

# BRIEFINGS



March 2018

## HILLER AVIATION MUSEUM WHERE INSPIRATION TAKES FLIGHT

### HILLER AIRCRAFT BUILDING FROM THE GROUND STRAIGHT UP



Stanley Hiller Sr. and Jr. with the XH-44  
in Cal Berkeley's Memorial Stadium

by Jon Welte

**S**tanley Hiller Jr.'s aptitude as both a builder and a businessman was born at an early age as he grew up in Oakland, California. Curious about all things mechanical, a 14-year-old Hiller repurposed a tiny gasoline-powered engine from a ruined model airplane to power a small racecar. The resulting Hiller Comet proved so popular with his friends that he established a small company to build and sell the racers. In the process, the fledgling Hiller Industries gained expertise in working aluminum that proved invaluable with America's entry into World War II in 1941, when it was pressed into service as a subcontractor assembling components for the Douglas Aircraft Corporation.

Hiller was intrigued with the idea of vertical flight, having followed with interest the pioneering work of Igor Sikorsky on the other side of the continent. He conducted his early research while a student at the University of California at Berkeley. Convinced of the potential of this newest type of flying machine, Hiller left school, sold Hiller Industries, and established a new company to design, build and manufacture helicopters.

Construction of the first vehicle took place in an automobile repair shop in Oakland. Gradually gathering a small but dedicated team around himself, Hiller designated his project XH-44: eXperimental Hiller helicopter, intended to fly in 1944. The helicopter embodied many design innovations not found on other such aircraft: rigid rotors, all-metal rotor construction, and dual main rotors counter-rotating on a single shaft. This last design feature was intended to obviate the need for a separate tailrotor. A tailrotor allowed a helicopter to maintain a constant attitude instead of endlessly spinning beneath its rotor. While essential, the tailrotor introduced several design compromises: a fraction of engine power was diverted away from the main rotor to power it, reducing lift, and additional fuselage structure (and weight) was needed to support the tailrotor.

Construction of the XH-44 continued throughout 1943. Procuring appropriate aircraft parts and materials was challenging, as wartime production of conventional airplanes was given the highest priority. Securing an aircraft engine not required by the war effort proved particularly difficult; the US Army was focused on helicopters developed by Igor Sikorsky. Sikorsky had a history of constructing fixed-wing airplanes, including large flying boats used as Pan



Flying Leprechaun!  
March 17



Easter Bunny  
by helicopter

March 31



SPRING MODEL TRAIN SHOW

MARCH 31 – APRIL 8



Smithsonian Institution  
Affiliations Program

# PRESIDENT'S PERSPECTIVE

American Airways clippers. Sikorsky's first helicopter flew untethered in 1940, and an improved version had entered limited production for the US and British armed forces in 1942. Not for the last time, Hiller was met with skepticism for having the audacity to attempt that which only established aircraft designers had been able to achieve.

Undaunted, Hiller secured an engine for the XH-44 directly from the War Production Board and at the start of 1944 was ready to begin flight tests. Hiller served as his own test pilot, and faced much the same challenge as Wilbur and Orville Wright had some four decades earlier: he would have to teach himself to fly. After a series of tethered test flights in Oakland and Berkeley, the XH-44 flew free for the first time on July 4, 1944. By the end of the summer, Hiller was flying his helicopter in public demonstrations and was fully launched on his vertical adventure.

The end of World War II was a time of transition throughout the aerospace industry.

*Look mom, no hands!  
Stanley Hiller Jr. flying the  
XH-44 in Cal's stadium*



Hiller had entered into a nascent relationship with shipbuilder Henry Kaiser to further develop his helicopter designs, but the end of the war and a divergence in the priorities of Kaiser and Hiller led to

an independent United Helicopters emerging in 1946. Strapped for funding in the early days, Hiller's company nonetheless persisted in developing new technologies for vertical flight. By mid-year the organization relocated to Palo Alto and successfully tested several new aircraft, each providing insights necessary for successful vertical flight.

