

# BRIEFINGS



September 2019

## HILLER AVIATION MUSEUM WHERE INSPIRATION TAKES FLIGHT

### THE FUTURE OF FLIGHT

#### FLIGHT TRAINING DEVICES AND PILOT RECRUITMENT

by Jon Welte

**T**he training and preparation of new pilots has been an essential function since the dawn of modern aviation. Orville Wright's triumphant first flight on December 17, 1903, could be attributed in part to his brother Wilbur's crash in the same aircraft just three days earlier. When Wilbur first took the controls of the Flyer on December 14, he had no flight instructor upon whom to rely. The original 1903 Flyer was unstable in pitch, leading Wilbur to over-rotate and stall the airplane. When Orville's turn came on December 17 Wilbur shared his experience, making it possible for Orville to succeed.



*Link Trainer*

World War I thousands of new pilots were needed. Inexperienced young men were sent aloft in aircraft perilously flimsy even by the standards of the day. More pilots were killed in accidents than by enemy fire. The French Air Force sought to limit the carnage by having cadets pilot Bleriot monoplanes with clipped wings that were unable to fly. These "penguins" gave new pilots a workout, forcing them to learn how to operate the systems and controls of their airplanes on the ground. Only when pilots demonstrated sufficient control could they operate flying aircraft.

In 1929 Edward Link transformed flight training with the first flight simulation device. Repurposing technology used in his parents' organ company, Link developed a simulator known as the Link Trainer. The student sat within an enclosed cockpit that was moved by pneumatic bel-



*Penguin Airplane With Students at Hiller Aviation Museum*

Pilot training evolved in a haphazard manner during the early years. Nonetheless, with the onset of



#### OPEN COCKPIT

SATURDAY SEPTEMBER 14 • 10AM-2PM



#### HALLOWEEN HAUNTED HANGAR WEEKEND

Sat Oct 26, 5:30PM-9PM  
Sun Oct 27, 10AM-12PM



SATURDAY OCT 12 • 6PM - 11PM  
SEE PAGE 7



Smithsonian Institution  
Affiliations Program



lows similar to those in pipe organs. Within the cockpit the student pilot used electrical and vacuum powered instruments to fly under simulated instrument conditions. An instructor sat at a desktop station and used a separate set of controls to simulate navigational aids, radio communications, and instrument failures. Widely used during World War II, over half a million military pilots trained in Link devices.

Commercial aviation grew tremendously after World War II. Pilot recruitment was not a serious challenge at first as military flight training programs had produced hundreds of thousands of skilled pilots and released them into civilian life. Many were happy to seize an opportunity to continue their piloting careers in peacetime. By the 1990s, however, the nature of pilot training had changed dramatically. Deregulation of the US airline industry caused demand for airline service to triple between 1975 and 2010. Concurrently, the end of the Cold War in the late 1980s significantly reduced the number of pilots being discharged from the military. Airlines increasingly sought to recruit new pilots from civilian flight training programs to fill out their ranks.



*Girls' Aero Team and Hiller Museum flight simulators.*

The civilian pathway to reach the “front office” of an airliner involves pursuit of a number of different certificates and ratings. Student pilots must secure a series of pilot certificates from the Federal Aviation Administration, most commonly



Private Pilot, Commercial Pilot, and finally Airline Transport Pilot (ATP). Each certificate requires completion of a ground-based course of instruction to learn relevant knowledge, a set number of hours of flight training, and a successful practical test (“check-ride”) demonstrating to an examiner that the candidate is able to execute a required set of maneuvers. Potential airline pilots must also master the skills needed to secure additional ratings for instrument flight and operations in high performance and multi-engine airplanes.

Up until reaching Commercial Pilot, the accumulation of flying time is entirely at the student’s expense. Once Commercial Pilot is reached, a pilot may fly for hire in a variety of roles (most commonly as a Certified Flight Instructor) while continuing to accumulate flight hours needed for additional ratings and certificates. The road to ATP is a long and expensive one, which has served to limit the number of student pilots entering the “pipeline” each year.

Since the onset of the 21st century, air travel has begun to blossom worldwide at much the same rate it did in North America a few decades earlier. Between airline growth and pilot retirements, nearly a million new airline pilots are expected to be needed around the world over the next twenty years. Current military and civilian training programs are not on pace to produce this number of trained aviators, leading to a series of efforts to bring new candidates into the fold.

The Hiller Aviation Museum has long been a repository of flight simulation

history and expertise. It displays a recreation of a 1930-era Penguin airplane and an authentic pre-war Link Trainer. Since 2008 its Flight Sim Zone has made quality flight simulation available to the public, and a Redbird FMX full motion flight simulator was added in 2015.

