiss Field in Long Island, 99 went on to become charter members, thus giving rise to the Ninety-Nines, as well as recreational pilots.

As the Ninety-Nines celebrate its 90th anniversary this November, it has many accomplishments to look back on. According to its mission statement, the Ninety-Nines’ goal is to “promote the advancement of aviation through education, scholarships, and mutual support while honoring our unique history and sharing our passion for flight.” One way that the organization does this is through providing scholarships in the Amelia Earhart Memorial Scholarship Program. From 1941 to 2017, the Ninety-Nines have awarded more than 500 scholarships for flight training, academic study, technical training, emergency aviation training. The Ninety-Nines also offer the Kitty Houghton Memorial Scholarship, which supports women in underdeveloped countries who wish to pursue a career in aviation in their home country.

With members in over 40 countries, the Ninety-Nines’ global reach ensures that women all over the world have opportunities to pursue their dreams of flight. Members of the Ninety-Nines include pilots for airline, industry, and tailwheel training at CP Aviation at Santa Barbara, California. According to close friend Deb Jennings, Olsen felt fortunate to be “in the right place at the right time to get to fly the best, fastest planes produced in WWII.” Olsen loved to shop and wear the best clothes; she also loved making homemade meals for Deb and sharing stories about what it was like to be a WASP. She told a few of these stories during her 100th birthday party at McCord Air Force Base, where she joined other women pilots for photos and press interviews. After Olsen passed, her story was covered by national news outlets like The Seattle Times, as well as The Seattle Times and AOPA News. Her memory lives on in the menemere school for that type of training,” says Caywood.

Another opportunity arose for Caywood and her Sugusalsang Ninety-Nines Chapter in 2009. “The air race classic asked if we were interested in hosting the terminus of the race in Frederick, Maryland. Caywood and her Sugarloaf Ninety-Nines Chapter in 2009. “The air race classic asked if we were interested in hosting the terminus of the race in 2010. Without that connection to the Ninety-Nines, I would have never known about the air race, and in 2010 ended up being the terminus chairperson.”

Women like Caywood have benefitted from being involved with the Ninety-Nines during its 90-year history, but there’s more work to be done. “Women now compose approximately 7% of the pilot population,” says Caywood. “So there are going to be more challenges and opportunities to tackle during the next 90 years to see more gender parity in aviation.”
BOOK RECOMMENDATION
The Astronaut Who Painted the Moon
By: Dean Robbins
Illustrated by: Sean Rubin
Journey to the Moon on the Apollo 12 mission with Alan Bean, the fourth astronaut to walk on the lunar surface and the only artist to paint its beauty firsthand!
When Alan returned from his mission, he began to paint what he saw. Alan's paintings showed audiences on Earth what it truly felt like to walk on the Moon. Journalist and storyteller Dean Robbins tells a masterful tale about Alan's experiences, and artist Sean Rubin illustrates the whimsical and surprising nature of Alan's art. With back matter that includes photos of the NASA mission, images of Alan's paintings, and a timeline of lunar space travel, this is one adventure readers won't want to miss!
MEMBER PRICE: $15.29
Available in the Museum Store and online at museumofflightstore.org

Rudolph the red nosed….rocket? This holiday-themed model rocket is part of the Harry G. Stine Model Rocket Collection. It is a sport model that was built using a combination of MPC, Estes and Quest model rocket parts. It has an 18mm engine and an interior parachute recovery system. Dating the model is difficult since it is made from a variety of manufacturer’s parts. One thing we do know, is that this is the most festive model rocket in our collection! The Rudolf was donated to the Museum in 2013 by George W. Stine.

Jumble
Unscramble the jumbles below, one letter to a square, of words related to space flight. Then rearrange the six circled letters to find the answer to the cartoon’s riddle!

INEGNE
FFTOIFIL
HCNULA
NWODTNUOC
KSPRKA
IFRE

This launches spacecraft into space!

Answers on page 25.

SANTA’S FLY-IN
Santa and Mrs. Claus arrive in an airplane at 9:45 a.m. and then listen to children’s wishes in the Museum until 2 p.m. The Boeing Concert Orchestra and the Boeing Band will provide holiday music, and children’s music legend Caspar Babypants performs from 2 p.m. to 2:45 p.m. under the nose of the Blackbird. Outdoor event is free, indoor events included with Museum admission.
PARKING LOT, T.A. WILSON GREAT GALLERY/SIDE GALLERY
Saturday, Dec. 14 | 9 a.m. to 2:45 p.m.

