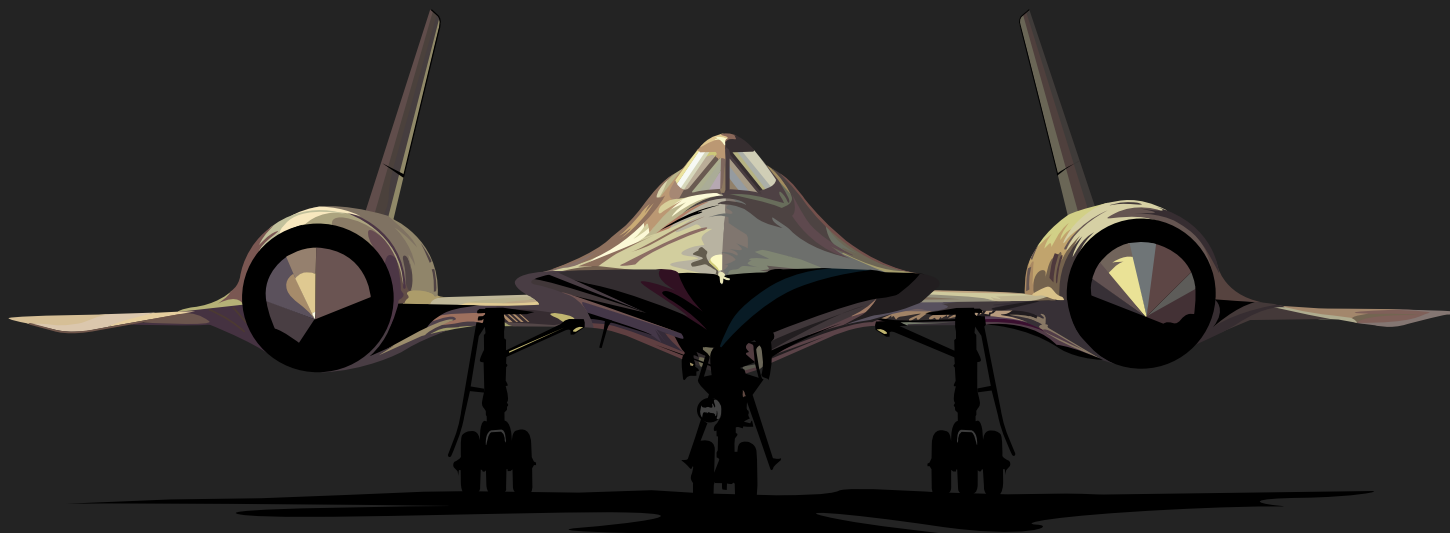


FlightPlan

A VOLUNTEER NEWSLETTER BY VOLUNTEERS



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EVERGREEN
AVIATION & SPACE
MUSEUM



VOLUME 12
ISSUE 6
JUNE 2025

THEMES

We are assigning themes to each month of the FlightPlan. These are not exclusive of other topics, but perhaps they may motivate you to make a contribution.

MAYMEDEVAC IN VIETNAM

JUNE.....SR-71

JULY.....APOLLO

AUGUSTRESTORATION

GUIDELINES FOR SUBMITTING AN ARTICLE TO THE FLIGHTPLAN NEWSLETTER

1. The FlightPlan (FP) is published on the 1st of each month
2. Stories for the next issue can be filed up to the 10th of the prior month
3. Articles should be associated with an artifact at the Museum
4. Sources for specific information in the article should be provided
5. Stories should be approximately 500 words long
6. If appropriate, include one or two photos for publication with the article
7. Include name, day, and title at the bottom of each article submitted
8. Email articles to: flightplan@evergreenmuseum.org

CAPTAINS CORNER

DAN OVEN

SUNDAY DAY CAPTAIN

The May 7 BOC meeting was a busy one with many topics before the Board. Topics are presented below; to avoid a multi-page report, anyone with further questions regarding the discussions can contact their Day Captain.