By 1947 Hiller focused his efforts on developing a practical light utility helicopter. Nearly all early helicopters, Hiller machines included, were vexed with the problem of stability. In March of that year, the Hiller team tested its newest innovation – a paddle-based directional control system able to overcome the vibration-induced instability common in helicopters up to that time. The system worked spectacularly well, and formed the basis for the first Hiller machine to see widespread production: the Hiller 360.

The 360 differed from Hiller's earlier helicopters in reverting to the traditional single main rotor coupled with a tail rotor at the end of an extended boom. While the dual-rotor approach yielded a more efficient machine, the stability innovation adopted in early 1947 could not readily be adapted to it. After an

*United Helicopter later to be  
Hiller Aircraft in Menlo Park*



extended design process, in November 1947 the first Hiller 360 took flight.

The Hiller 360's inherent stability made it for a time the world's most popular light helicopter. Designed for the civil market, its performance and capabilities made it suitable for a wide range of roles: agriculture, corporate transport, personal vehicle and more. By late 1948 the Civil Aeronautics Administration (predecessor of today's FAA) approved production of the Hiller 360. In 1949, production of the 360 – also designated UH-12 – began in earnest at a new factory built off of Willow Rd. in modern day Menlo Park, not far from the western terminus of the original Dumbarton Bridge. With the onset of the Korean War in 1950, the US Army purchased the design (OH-23 in military service) in quantity for use in reconnaissance and aerial evacuation.

*Hiller UH-12  
working powerlines*



Less than a decade elapsed between the teenaged Stanley Hiller Jr.'s decision to build the XH-44 and volume production of the Hiller 360. By the early 1950s, Hiller's company – renamed Hiller Aircraft – had become the leading producer of light civil helicopters, and a major provider of military rotorcraft. With a well-established production program, the way was clear for Hiller Aircraft to continue to develop innovative designs in vertical flight into the second half of the twentieth century.

#### *Resources*

*Helicopter: Pioneering With Igor Sikorsky* (William Hunt, 1999)

*Vertical Challenge – The Hiller Aircraft Story* (Jay Spencer, 1992)



**T**he museum recently, and proudly, received an award for Excellence in Museum Education sponsored by the California

Association of Museums and the State Office of the Superintendent of Public Instruction for our excellent Aero Design Challenge. The annual program, now in its 7th year, creates opportunities for students in grades 5-12 to experience a real-world aviation technology challenge in which they conduct design, prototyping and engineering activities. Thanks and congratulations goes to our education team, ably led by Jon Welte and Linh Fanger and to our corporate sponsors including Peaxy, Inc. and SAP for working hard these past years to make the program a great success.

In the center of the gallery, new content has been added to our display called "Flying Destinies in California," which now features intriguing text and images about aviation during WWI to support our Fokker Dr.I triplane replica aircraft. In addition, new displays explore the Bay Area's premiere engine manufacturer from the early decades of aviation, the Hall Scott Motor Car Company, as well as a recounting of the exploits of aviation pioneers such as Charles Lindbergh, Jack Northrup and young Shaesta Waiz. Soon to come in this area is the completely refurbished airport beacon, which shone at SFO for many decades.

A heartfelt "thank you" goes to all of the many contributors, visitors and museum Members for supporting us and making the museum part of your lives. There are great things coming and we look forward to seeing you this spring at the Hiller Aviation Museum.

*Jeffery Bass, President & CEO*

# Hiller Aviation Museum



## AVIATION CAMP 2018

### Adventures in Flight for Kids!

Join a hands-on exploration in aerospace for children Grades JK-8. Weeklong topics include hands-on experiments, flight simulation, real aircraft and more!



#### **Air & Space** *Entering Grades K-5*

Build and launch a high performance model rocket and explore the worlds of our solar system!



#### **Wings & Flying Things** *Entering Grades K-5*

Experiment in the science of flight with aircraft, animals, weather and more!