The Hiller Aviation Museum likewise seeks to boost awareness of and interest in aviation careers among young people. Over 10,000 students visit the Museum each year on school field trips, and more than 1,400 attend Aviation Camp. In July 2019 the Hiller Aviation Museum hosted the first ever Girls’ Aero Team, a special initiative funded by the JetBlue Foundation, providing middle school girls with with a week-long adventure in flight, sparking imagination about aviation and STEM careers. Featuring a special presentation by JetBlue Technology Ventures CEO and JetBlue Airlines captain Bonny Simi, Girls’ Aero Team is just one of many forms of outreach underway today to ensure a steady stream of enthusiastic and capable pilot candidates to meet the world’s growing need for aviators now and well into the future.



*JetBlue Technology Ventures CEO  
Bonny Simi*

### *Resources*

<https://www.link.com/about/pages/history.aspx>

<http://neam.org/lafayette-escadrille/training.html>

<https://www.simulationinformation.com/education/early-history-flight-simulation>

HILLER AVIATION MUSEUM PRESENTS



# WAY UP HIGH

15TH BENEFIT GALA

Saturday, October 19, 2019

**5pm** ▸ Cocktails ▸ Silent Auction

**6:30pm** ▸ Dinner ▸ Live Auction

**Keynote by ADMIRAL JAMES O. ELLIS JR., USN (Ret.)**

Annenberg Distinguished Fellow, Hoover Institution  
Chair of the National Space Council Users' Advisory Group

**BENEFITING THE MUSEUM'S AVIATION AND STEM EDUCATION PROGRAMS**



HILLER  
AVIATION  
MUSEUM

- Individual Ticket **\$300**
- Table of 10 Sponsorships  
**\$15,000 ▸ \$10,000 ▸ \$5,000 ▸ \$3,500**

- Questions?  
Contact **Rebecca Duran**, VP of Development: 650-654-0200 x203 / [duran@hiller.org](mailto:duran@hiller.org)

**Tickets, Sponsorships, Donations ▸ [www.hiller.org/gala](http://www.hiller.org/gala)**



# EDUCATION PROGRAMS FALL

## AVIATION CAMP

### FALL/WINTER AVIATION CAMP • SPECIAL HOLIDAY PROGRAMS

NOVEMBER 2019 – JANUARY 2020 • 9 AM – 4 PM  
(EXTENDED HOURS AVAILABLE)

Take flight this holiday season at Aviation Camp! Build and fly model aircraft, take on challenging flight simulations, explore Museum aircraft and more .

#### X-PLANE PILOT

NOVEMBER 25-29

#### DRONE ZONE

DECEMBER 20

#### WRIGHT FLIGHT (K-5)

DECEMBER 23

#### FLIGHT & MOTION (K-5) FLIGHT SIMULATION ACES (5-8)

DECEMBER 26-27

#### PHYSICS FLYERS (K-5)

DECEMBER 30

#### AERO BOT INVENTORS (K-5) ENGINEER'S WORKSHOP (5-8)

JANUARY 2-3

#### DRONE ZONE

JANUARY 6

Visit [www.hiller.org](http://www.hiller.org) for complete program descriptions, registration forms and additional information. We'll see you there!



## PUBLIC EVENTS

### FAMILY SUNDAY PROGRAMS, FALL 2019

Special family events make Sundays fun days at the Hiller Aviation Museum! Each features hands-on activities just for kids, ranging from drone flights and paper planes to design challenges and airplane painting. Visit [www.hiller.org](http://www.hiller.org) for more information on each event.

#### DRONE MEET • AGES 8+

SEPTEMBER 22, NOVEMBER 10

1PM – 4PM

#### FLIGHT SIM RALLY • AGES 8+

SEPTEMBER 8, OCTOBER 13, NOVEMBER 17

2PM – 4PM

#### KIDS' CARNIVAL • ALL AGES

SEPTEMBER 29, OCTOBER 27 (HALLOWEEN), NOVEMBER 24

10AM – 12PM

#### STARLAB SKY SHOW

NOVEMBER 3

10:30AM, 11:30AM, 12:30PM

#### WATER ROCKET RALLY • AGES 5+

SEPTEMBER 15 • 11:00AM





# 2019

## AERO DESIGN CHALLENGE

OPEN TO GRADES 5-12

SCHOOL PROGRAMS

OCTOBER 28-30, NOVEMBER 4-6

9:30AM – 12:30PM

PUBLIC PROGRAM

SATURDAY, NOVEMBER 2 • 9:30AM – 12:30PM

Launch an adventure in design and engineering at the Aero Design Challenge! The Aero Design Challenge presents middle and high school students with unique design challenges intended to spur creative thinking and problem solving. This year, students design, build and test an air-powered rocket! There is no charge to participate, but space is limited and advanced reservations are required. Visit [www.hiller.org](http://www.hiller.org) for more information.