Scot Laney – Chief Executive Officer

- Acknowledged the passing of Bill Stoller; is planning to honor his memory and contributions to the Museum.
 - The Museum is in a state of positive transition. New ideas, approaches, and exhibits will be coming.
 - The objective is to have new things to attract previous visitors back to the Museum.
- The visitor entry brochure will be changing. Due to the transition/movement of artifacts, the map will become obsolete quickly and be eliminated. A bi-fold handout will take its place. A temporary reprint of the current brochure will be done before the new version is prepared.
- Scot recently escorted the Chair of the Smithsonian Museums around the campus. He told Scot that we do some things better than the Smithsonian and that he would be sending some Smithsonian curators to McMinnville to study our ways.
- Asked that docents spread out on the Museum floors, particularly during the upcoming Summer season.
- The F-4 Phantom will be moved to the East Pavilion.

Terry Howell – Chief Operating Officer

- The Lunar Lander, Gemini Docking, and Space Shuttle games in the East Pavilion will soon be removed. They have not worked for some time, and the software is obsolete.
- The SR-71 Symposium (June 13-15) will begin with a VIP gathering on Friday night. Tickets will be \$100 and \$200, with the higher-priced entry allowing seat time in the SR-71. Early ticket sales have been good.
- Reminded all docents to keep visitors out of the helicopters in both buildings.
- Scottie Michaels is a new facilities employee and will work on various days.

Training Report

- 6 volunteers completed Orientation in April.

Old Business:

- Curation Collaboration: The system is updated regularly, and the spreadsheet showing each submission's status is posted monthly in each building's break room.
- Year of the Volunteer: Day Captains were reminded to review the list of criteria for Rasmussen Award recipients, and that the list will be discussed at the June meeting.
- FlightPlan Newsletter. Comments on the first two editions of the revised-format newsletter have been favorable. Future editions will aim to balance articles relating to the Museum's East and West Pavilions. If you miss an issue, April and May are available to download from the museum's RADAR system, eamscrow.com.

(CONTINUED NEXT PAGE)

CAPTAINS CORNER

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Old Business:

- Tour Guide Badges: In the Past, Tour Guide badges were given only to those giving floor tours in the West Pavilion. Barry Brown suggested expanding distribution to those giving Spruce Goose, Restoration, F-117, and other tours as they arise. The Board approved this motion.

New Business:

- Additional radios are now available. Each radio is formatted. Each is labeled as to user: several are labeled “docent,” and one is labeled “Captain.” The Captain’s radio includes access to both Channels 1 and 5, allowing communication with the maintenance crew. Labeling is on the back of each radio.
- The EASM RADAR now includes Volunteer Handbook and Skunkworks Tour tabs.
- The NEW Skunkworks Tour will begin at 3pm.
- Tuesday Day Captain Jerry Sauter has reviewed the many DVD videos stored in the Collections area and said that many would be useful in volunteer training as well as for public viewing.

Other Business:

- Leroy Brown announced that there will be a fundraiser at the McMinnville American Legion Hall on Memorial Day, May 26.
- It was suggested that the Museum consider closing on Easter. Attendance has been very low on that day.
- New Board/Lead officers were elected for the next 2-3 years:
 - Board Chair: Dan Oven
 - Board Vice Chair: Jerry Sauter
 - Board Secretary: Bud Varty
 - The Board gave special thanks to outgoing Chair Barry Brown for his excellent service.

The meeting was adjourned at 11:42am. ➤



SCOT LANEY

MUSEUM CEO

On Dec. 22, 1964, the first SR-71 flight took place and only a little over a year later Lockheed delivered the first SR-71 to the 4200th Strategic Reconnaissance Wing at Beale Air Force Base. That day a GOAT was born. Or at the least a new aircraft was put into service that many consider to be the greatest of all time, an aircraft so complex that one comment you hear frequently is that “America knew how to do stuff back then.”

We can all excuse ourselves for falling into the trap.

Without a doubt the entire SR-71 story—how it was developed, produced, what it was capable of—is one for the ages.

But even a cursory review of the State of the Union in 1964 shows the imperfections of the era, the things we tend to forget about today that make it easier to be wistful about the past vs. the present. Yes, America could create the SR-71 then despite the societal rumblings related to the Civil Rights movement, a war in some unheard-of place called Vietnam that was starting to escalate, significant polarization of the major political parties and a cold war that could pop over to a hot war at any time.