Don’t miss Caspar Babypants at 2 p.m.!
Erika Tedin

BY: STEVE DENNIS, VOLUNTEER

was a JAG officer and her mother was a Korean War-era intelligence officer. Erika grew up loving the Blue Angels and all things aviation, so she was thrilled when, in 2011, she met a Harrier mechanic at Seafair who arranged for her to get up close to the Blues. To this day, her most cherished possessions are photos of her and her husband standing by Fat Albert, Blue #6, and the Harrier. Erika brings her passion for aviation to the Museum and likes to share her enthusiasm with younger guests. One of her favorite trials is letting kids try to break a dog-tag sized wafer of aircraft-grade carbon fiber that she wears on her lanyard. No kids have been able to make a dent in it, and the experience gives the young ones a new appreciation for the tough materials that constitute the 787 Dreamliner.

When Erika’s not at the Museum, she loves driving her three different sports cars: a 1979 MGB, a 1991 Toyota MR2, and a 1999 Mazda Miata. She also has a voracious reader and film-lover. This past year she watched 125 films in six weeks during the Seattle International Film Festival.

The APOLLO exhibit how it looked in 2017./THE MUSEUM OF FLIGHT

THE TRAVELING EXHIBITION Destination Moon. The Apollo 11 Mission left along with the summer sun on September 2. The celebration of the 50th anniversary of the first Moon landing was a tremendous success and an unparalleled moment in the Museum’s history. However, just as the Moon landings did not end with the first, the Museum is not done celebrating humankind’s most epic adventure. This November, we will reopen our permanent APOLLO exhibit just in time to celebrate the landing of Apollo 12, the second Moon landing.

Apollo 12 launched on November 14, 1969 and headed to the Moon’s Ocean of Storms region carrying Commander Charles “Pete” Conrad, Command Module Pilot Dick Gordon, and Lunar Module Pilot Alan Bean. The mission’s destination was a particular spot called Surveyor Crater, named for the small robotic lander sitting in its belly. In addition to being the second mission to land astronauts on the Moon, Apollo 12 was the first Moon mission to make a pinpoint landing. Future Apollo missions were planned for rougher, more geologically interesting terrain. By landing just a few hundred feet from the Surveyor 3 spacecraft, Apollo 12 proved that these later missions could be completed safely. Apollo 12 holds a special significance as many of our Apollo artifacts, including our Saturn V F-1 engine and our Moon rock, come from that second landing. Therefore, it is a natural fit as one of the focal points for the exhibit.

Thank you to our community partners for their ongoing support!

Volunteer Erika Tedin poses with a “Rosie” at the B-17 in the Aviation Pavilion./JACQUE CALAHAN

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but certainly not least, we will include a display dedicated to the Conrad Challenge, an educational program founded by Nancy Conrad, the wife of Apollo 12 commander, Pete Conrad. The Challenge firmly links Pete's legacy from Apollo with the future. Like the Apollo 12 mission he commanded, Pete Conrad is also closely tied to the Museum's history. Many of the Apollo-era artifacts we have on display originally belonged to Pete. They were first part of the Museum’s long-term space exhibit, Rendezvous in Space, which was installed in 2000 shortly after Conrad's untimely death. Pete Conrad's story acted as a biographical through-line for Rendezvous in Space. When we first opened the APOLLO exhibit in 2017, we strove to honor that legacy by once again making him a star character—and what a character he was! His widow, Nancy Conrad, sums him up succinctly: "He was an original."

In 1962, Pete Conrad was selected as part of NASA's second class of astronauts, known as the "Next Nine." An accomplished naval aviator with a degree in aeronautical engineering from Princeton, Conrad was known for his colorful personality and sense of humor. Conrad's astronaut career spanned the Gemini, Apollo and Skylab programs resulting in a total of four spaceflights. He set space endurance and altitude records during his flights on Gemini V and XI before serving as commander of Apollo 12. On his final mission, he served as commander of Skylab, America's first space station.

Pete's storied career did not, however, start as you might expect. As a young man growing up in Philadelphia, Pete Conrad struggled in school. Though he excelled at mechanical tasks, Pete had dyslexia, which would not be recognized as anything more than a problem of education for decades to come. When he was 16, Conrad was expelled from the very traditional Haverford School, where he was perceived as a poor student. He relocated to the more hands-on Darrow Boarding School in upstate New York. There, he had to repeat the 11th grade. At Darrow, he made an amazing turnaround. By the time he graduated in 1949 on a Navy scholarship to Princeton, Pete made the honor roll, was elected class president, and despite being the smallest guy on the squad, became captain of the football team.