#### **Test Pilot School** *Entering Grades K-5*

Investigate the cockpits of airplanes and helicopters and take the controls of realistic flight simulations!



#### **Aero Bot Inventors** *Entering Grades K-5*

Design and build robots, fly drones and create new inventions!

#### **Advanced Camp** *Entering Grades 5-8*

Programs featuring robotics, drones, high performance aircraft and spaceflight available for children ages 10-13.

Visit [www.hiller.org](http://www.hiller.org) for more information.



[www.hiller.org](http://www.hiller.org) ♦ (650) 654-0200

The Hiller Aviation Museum is a 501(c)(3) public nonprofit organization, ID #94-3226411

# CALENDAR OF EVENTS

## MARCH 2016

SUN, MARCH 4 • 1 – 3PM

Fly For Fun Paper Planes

SAT, MARCH 10 • 10:30 & 2PM

Starlab Sky Show

SUN, MARCH 11 • 1 – 4PM

Drone Meet

SAT, MARCH 17 • 10AM – 12PM

Leaping Leprechaun

SUN, MARCH 18 • 1 – 3PM

Aero Workshop

SUN, MARCH 25 • 10AM – 12PM

Kid's Carnival

SAT, MARCH 31 • 10AM – 1PM

Easter Bunny by Helicopter

SAT, MARCH 31 – SUN, APRIL 8

Spring Model Train Show

## APRIL

SUN, APRIL 1 • CLOSED ALL DAY

APRIL 2 – APRIL 6

Aviation Camp

SAT, APRIL 2 • SUN, APRIL 8

Spring Model Train Show

SAT, APRIL 7 • 10:30 & 2PM

Starlab Sky Show

SUN, APRIL 8 • 1 – 4PM

Drone Meet

APRIL 9 – APRIL 13

Aviation Camp

WED, APRIL 11 \* 11 AM

Paper Airplane Show

SUN, APRIL 15 • 1PM – 3PM

Aero Workshop

SUN, APRIL 22 • 7AM – 10AM

Airport Runway Run

SUN, APRIL 29 • 10AM – 12PM

Drone Build-A-Thon

## MAY

SAT, MAY 5 • 11AM

Paper Planes

SUN, MAY 6 • 1 – 3PM

Fly For Fun Paper Planes

SAT, MAY 12 • 10AM – 2PM

Open Cockpit Day

SAT MAY 12 • 10AM – 5PM

Scout Day

SUN, MAY 13 • 1 – 4PM

Drone Meet

SAT, MAY 19 • 10:30 & 2PM

Starlab Sky Show

SUN, MAY 20 • 1 – 3PM

Aero Workshop

MAY 26, 27, 28 (& JUNE 5) • 11AM

Hiller Museum 20th Anniversary Talk

SUN, MAY 27 • 10AM – 12PM

Kids' Carnival

## FLYING LEPRECHAUN

SAT, MARCH 17, 10AM-12PM

LEAPING LEPRECHAUN AT 11AM

Come celebrate St. Patrick's Day at the Hiller Aviation Museum with face painting, bounce house, "Pot of Gold" treasure hunt and a Skydiving Leprechaun! Event included with museum admission.



## TRAINS AND PLANES DISPLAY

SAT, MARCH 31 –

SUN, APRIL 8

DAILY, 11AM-3PM

Join us for our annual Spring Model Train Show. This year there will be five separate model train layouts set up at the museum.



## OPEN COCKPIT DAY

SAT, MAY 12, 10AM – 2PM

Climb inside an L-39 fighter jet, A Grumman Albatross Seaplane, Cessna Cardinal, Boeing 737 and many more museum aircraft not usually open to the public. This is a unique opportunity to get a pilot's-eye perspective of these amazing machines.