So, it becomes easy, even fashionable, for Americans to believe that the joint is going to hell in a handbasket. That’s a common feature of our unique and artful form of government. I can guarantee you that, no matter your age, the generation in front of you thought that your generation was less capable than theirs. FDR was on record in 1939 saying he feared that that American youth were “too soft to fight” in what increasingly looked to be a global conflagration in Europe and Asia.

The point is that there will be another SR-71 style project that will come along. That project will create some new type of aircraft superior to anything the Blackbird was capable of although it may or may not actually have a pilot. That aircraft will feature new alloys and electronics that were only the stuff of deep theory in 1964 if anyone was thinking about them at all.

Frankly I would rather attend a garden variety materials conference today than have access to the most advanced materials lab in 1964.

And, naturally, that aircraft will be designed and manufactured amidst all the usual political chaos, disfunction and chest beating that goes on ad nauseum.

It’s how the greatest country in the world gets stuff done. Nothing new about that. ➤

★ FATHER'S DAY WEEKEND ★ SR-71 SYMPOSIUM



JUNE 14TH & 15TH 2025 ★ 11:00 AM – 4:30 PM

The Evergreen Museum's Father's Day Weekend SR-71 Symposium is Back! Every other year, Evergreen Aviation & Space Museum hosts a very special Father's Day event featuring the men and women who flew, maintained, and supported the world's fastest manned reconnaissance aircraft, the famed SR-71 Blackbird.

Guests will have a rare opportunity to peek into the SR-71 cockpit and meet the World's Fastest Pilots:

- **Ed Yeilding:** Record for Flight Time from L.A. to D.C. (64 min 20 sec)
- **Al Joersz:** World Airspeed Record Holder (2,193.167 MPH)
- **B.C. Thomas:** Most SR-71 flight hours

Each day, guests can attend presentations on different aspects of the famed Lockheed Skunk Works spy plane, with Speaker Panels comprising SR-71 pilots, RSOs (Recon Systems Officer), maintenance, and support personnel.

THE SR-71 SYMPOSIUM SCHEDULE:

Saturday, June 14th

- 11:00 AM – 12:15 PM: 6 Person Panel Discussion #1: Moderated by Al Joersz
- 1:00 PM – 2:15 PM: 360 Deg. Cockpit Presentation: Moderated by Jerry Glasser & John Manzi
- 2:30 PM – 4:00 PM: 6 Person Panel Discussion #2: Moderated by Buz Carpenter – SR-71 Pilot

Sunday, June 15th

- 11:00 AM – 12:15 PM: 360 Propulsion Presentation Featuring Jerry Glasser & Arnie Gunderson. To be held in the Galaxy Theater (East Pavilion)
- 1:30 PM – 3:00 PM: Panel Discussion #3: Moderated by Bill Burke
- 3:00PM – 4:30 PM: Walk-Around tours and peeks into the SR-71 cockpit

Off-duty docents are welcome to attend the daytime activities. Due to the larger crowds and paid admission for the event, we could use a few extra docents on each of the two days. Please talk with your Day Captain if you are interested in volunteering. ➤

SR-71 Pilots: A Daughter's Perspective



Linda Sheffield in front of #971

LINDA SHEFFIELD

DAUGHTER OF COL. RICHARD "BUTCH" SHEFFIELD

This Father's Day weekend, Evergreen Museum is holding a symposium on the SR-71. As part of that celebration, they have invited members of the Blackbird family to discuss the fastest airplane in the world. The panels will address questions and presentations will be given, all with SR-71 #971 in the background.

To honor my late father, Colonel Richard "Butch" Sheffield, who flew the SR-71, I will attend the Father's Day seminar with my husband and our grandson.

People often ask, "How difficult was it to become an SR-71 crew member?" My father, Butch Sheffield, was the first crew member selected to fly the SR-71 Blackbird.

Colonel Doug Nelson was assigned to interview and select pilots for the SR-71 program. He started his interview process with B-58 navigators and pilots because they had experience in supersonic aircraft.

On the day of his interview, my father was suffering from a case of walking pneumonia. The pneumonia had started with a cold and kept getting worse; he went to the flight surgeon, but they couldn't find his medi-

cal records. We later found out his records were being reviewed by the CIA.