Today, Nancy Conrad chairs the Conrad Challenge, "an annual innovation and entrepreneurship competition that encourages young adults to participate in designing the future." In creating the Challenge, Nancy strives to replicate the opportunity Pete received when he went to Darrow. In her own words, "When Pete got thrown out of Haverford, the headmaster at Darrow recognized something in him and took him under his wing, and he got a moonshot. That's what happens when a kid gets taken under an educator’s wing—

they get a moonshot." The Conrad Challenge tasks teams of students with creating business plans designed to address major future-focused challenges on the topics of aerospace and aviation, health and nutrition, cyber-technology and security, and energy and the environment. Much like Darrow did for Pete, the Challenge reveals to students that their ideas matter, and that they are the ones in charge of deciding the future.

Earlier this year, the winning plans from the latest Challenge were launched to space on a disc carried aboard Blue Origin’s New Shepard spacecraft. The disc, along with a video describing the project, will be added to the Apollo exhibit to recognize the Challenge's connection to the legacy of Pete Conrad and Apollo. That legacy, as Nancy puts it, is about being "on the pointy end of the future." Pete Conrad’s involvement in the future of space did not stop with his final mission in 1973. During his later career, he worked on the McDonnell Douglas DC-X program, which proved the rocket-powered vertical takeoff and landing technology now being used on vehicles like New Shepard to revolutionize access to space.

Pete Conrad’s story and his legacy represented by the Conrad Challenge link the past achievements of Apollo with the promise of tomorrow. As we remember the pinpoint landing of Apollo 12 this November, we should also strive to be on the pointy end of the future.

OPPOSITE: Pete Conrad examines the Surveyor 3 spacecraft on the Moon. The Apollo 12 lunar module stands on the horizon. CREDIT: NASA
ON AUGUST 25, WE HOSTED our first ever Space Art Day, which featured space-themed activities, art displays, virtual reality experiences, and a film screening. Young artists, ages 5-17, from around the Seattle area submitted their art works to be displayed in a show from August 23 to 25. Approximately 50 participants submitted their ideas for Space Art Challenge, but only 18 were chosen to show their work to Museum visitors. After visitors enjoyed the Art Show, they created their own astronaut screen-prints with Barry the Art Guy, who custom-made a stencil specifically for Space Art Day. Visitors also collaborated on a virtual reality community art piece using Vive Pro software and the Tilt Brush app, which resulted in the creation of a virtual world in space. In the afternoon, over 100 audience members enjoyed a screening of the documentary Chesley Bonestell: A Brush with Dreams, our partner at the Centrair airport in Nagoya. While in Nagoya, they will likely run into our outreach team of Arthur, Jema, and Eemay in the 5-8 age category. This drawing was created by Eemay in the 5-8 age category. Range credit: Ted Huetter

CALL FOR ENTRIES! Now kids can show their spirit of flight! Young photographers are invited to submit their photos for our first-Ever Spirit of Flight Junior competition and exhibition. "Flight" is not just planes and birds—show us your unique perspectives on the "spirit of flight" and your photo may be selected and featured in the Junior exhibition! Open to kids age 5 to 17. Entries are due March 31, 2020. For more details and information, please visit museumofflight.org.

A Global Tour of Our Education Programs

As the foremost educational air and space Museum in the world, it is not at all a surprise that a number of our education staff are traveling during October to implement trainings and programs with audiences far afield. Three museum educators are heading to Juneau to deliver astronomy education programs with local schools and libraries, conduct teacher training, and even run shows at the Marie Drake Planetarium. Another group of educators are off to Nagoya to run the second part of program training with staff from the Flight of Dreams, our partner at the Centrair airport in Nagoya. While in Nagoya, they will likely run into our outreach team of Arthur, Jema, and Eemay in the 5-8 age category. This drawing was created by Eemay in the 5-8 age category. Range credit: Ted Huetter