# President's Perspective

## FALL 2019



It's been an exciting summer at the museum! Aviation Camp soared with over 1,400 participants and a heavy focus on aviation science, bringing young people a bit closer to their dreams of flight with hands-on experiences that are unique in the Bay Area.

Behind the scenes, we are working on acquiring a portable classroom to provide additional

space for our education programs. The new structure will be erected in early fall, and will be located in the museum's rear ramp area. Improvements are also in progress for our Doyle Conference room and our Atrium Theater, including new AV systems to make those important spaces more effective. Also, new LED lighting is being installed in the exhibit/aircraft gallery which will allow us to individually highlight each aircraft and artifact.

The fabrication of our full-size replica of a Fokker Dr.1 Triplane, the "Red Baron," is nearing completion. You can watch the action every Tuesday and Thursday as skilled volunteers prepare the aircraft for final painting in a matter of a few short weeks. Unveiling will be in the fall of this year.

We welcome Nelson Baltazar as the museum's new Weekend Program Manager. He has already been a stalwart presence in the Invention Lab and Drone Plex on weekends but with this promotion Nelson will be able to apply more of his extensive background as a museum interpreter to our programmatic activities.

Thank you for supporting our mission to improve understanding of science and technology using aviation as a gateway. There are great things coming and we look forward to seeing you this fall at the Hiller Aviation Museum!

Jeffery Bass, President & CEO

## AERIAL TREASON

SATURDAY NOV. 9, 11 AM

PRESENTED BY ROY MIZE

Join us as Roy Mize spins a tale of "Aerial Treason", a story of spies, Sunset Magazine, the silver screen, and pioneer San Jose aviator Bob Fowler's 1914 "dance" with the U. S. Attorney General.

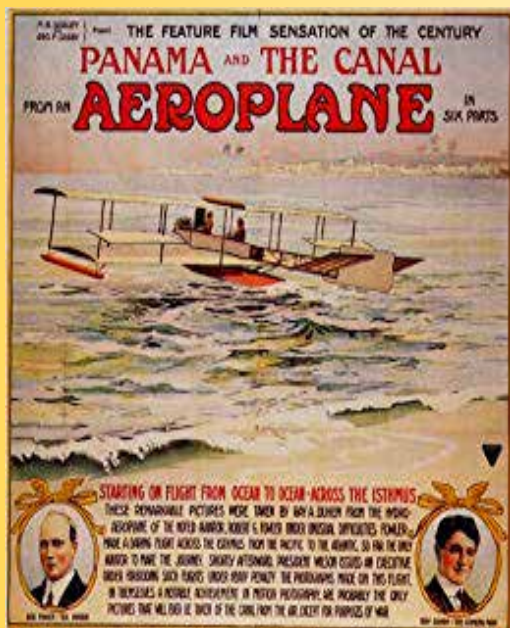
In April 1914, Sunset Magazine publisher Charles K. Field put his personal liberty and the future of his magazine on the line when he published pictures and a story and about the military defenses of the nearly completed Panama Canal.

The Attorney General of the United States charged Field and three other men as spies. Their efforts challenged the status quo for military defenses that protected coastal installations. The article's title

ignited a national firestorm: "Can The Panama Canal Be Destroyed From The Air?"

Roy Mize is an early aviation historian with a passion for forgotten stories of early aviation. In 1956 he enlisted in the Army and spent three years at the Army Air Defense School in Fort Bliss, Texas, working with computer control systems for ground-to-air missiles. After the Army he moved to what became Silicon Valley and over the next 40 years he worked at five advanced telecommunications research companies.

He holds three university degrees in business. He developed and taught one of the first online Web search classes for UC Santa Cruz in 1996/97 and has guest lectured on planning and scheduling concepts and on his avocation, early aviation history.