Colonel Nelson picked Dad first because he could tell he was sick and needed to return home to bed. He took Dad into a tiny room, shut the door, and asked him, "Are you a volunteer?" Dad said, "Yes." Then Nelson asked him, "Do you have any problems flying over China or Russia?" Dad said "No." That was the end of the interview based on his records. He was selected to go to the astronaut physical, which he said was the most thorough physical ever known to man. Then he was tested by the CIA to see if he could hold up under interrogation.

These are a few of the stories that I found by reading books by Richard Graham and Terry Pappas, both SR-71 pilots. Dad's book, *SR-71 to the Skunk Works*, will be published next year by Helion Publishers.

At Survival School, after the physicals, they trained in resistance to interrogations, which was one of the hardest things that the A-12 and SR-71 pilots and RSOs had to go through before they could fly. Ken Collins (I knew Ken, as he was our neighbor), a CIA A-12 pilot, said in interviews that he became so disoriented during survival training at Dr. Lovelace's astronaut clinic that he started hallucinating. My father told me that they locked him in a room for 12 hours in pitch darkness. He was naked, and he sat on the floor all that time. The only thing he could hear was his buddy Tom Schmittou screaming all night. They used EKGs and other machinery to monitor how well the men stood up to the pressure. If they broke from the pressure, they were out.

Survival training also included being dropped in the desert and forced to fend for yourself. You had to catch your own food, start a fire, and cook it to survive.

A-12 pilots were encouraged to be married with children, preferably. It was the same at the beginning of the SR-71 program; everyone was married, and most had children, but it was not required.

SR-71 Pilots: A Daughter's Perspective

(CONTINUED FROM PREVIOUS PAGE)

Once you passed all the tests, you had the “Bar” test. They would take the candidates to the officers’ club on Friday afternoon and see how they handled having a few drinks and if they were likable. Drinking alcohol was not a requirement. (There was one pilot who was a Mormon who did not drink.) There was more than one applicant who lost his place in the program for drinking too much and becoming aggressive and aggravating his potential coworkers.

One hundred hours in the flight simulator was next on the agenda before you could fly the SR-71. Jerry Glasser, an SR-71 pilot, taught the simulator for quite a while. He had to be a special person to take men to the absolute limit of what they could handle, including emergency ejections. After the 100 hours, potential pilots could have their first flight in a real SR-71.

Like me, the children of the men who flew the SR-71 were not supposed to know what their daddies were doing at work. I found this out later from my mother, who had been told never to discuss Dad’s job with the children. Some children, like Buz Carpenter’s young daughter, had an idea what their dad did, but they weren’t quite sure. One day, the operations officer called the Carpenters’ home desperately looking for Buz, as a mission had come up that they needed him to fly. After ringing the phone quite a few times (this was back in the 70s when everybody had a landline), Buz’s daughter answered the phone. She was asked, “Do you know where your daddy is?” She said in a small voice with hesitation, “I think he’s out spying!”

If you ever meet one of the men who flew the SR-71, as you will at the Father’s Day symposium, you will know how rare they are, as only 93 pilots and 86 RSOs flew operationally. Another trait you’ll notice about them is how humble they are. They will never brag about themselves, but they will brag about their friends. If they’re telling a story, it’ll always be about what the other guy did, never about what they did. They are genuinely humble.

March 6, 1990, Ed Yeilding, a pilot, with JT Vida, RSO, set multiple speed records flying from the Los Angeles area to the Washington, DC area. At the end of their historic flight, they turned their SR-71 over to the Smithsonian.

The return flight to California seemed like it was going to be anti-climactic. Ed and JT were sitting on a commercial jet in the back of the coach section when the pilot got word that they were on his airplane. He went back and asked them if they would like to move up to first class. Ed mentioned he’d never flown first class before. That may have been the case, but he is still a first-class guy, as are all the men you will meet at the seminar. They are Supermen. Their records stand today, 35 years later.