A Global Tour of Our Education Programs

The Museum is proud to announce some major upgrades to our digital-collections website, now located at digitalcollections.museumofflight.org. For the past several months, we have been transitioning from our previous web platform to a more robust version of the software. Our repository of digitized items has grown by leaps and bounds since we first launched it in 2016 to showcase our digitized World War I materials, and we found ourselves in need of a better way to present our digital images to researchers. Back in May, the Archives Team and IT Department took on the challenge of upgrading to a more advanced version of our digital platform. This involved setting up a web server, importing our digitized files and metadata records, and restructuring the site to better fit our needs. This was no small feat, but it was well worth the effort for the increased functionality. We have been able to redesign the look and feel of the site and implement new features that make our records easier to search and browse. Those who used the previous version will notice several improvements: better layouts for records, enhanced displays for files, more powerful search tools, and themed "collections of collections" based around popular research topics, such as World War I, the Vietnam War, and oral histories.

Top left: One of the winners of the Space Art Challenge shown on Space Day, August 25, 2019. This drawing was created by Eemay in the 5-8 age category. Range credit: Ted Huetter.
Rose Southall: Investing for Impact

BY: JEAN PICA-PARKER, MAJOR GIFTS OFFICER

IT IS IMPORTANT FOR ROSE SOUTHWELL to see results. It’s one of the reasons she invests in The Museum of Flight. According to Rose, “I like to support organizations that will have a lasting impact. I want my investment to pay dividends.” Rose sees those dividends at the Museum when she sees families enjoying its many features. She says, “Every age is appreciated here. For the older people, it brings back memories; for the young ones, it’s education.”

Education is very important to Rose. She was a trailblazer as a college student at the University of Alberta in the 1960s. She earned her undergraduate degree in math and went on to receive her master’s degree in the burgeoning field of computer science. This was back when computers were so large they occupied entire rooms! Her education and her community, and she demonstrates it through her generosity. Rose keeps a spreadsheet of organizations she supports, a record that she and Jack developed to track their donations to education, health and human services and the arts. The Museum of Flight is among her giving priorities.

Today, The Museum of Flight is grateful to Rose Southall for continuing to invest in its vision to be the foremost educational air and space museum in the world.

Rose says she is happy to make an impact on the Museum’s vision. She believes it fits into her giving philosophy which she beautifully describes through an adapted quote from AARP Founder Ethel Percy Andrus: She notes: “What we have spent is gone, what we have kept is lost, and what we invest in others is ours forever.”

In Memory

In memory of Richard (Dick) A. Anderson
Lauretta Anderson
In memory of John L. Bailey, Jr.
Sandra Hagopian
Maurine and Hoder
Jian E. Staiger
In memory of William J. Bains, Jr.
Bruce R. McCaw Family Foundation
In memory of Robert E. Bateman
Milland and Martha Battles
In memory of Donald V. Birdall
Dave and Carla Birdall
In memory of Peter M. Bowers
John Miller
In memory of Paul (Bill) V. Byrne
Judy Byrne
In memory of Barry J. Crider
Barbara Crider
In memory of Daniel J. Daley
John M. and Nancy J. Daley
In memory of Claire L. Egtvedt
Clare and Nikolai Egtvedt
In memory of E. Peter Garrett
Bruce R. McCaw Family Foundation
In memory of Robert J. Gilliland
Paulo Clark
In memory of Christine (Chris) Helberg
John Purvis and Nancy Wright
In memory of Lowell Houtchens
Marlene Taylor Houtchens
In memory of Sidney L. Hutchinson
Judith Hutchinson
In memory of David K. Idler
Laura Idler
In memory of Richard (Dick) D. Iversen
Leland Daves
In memory of James M. Jones
Mary R. Jones
In memory of R. William (Bill) Jury
Jo Jury
In memory of George M. Kau
Peggy A. Kau (Margaret A. Kau)
In memory of James F. Kittleson
Dorothy Kittleson

In Honor

In honor of All Armed Forces Veterans
Roberto and Lourdes Monnat
In honor of Alison Bailey
Bill and Marjorie McCutcheon
In honor of Eric Betten
Bill and Marjorie McCutcheon
In honor of the Residents of Chateau Retirement Communities
Chateau at Bothell Landing
In honor of Jeff Frinco
Bill and Marjorie McCutcheon
In honor of R. Byron Fuller
David W. Allen
In honor of Rosemarie (Rosie) Gran
Bill and Marjorie McCutcheon
In honor of Hy Greenspan
Eliot Rosenberg
In honor of Fenton Kraft
Bill and Marjorie McCutcheon
In honor of Bruce and Neoma Lawson
Paul and Margo Harvey
In honor of Seth Margolis and the entire Education Team
Richard and Dianne Amsden
In memory of Barry J. Crider
Robert J. Gilliland
In memory of Richard (Dick) E. Wallace
Oliver R. Crawford