# HAUNTED HANGAR WEEKEND

SATURDAY OCT. 26 • 5:30 PM – 9 PM & SUNDAY OCT. 27 • 10 AM – 12 PM

## HAUNTED HANGAR PARTY

SATURDAY OCT 26 • 5:30PM – 9PM

Who says Halloween is just for kids? Fright takes flight at the Museum! Join ghosts, skeletons, witches and warlocks as darkness descends on the Museum on October 26. The Museum is transformed into a spooky (but not too spooky for the younger goblins) haunted hangar with creative Halloween decorations at every turn. Grab a drink or delicious dinner from Bone Yard BBQ and dance to the DJ music underneath the aircraft. Here are just some of the highlights of the night:

- TWILIGHT HELICOPTER PUMPKIN DROP
- NO HOST BAR
- DANCING IN THE MUSEUM GALLERY
- COSTUME CONTEST

Put on a costume and come to party. Little goblins are welcome too! Bring the whole family! Event is included with regular museum admission. Free to museum members.



## HALLOWEEN KIDS' CARNIVAL & PUMPKIN DROP

SUNDAY OCT 27, 10 AM – 12 PM

Visit the Hiller Aviation Museum this October for a frightful treat! Come in costume and see the Gallery decked out in its spooky Halloween decorations. Join the creepy carnival games to earn special prizes, meet our flying witch and sign her special Halloween pumpkin.

- HELICOPTER PUMPKIN DROP
- CREEPY GAMES AND PRIZES
- MEET THE WITCH AND SIGN HER SPECIAL HALLOWEEN PUMPKIN
- PAINT THE MUSEUM'S PAINT-A-PLANE ORANGE AND BLACK.

Join a spooky honor guard to accompany the witch to her helicopter before she takes off and splats the great orange gourd across the landscape below in a festive salute to the Halloween spirit! Event included with Museum admission.



## OPEN COCKPIT

SATURDAY, SEPTEMBER 14  
10AM-2PM

Who isn't fascinated with sitting in an aircraft cockpit? The Hiller Aviation Museum regularly provides access to aircraft in its exhibits. On Open Cockpit Days the doors swing open on many others, including the Boeing 737, Grumman HU-16 Albatross, Aero L-39 and more to provide a pilot's eye view of these iconic aircraft.



## SMITHSONIAN MAGAZINE MUSEUM DAY

SATURDAY, SEPTEMBER 21



Free admission all day for any person (plus a guest) who presents a Museum

Day Admission Card available in the September issue of Smithsonian Magazine, or visit [www.smithsonian.com/museumday](http://www.smithsonian.com/museumday) to download your Museum Day Admission Card. Each card provides museum access for two people (one Admission Card per household).





# CALENDAR

## SEPTEMBER

SUN, SEPT 8 • 2PM – 3:30PM  
Flight Sim Rally

SAT, SEPT 14 • 10AM – 2PM  
Open Cockpit

SUN SEPT. 15 • 11AM & 12PM  
Water Rocket Rally

SAT, SEPT 21 • 10AM – 5PM  
Smithsonian Membership Day

SUN, SEPT 22 • 1:30PM – 4:30PM  
Drone Meet

SUN, SEPT 29 • 10AM – 12PM  
Kids' Carnival

## OCTOBER

SAT, OCT 12 • 6PM – 11PM  
Peninsula Oktoberfest

SUN, OCT 13 • 2PM – 3:30PM  
Flight Sim Rally

SAT, OCT 19 • 5PM – 10:30PM  
Way Up High, Museum Gala

SUN, OCT 20  
Closed for Private Event

TUE, OCT 22  
Closed for Private Event

SAT, OCT 26 • 5:30PM – 9PM  
Haunted Hangar Party & Pumpkin Drop

SUN, OCT 27 • 10AM – 12PM  
Kids' Halloween Carnival – Pumpkin Drop

## NOVEMBER

SUN, NOV 3 • 10:30AM – 12:30PM  
Star Lab

SAT, NOV 9 • 11 AM  
Aerial Treason Presentation

SUN, NOV 10 • 1:30PM – 4:30PM  
Drone Meet

SUN, NOV 17 • 2PM – 3:30PM  
Flight Sim Rally

SUN, NOV 24 • 10AM – 12PM  
Kids' Carnival

THURS, NOV 28  
Closed for Thanksgiving

**GOURMET FOOD TRUCKS**  
WEDNESDAYS 11AM - 1:30PM

**FLIGHT SIM ZONE AND  
FMX FLIGHT SIM**  
WEEKENDS 11AM - 2PM

**INVENTION LAB**  
WEEKENDS 10:30AM - 4PM

**DRONE PLEX**  
WEEKENDS 1PM - 4PM

# Hiller Aviation Museum



German  
Food  
Brews  
Music  
and  
More!