“Peace is Our Profession” was a slogan written all over the Air Force bases where I lived. The information the SR-71 missions picked up helped verify what other countries were doing. I later realized, when I grew up, how fortunate I was that my neighbors and the fathers of my friends flew the SR-71. They helped keep us safe. And, they and their wives were excellent role models to their children. ✈



SR-71 Inertial Astro Navigation System

BILL KOLB

MONDAY DOCENT

The SR-71 Blackbird relied on a sophisticated Inertial Astro Navigation System (ANS) to ensure precise navigation during missions where traditional methods were impractical due to its extreme speed and altitude. Operating at speeds exceeding Mach 3 and at altitudes above 80,000 feet, the SR-71 required a navigation system that could function autonomously, particularly in environments where ground-based radio signals were unreliable, and high latitudes could affect magnetic compasses. Developed by Northrop Corporation, the ANS combined inertial navigation with celestial observation to maintain accuracy over long-range flights.



SR-71 Astroinertial Navigation System. *National Air and Space Museum*

The inertial component of the ANS utilized gyroscopes and accelerometers to track the aircraft's position, velocity, and orientation relative to its starting point. Three gyroscopes, stabilized within a gimballed platform, provided a fixed reference frame, while accelerometers measured changes in velocity along each axis. By integrating these measurements, the system calculated the SR-71's position in real-time. However, inertial navigation

systems are prone to drift over time due to minor errors in gyroscope alignment or accelerometer calibration, which can accumulate during extended missions.

To counteract this drift, the ANS incorporated an astro-inertial correction mechanism. A star tracker on the aircraft's upper fuselage automatically locked onto preselected stars during flight. The tracker used a telescopic sensor to measure the angular positions of stars relative to the aircraft's orientation. By comparing these observations with a preloaded star catalog, the system could correct any inertial drift, achieving positional accuracy within a few hundred feet. The star tracker operated effectively at high altitudes, with minimal atmospheric distortion, and could function day and night by detecting stars against the darkened sky above 70,000 feet.

The ANS was fully automated, controlled by an onboard computer that processed inertial and celestial data. Pilots would input mission waypoints before flight, and the system guided the SR-71 along its predetermined route, making adjustments for wind, Coriolis effects, and other variables. The computer also managed the operation of the star tracker, selecting stars based on the aircraft's position and the time of day. This level of automation was critical; the SR-71's high-speed flight left little room for manual navigation.

This system's reliability was proven during operational missions from the 1960s to the 1990s. It allowed the SR-71 to conduct reconnaissance over hostile territories without relying on external signals that could be jammed. The ANS's ability to integrate inertial and celestial navigation set a precedent for later navigation systems used in spacecraft and intercontinental ballistic missiles. ➤

The Tail of Our SR-71

ALDIN SKINNER

TUESDAY & WEDNESDAY COLLECTIONS

No, that wasn't a typo...

The aircraft is 971 to the Air Force and 832 to NASA, but what do the markings on its tail mean?

Recently, a visitor asked what the crosses in the red band on her rudders meant. The red band containing four crosses is the 9th Strategic Reconnaissance Wing emblem.



In addition to the red band marking applied later in life, its tail number has also changed. The initial markings designated it as AF 17 971. However, the Air Force changed the marking rules to make the first two numbers represent the fiscal year the aircraft was *ordered*. Since the new interpretation of the tail number would have indicated that it was ordered in 1917, which seems

somewhat unlikely, its revised designation became AF 61 971, as it was ordered in fiscal year 1961. The BB marking indicates it was based out of Beale Air Force Base.

While we're on the subject of tails, the SR-71's rudders operate differently than many of our other aircraft in that the entire rudder rotates around a rotating post, rather than having a movable control surface attached to the trailing edge of a fixed vertical stabilizer. This post is located towards the front of the rudder, roughly in line with the leading edge of the aforementioned red bands. A hydraulic actuator rotates the post/rudder assembly for yaw control.

Another difference in the tail is that rather than having an elevator, it has four elevons across its trailing edge. These blend the roles of both the elevator and ailerons. The video segment on the mixer—posted below—illustrates how this works.