In Memoriam

Barbara J. Anthony
Charles H. Atterbury
John L. Bailey, Jr.
Corinne S. Barneich
Clarence A. Borley
Ronald B. Cairns
Oliver R. Crawford
Barry J. Crider
William H.C. Critch
Melinda J. Cutter
Anne S. Derrick
Jane W. Dowdell
Bernard A. Gregory
Alfred C. Haynes
Christine Hellberg
Baron Hilton
Eugene M. Hughes
James A. Ingram
David Kemie
Christopher C. Kraft, Jr.
George F. Kumpel
Marilyn C. Lamoine
Frances A. Lombardo
Doreen F. Marchione
Gary M. Moon
Veigl Morgan, Sr.
Alane Morel
Umesh L. Nisargand
Dorothy K. Olsen
Cheryl A. Partington
R. Stewart Phelps
Eduardo I. Pina
Wayne H. Rosenberg
Earl D. Space
Thomas R. Stephenson
Donald L. Taylor
William F. Toole
Janurta Van Demoore
Frank Vandermeer
Richard E. Wallace

Stow Southwell photographed by the Fulcrum Foundation

POWER OF GIVING

Not sure what to give that special person? THE GIFT OF HONOR IS ALWAYS APPRECIATED!

Consider a gift of honor with a Tribute Gift to The Museum of Flight. Or remember someone’s legacy with a Memorial Gift. Make a gift of honor between Nov. 15 through Dec. 31 and we’ll send your honoree a special holiday greeting card.

Gifts may be made online at museumofflight.org/donate, by check (to: The Museum of Flight, 9404 E. Marginal Way S., Seattle, WA 98108) or by phone to Dana Flamengo at 206.768.7134 (Monday through Friday). Your honoree will be notified of your appreciation (unless you donate anonymously).

All tribute gifts will be listed in the Museum’s bi-monthly Aloft magazine. “Card will be sent within four business days.

In memory of Mary H. Lippi
Joseph Lippi
In memory of George E. Luck
Jeff and Kira Wiper
In memory of Charles A. (Chuck) Lyford
Dana Dilgand
In memory of Jean Maurer
James Maurer
In memory of Dorothy K. Olsen
Jane Johnston
In memory of Sarah Parke
Charlie Nichols
In memory of Joan Paylor
Rick Paylor
In memory of George L. Petsof, Sr.
George Petsof
In memory of William J. Rademaker
Bruce R. McCaw Family Foundation
In memory of the War Dogs who bravely served us during the Vietnam War
Richard Loeve

In Honor

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In honor of Alison Bailey
Bill and Marjorie McCutcheon
In honor of Eric Betten
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James A. Ingram
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George F. Kumpel
Marilyn C. Lamoine
Frances A. Lombardo
Doreen F. Marchione
Gary M. Moon
Veigl Morgan, Sr.
Alane Morel
Umesh L. Nisargand
Dorothy K. Olsen
Cheryl A. Partington
R. Stewart Phelps
Eduardo I. Pina
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VETERANS DAY CELEBRATION

Monday, Nov. 11

The Museum of Flight recognizes Veterans Day with a short musical performance by the Boeing Employees Concert Band and ceremony at noon featuring a color guard, keynote speaker, and speeches from local city and Museum officials.

American Fighter Aces Association presents:
“That Others May Live” Search and Rescue in Vietnam
A-1 Skyraider (“Sandy”) Pilots Rick Drury and Tom Dwelle join HH3E “Jolly Green” helicopter pilot Jim Platt to discuss daring air combat rescue operations during the Vietnam War. | 2:30 to 4 p.m.

FREE Admission on Nov. 11 for all Veterans and active duty military! Full schedule and details online at museumofflight.org/Calendar.

Army Veteran to receive FREE car!

Representatives of Marysville Ford, Wells Fargo and Military Warriors Support Foundation will present a payment-free vehicle* to retired U.S. Army Sergeant Matt Watters in honor of his service and sacrifice.

*Vehicle donation made possible by Marysville Ford and Wells Fargo through Military Warriors Support Foundation’s Transportation4Heroes program.