**GOURMET FOOD TRUCKS • WEDNESDAYS, 11AM-2PM,  
DRONE PLEX • SATURDAYS & SUNDAYS, 10:30AM-12PM & 1PM-3PM  
INVENTION LAB • SATURDAYS & SUNDAYS, 10:30AM-4PM  
FLIGHT SIM ZONE • SATURDAYS & SUNDAYS, 11AM-2PM,  
BOY AND GIRL SCOUT PROGRAMS  
OFFERED EACH MONTH – WWW.HILLER.ORG/SCOUT-PROGRAM**

PEAXY TOTAL DATA ACCESS FOR INDUSTRY

## Biggest Little AIR SHOW

Saturday  
June 2  
10am-1pm



Hiller Aviation Museum's  
20th Anniversary Celebration

Remote Control  
Air Show Featuring:  
Gas & Electric  
Powered Airplanes  
Helicopters, Jets  
Drones

And one FULL Scale  
aerobatic performance  
by Rich Perkins in  
Russian Thunder!



## FOOD TRUCK CR

AT HILLER! EVERY WEDNESDAY

The parking lot of the museum turns into a food court every Wednesday. Several food trucks participate in this gourmet event. The trucks rotate



## EASTER BUNNY ARRIVES BY HELICOPTER

SAT, MARCH 31,  
10AM – 1PM

Join the Easter Eggstravaganza on Saturday March 31 from 10AM-1PM, The Bunny arrives at 11AM. Get an Easter Egg straight from the Bunny and enjoy face painting, a bounce house and slide and an amazing model train display. All included with museum admission.

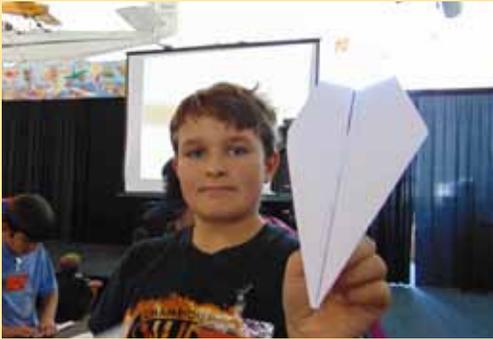


## PERFECT PAPER PLANES

FEATURING PAPER PLANE CHAMPION,  
JOHN COLLINS

SAT, MAY 5, 11AM

Join a unique exhibition of paperlight flight! Author and master paper airplane builder John Collins leads an interactive 45-minute session investigating the science of making things fly and the notebook-scale engineering required to fold and fly record-breaking paper gliders. Come prepared to try your hand building and flying your own paper plane!



## BUILDING AN AVIATION DREAM.

MAY 26, 27, 28 AND JUNE 5

THE LIFE OF STANLEY HILLER JR  
ALL PRESENTATIONS ARE AT 11AM

Stanley Hiller Jr. was a man born ahead of his time. He possessed two important traits that helped lead him to success: visionary engineering insight and brilliant business sense.

Flying was in Stanley's blood. His father, Stanley Sr. was a pioneering aviator flying aircraft of his own construction in the early years of flight. Stanley Jr. had his first company at 14 years of age and set out to design and build his first helicopter at age 17. The company he founded went on to build over 2,000 helicopters and employ over 3,000 people.

Stan Hiller did not originally set out to build a museum, but even after leaving aerospace he saved and preserved many of his old helicopter prototypes, and collected many other unique aircraft. He had a private museum warehouse in Redwood City that he established in the 1980s to house his growing collection. For years he looked for the right place to open a museum for the public, ultimately finding it at the San Carlos Airport. The Hiller Aviation Museum opened its doors to the public for the first time on June 5, 1998.

As part of the museum's 20th anniversary celebration, Willie Turner, VP of Communications and Operations will give a presentation on Stanley Hiller Jr. and the early days of the museum. Willie has been with the museum since its formative years and he has witnessed firsthand its ongoing evolution into the world class museum and education center that it is today.

Presentation is included with museum admission.



## AZE CONTINUES!

11AM TO 2PM – RAIN OR SHINE!

weekly, so come for your favorite truck or try something new! Dine under our porte-cochere, or indoors when it's a little cold, or, grab and go!