Bonus Points! Suppose you want to take a deep dive into the inner workings of the SR-71, watching it become transparent and discussing its construction, engines, and subsystems in detail. In that case, I highly recommend watching [this video](#). ➔

The SR-71 Start Cart and the Indianapolis 500

ALDIN SKINNER

TUESDAY & WEDNESDAY COLLECTIONS

It would be hard to confuse the AG-330 Start Cart with even the earliest Indy cars, but there is a connection.



Starting the Pratt & Whitney J58 was *not* a trivial matter. The pilot couldn't just climb in and push the START button. It required the external application of 700-725 lb/ft of torque to spool the J58 up to the 3,200 RPMs

needed to inject the triethylborane (TEB) to light off the JP7. Then the engine could settle in at its 3,950 idle RPM.

But how do you deliver that much power to get the J58's innards spinning? Enter Franck Kurtis, race car designer and builder, and a pair of Buick 425 Wildcat V-8s of 1963. Frank Kurtis had successfully designed and built race cars, including 120 Indy cars and five Indy 500 winning cars between 1950 and 1955 (there's the connection).

According to Arlen Kurtis, son of Frank Kurtis, Lockheed came to his Dad in 1963 with the design for the AG-330 start cart. Arlen said Hamilton Standard built the first carts for the A-12s, but they were "built by people with the idea that it will never have to be worked on. And the poor guy who has to work on it has to disassemble half of it to do one simple thing. That's why they came to my Dad."

Why Buick? They turned out to be the ideal choice because of their Dynaflo transmissions. The super-soft coupling was critical to spinning the Pratt & Whitney J58 turbine engines up to 3,200 RPM without breaking the

coupler shaft from cart to engine. When the J58 was at its ignition RPM, the Buicks were closing in on their 4,900 RPM redline and pumping out a combined 800 horsepower.

Arlen says Lockheed provided the engines and Dynaflo transmissions, and Kurtis built 34 carts in its Glendale, California, facility alongside its race cars. The twin Buick 425 Wildcat engines sat side-by-side in the AG-330 carts, and the Dynaflo output shafts were tied together with a 12-inch-wide toothed belt to a 90-degree vertical drive probe through a port in the bottom of the SR-71's engine nacelle that splined into the starter pad of the J58 just aft of the compressor stage. The Drive probe could extend up to two feet above the cart. By the mid-70s, when Lockheed had used up all the Buicks they could find, Arlen was commissioned to re-engine the carts with Chevrolet LS-7 454 engines. Even after the engine switch, they were still called "the Buicks."



The carts saw the end of their run in the 1980s, when they were retired and replaced by the Garrett 3AG1100 air turbine to start the SR-71s inside their Air Force hangars. The 3AG1100 is essentially a 700 hp compressed-air-driven turbo that splined into the J58 engines like the start carts did, using compressed air stored in tanks to spool them up.

Four minor variations were found among the 33 start carts built. Ours, with manufacturer number 18 and serial number 6518, is a Type III, of which 12 were built. Upon its retirement, our cart had 750 hours on its Hobbs Meter. ➤

AIM-9L Sidewinder Missile

BUD VARTY

WEDNESDAY DAY CAPTAIN

The West Pavilion has a new artifact: a replica of an AIM-9L Sidewinder air-to-air missile mounted on our F-4 Phantom. Our replica comes to us courtesy of Don Bowie and retired docent Bruce Silver. Don provided the funds, and Bruce fabricated the missile in his home shop.

The Sidewinder missile went into service in 1956. Over its nearly 70 years of service, over 110,000 have been built in 41 versions, 12 of which are reverse-engineered K-13 Russian models. The missile weighs 188 pounds, with current models having a range of up to 22 miles and a maximum speed of over Mach 2.5 (about 1,850mph).

The AIM-9L “Lima” variant was first entered into operational service with the U.S. military in 1977. Adjusting to 2025 dollars, the Lima model cost \$180,000–\$200,000 per missile. Newer variants like the AIM-9X cost around \$455,000–\$472,000 per unit in 2023.

The AIM-9L has been used continuously since its introduction, with upgrades and modifications, and remains in service with many air forces as of 2025. Key usage periods include:

- **1970s-1980s:** Initial deployment by U.S. and NATO forces, notably during the Falklands War (1982) by British forces.
- **1980s-1990s:** Widespread use in conflicts like the Gulf War (1991).
- **2000s-present:** Continued use in various engagements, including Iraq and Afghanistan, and by multiple nations due to its reliability and upgrades.