**PENINSULA  
OKTOBERFEST**  
SATURDAY OCT. 12  
6:00PM - 11:00PM

Discount Tickets  
Available On-line

**Eventbrite**

Hiller Aviation Museum 601 Skyway Rd, San Carlos  
(650) 654-0200 \* [www.hiller.org](http://www.hiller.org)

## PENINSULA OKTOBERFEST!

**SATURDAY, OCTOBER 12**  
**NEW HOURS: 6PM - 11PM**



Oktoberfest is at hand! Over two hundred years after Crown Prince Ludwig and Princess Therese of Saxony-Hildburghausen wed, the Hiller Aviation Museum joins the celebration with a special Oktoberfest beer, music and dining event on **Saturday evening, Oct. 12.**



In honor of the great festival held in Munich each year, the Peninsula Oktoberfest will pour:

### MICROBREWS & SEASONAL BEERS:

#### GERMAN BEERS:

Hofbrau Oktoberfest, Hofbrau HEFE, Weltenburg Dunkel, Anders VolBier, Stiegle Radler, Fruh Kolsch

#### GREAT DOMESTIC BEERS:

Devil's Canyon, Uncommon Brewers, Seismic Brewing Co.

German food by Little Red Riding Truck will be available for separate purchase. Plenty of sausages, bratwurst and sauerkraut

Two bands, the San Mateo Elks Oktoberfest Band and the return

of Bayern Maiden, The Rockin' Oktoberfest Band, playing the hits directly from the tents in Munich. Museum admission required to enter the event. Beer glasses (required for drink purchases) \$5/each (or you can bring your own glass, 16oz pours). Oktoberfest brews available for \$5/pour. Discount tickets available on Eventbrite [www.hiller.org](http://www.hiller.org) The museum admission fee is free for museum members to the event.

**EVENT WILL BE HELD  
RAIN OR SHINE!**





# HILLER AVIATION MUSEUM

601 Skyway Road, San Carlos, California 94070 [www.hiller.org](http://www.hiller.org)

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## Join Now!

**Senior (age 65+) \$50**  
Unlimited admission for you + 2 guest passes.

**Individual \$65**  
Unlimited admission for you + 2 guest passes.

**Family \$90**  
Unlimited admission for 2 named adults and up to 4 children (17 & under) + discounts on Aviation Camp.

**Pioneer \$125**  
Family Membership benefits + an additional card for a named member (ideal for caregivers) and 2 guest passes.

**Pilot \$275**  
Family Membership benefits with a total of 3 guest passes + 8 FMX Flight Simulator passes and 50% off additional FMX tickets.

**Barnstormer \$550 • Adventurer \$1,000**  
Pilot Membership benefits with a total of 4 guest passes + 10% off Museum Rental and Birthday Parties.

**Explorer \$2,500 • Navigator \$5,000**  
Pilot Membership benefits with a total of 8 guest passes + 15% off Museum Rental and Birthday Parties.

**Aviator \$10,000**  
Pilot Membership benefits with a total of 12 guest passes + 25% off Museum Rental and Birthday Parties and a Hiller Aviation Museum jacket.

## Annual Membership Application

Or join online at [www.hiller.org/member](http://www.hiller.org/member)

### I want to be a member of Hiller Aviation Museum in the following category:

- |  |   |
|--|---|
| <input type="checkbox"/> Senior (65+) \$50 | <input type="checkbox"/> Barnstormer \$550  |
| <input type="checkbox"/> Individual \$65   | <input type="checkbox"/> Adventurer \$1,000 |
| <input type="checkbox"/> Family \$90       | <input type="checkbox"/> Explorer \$2,500   |
| <input type="checkbox"/> Pioneer \$125     | <input type="checkbox"/> Navigator \$5,000  |
| <input type="checkbox"/> Pilot \$275       | <input type="checkbox"/> Aviator \$10,000   |

New Member     Annual Renewal

Primary Adult Member: \_\_\_\_\_

Second Adult Member: \_\_\_\_\_  
(Family Memberships and up)

Third Adult Member: \_\_\_\_\_  
(Pioneer Memberships only)

Address: \_\_\_\_\_ City: \_\_\_\_\_

State: \_\_\_\_\_ Zip: \_\_\_\_\_ Daytime Phone: \_\_\_\_\_

Email: \_\_\_\_\_

This is a gift membership from: \_\_\_\_\_

Payment Amount: \_\_\_\_\_  VISA     MC     AMEX

Card #: \_\_\_\_\_ Exp. Date: \_\_\_\_\_

CSC: \_\_\_\_\_ Print Name on Card: \_\_\_\_\_

Signature \_\_\_\_\_

**Thank you for your support.**

Please make checks payable to  
Hiller Aviation Museum  
601 Skyway Rd, San Carlos, CA 94070