## Volunteers Wanted

Volunteers Give the Gift of Time

Volunteer Opportunities include:

Spending time as a museum Docent

Working in the Restoration Shop

Volunteering in the Library or with office admin tasks

We are specifically in search of Docent volunteers for the Saturday or Sunday morning shift from 9:30 - 1:30



Contact Jen Roger - Volunteer Coordinator  
[jen@hiller.org](mailto:jen@hiller.org) 650-654-0200 Ext. 219

REGISTRATION NOW OPEN!



HILLER  
AVIATION  
MUSEUM



[www.hiller.org/run](http://www.hiller.org/run)

**SUNDAY, APRIL 22<sup>ND</sup> 2018**



**WALK • JOG • STROLL**  
on the San Carlos Airport Airway!

*Certified 5K and 10K courses & 2K fun run*

SPONSORSHIPS AVAILABLE



# EDUCATION PROGRAMS SPRING 2018

## FAMILY SUNDAY PROGRAMS

All Sunday Family Events are included with Museum admission. Space is limited for some events. Check [www.hiller.org](http://www.hiller.org) for capacity information or request tickets at the Admissions counter on the day of each program.

### FLY FOR FUN PAPER PLANES • AGES 5+ MARCH 4 & MAY 6 • 1 – 3PM

Launch an adventure in paper-light flight! Learn the physics behind making paper glide, then fold and fly to construct a marvelous flying machine! Events focus on distance flight (March 4) and assisted lift (May 6).



### AERO WORKSHOP • AGES 10+ MARCH 18, APRIL 15, MAY 20 • 1 – 3PM

Enter the Invention Lab to build and test a unique aerial invention able to fly farther, higher or faster than the competition.



### DRONE MEET • AGES 8+

MARCH 11, APRIL 8, MAY 13 • 1 – 4PM

Compete in one of three different mini-events in drone flying! Practice a specific maneuver on drone simulators, then fly against the best of the best inside the Drone Plex!



### KIDS' CARNIVAL • AGES 3+

MARCH 25, APRIL 29, MAY 27 • 10AM – 12PM

Join the fun to paint a plane, complete an experiment, check out in an aircraft cockpit and more in a special experience for our youngest aviators.



## AVIATION CAMP

SPECIAL SPRING SESSIONS: GRADES K-6  
AERO BOT INVENTORS • APRIL 2-6 & APRIL 9-13

Join the fun at Aviation Camp! Fly drones, build and operate robots, compete in daily design challenges and more in a special Spring Break session of Aviation Camp.



## STARLAB

STARLAB SKY SHOW  
MARCH 10, APRIL 7, MAY 19 • 10:30 AM & 2 PM

Enter the mysterious Starlab Planetarium and take a spectacular trip through the glittering stars, planets and constellations of spring. Identify star patterns visible from your own backyard this season during a special 30-minute presentation.

Space for each presentation is limited. Tickets are required and may be purchased at the Gift Shop on the day of the program. Visit [www.hiller.org](http://www.hiller.org) for more information.



## AVIATION CAMP • SUMMER 2018

Registration is now open for this summer's Aviation Camp program! See the flyer or visit [www.hiller.org](http://www.hiller.org) for more information. Online registration now available. Make your plans now to join us this summer for an amazing experience in flight!



# HILLER AVIATION MUSEUM

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

Non-Profit  
Organization  
US POSTAGE PAID  
San Carlos, CA  
PERMIT No. 96

## 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 Member/Spouse/Child)*

Third Adult Member: \_\_\_\_\_

*(Other Member/Spouse/Child)*

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: \_\_\_\_\_

## SUPPORT THE MUSEUM!

### DONATE YOUR CAR, TRUCK, RV, OR BOAT



### CALL TOLL FREE 1-888-500-1555

Or call Development Office at  
650-654-0 200 x203  
Tax Deductible Gift

### AN AVIATOR'S PARADISE! VISIT OUR GIFT SHOP

Shop on line: [www.hiller.org](http://www.hiller.org)  
Gift Certificates available!

Thank you for your support.

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