The AIM-9L features an infrared (IR) homing guidance system, allowing it to lock onto the heat signature of an aircraft’s engines from all aspects, including head-on engagements—a significant upgrade from earlier models. Its improved seeker head enhances target



Don Bowie displays the AIM-9L Sidewinder missile replica mounted on the F-4C Phantom launching rail. With the AIM-7E (Sparrow) radar missile already on display, visitors can now view both missiles carried by the F-4. The replica was fabricated by former volunteer Bruce Silver; Bruce and Don donated the missile to the Museum.

acquisition and tracking, even in cluttered environments. The missile’s warhead is a 20.7 lb. annular blast-fragmentation type, designed to maximize lethality, paired with a proximity fuse for reliable detonation.

It is powered by a Hercules/Bermite Mk 36 Mod 7 or Mod 8 solid propellant motor, which provides high energy density and reliable combustion. The Mk 36 is a single-stage, high-impulse rocket with a blast-pipe nozzle to direct exhaust and optimize thrust. It’s designed for reliability in extreme conditions, including high-altitude and low-temperature environments. Its agility stems from enhanced aerodynamic design and control fins, enabling tight maneuvers to engage fast-moving targets.

The AIM-9 Sidewinder family of missiles is still in use today. On February 4, 2023, a Chinese surveillance balloon was shot down by a U.S. Air Force F-22 Raptor using a single AIM-9X Sidewinder missile. The missile was fired at about 58,000 feet, targeting the balloon floating between 60,000 and 65,000 feet off the coast of South Carolina.

We thank Don and Bruce for their contribution to our F-4 Phantom display. ✈️

The True Father of the Helicopter

MIKE DUNCAN

SATURDAY DOCENT

In the pantheon of aviation pioneers, names like Sikorsky, Bell, and Hughes often dominate the conversation. However, buried beneath the roar of rotors and the pages of mainstream history lies a man whose genius laid the very foundation for rotary-wing flight: Harold F. Pitcairn. Inventor, entrepreneur, and unyielding visionary, Pitcairn is arguably the true father of the helicopter—and a man whose life was as turbulent as the air his machines once conquered.



Amelia Earhart flew a Pitcairn PCA-2 autogiro and set a women's altitude record of 18,415 feet on April 8, 1931.

In the 1920s and 30s, while the world was still enamored with fixed-wing aircraft, Pitcairn invested his fortune and future in the autogiro—a hybrid between an airplane and a helicopter. Through a licensing agreement with Spanish inventor Juan de la Cierva, Pitcairn gained exclusive U.S. rights to autogiro technology and began to develop

it further, securing more than 40 patents that would become the bedrock of future helicopter design. His rotor hub articulation, lift control, and flight stability innovations weren't just academic achievements—they were technological breakthroughs decades ahead of their time.

Pitcairn also left a significant mark on commercial aviation. In 1926, he founded Pitcairn Aviation, eventually becoming Eastern Air Lines, one of America's first and largest commercial carriers. His early airmail and passenger services helped open the skies to the public, yet his name was soon erased from the corporate lineage after the company changed hands.

Despite his role in shaping the airline industry and rotorcraft technology, Pitcairn's legacy came at a devastating personal cost. During World War II, the U.S. government and defense contractors extensively utilized his patented rotary-wing designs—but without compensating him. Pitcairn refused to be silenced and took the federal government to court in a grueling legal battle that would outlive him. He died in 1960, penniless and largely forgotten, even as helicopters based on his innovations flew across battlefields worldwide.

It wasn't until 1977—more than 30 years after the patent violations began—that the U.S. Court of Claims awarded the Pitcairn estate \$32 million. However, by then, Harold's story had faded into obscurity, and his rightful place in aviation history had been overshadowed by those who built upon his work.

Today, as helicopters perform life-saving missions, transport troops, and explore the skies in ways once thought impossible, it's time to remember the man who saw it all before anyone else did. Harold F. Pitcairn didn't just dream of vertical flight—he made it possible. For that, he deserves the title he never claimed but unquestionably earned: The True Father of the Helicopter.

The above story is based upon the book *Legacy of Wings: The Story of Harold F. Pitcairn* Hardcover – January 1, 1982. ✈



Harold Pitcairn flies his Autogiro Windmill from Pennsylvania to Washington D.C., May 14, 1929.

The MiG-15

ALLYN VANNOY

WEDNESDAY COLLECTIONS, SUNDAY DOCENT

Upon their entry into the Korean War, the Chinese sought to avoid a war of attrition, since they could not compete with the US industrial strength in an air war. Instead, their plan was to build a force of jet fighters, then launch them in large formations of 100 or more aircraft to cause heavy losses to UN aircraft in a small number of large air battles. They hoped that such losses would have a political impact on the UN command, thereby causing them to pull back or withdraw their assets.

Initially, the PLAAF (Peoples Liberation Army Air Force) was largely composed of World War II aircraft. As a result, Stalin sought to provide jet fighter interceptors and Soviet pilots to train Chinese and North Korean pilots.

Many of the Soviet pilots were World War II veterans, having experienced air combat against the Luftwaffe.

The aircraft was designed as an interceptor, capable of quickly climbing to altitude, penetrating enemy fighter escort screens, and attacking enemy bombers. Accordingly, its armament consisted of one 37mm and two 23mm cannons.

Soviet commitment of the MiGs radically change the equation in the early air war over Korea.

The MiG-15 had an advantage over UN propeller aircraft and an edge against straight wing fighters such as the F-80, F-84, and Gloster Meteor. Its main mission was as a bomber destroyer, not a dogfighter, and it soon began to threaten the B-29's.

In response, the USAF reinforced its Far East Air Force with the new F-86 Sabres. Fighter battles ensued, with the area over northwest North Korea becoming known as "MiG Alley." The MiG had the advantage of superior maneuverability at high altitudes, though sometimes showing instability issues as it tended to stall in sharp turns. A typical tactic was to fly at high altitude, dive



to attack bomber formations, then use speed and its climbing ability to invade fighter escorts.

The MiGs were piloted by North Korean, Chinese, as well as Soviet pilots. The attacks by the MiG-15s on bomber formations eventually resulted in the withdrawal of the B-29 bomber's use in daylight operations in late 1950.

The use of proved tactics, better aircraft, experienced pilots, turned the air war in the UN's favor. However, the MiGs were critical as far as they put limits on the ability of UN aircraft to operate freely over the north.

The MiG-15 in the Evergreen Museum's collection is a MiG-15 UTI, 2-seat trainer, built in China by the Shenyang Aircraft Factory. The Mikoyan-Gurevich MiG-15 (NATO name: Fagot) was one of the first successful jet fighters to incorporate a swept wing design to achieve high transonic speeds. ➤

Band of Brothers

JOHN BURLESON

SUNDAY DOCENT

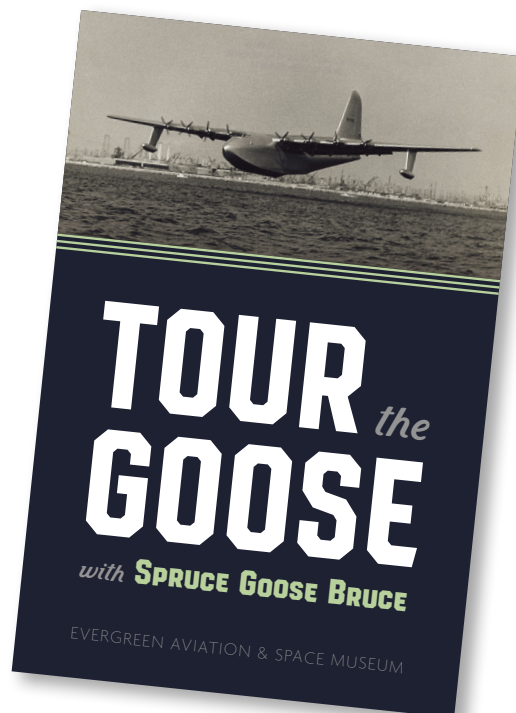
JUNE

The speaker for June 5th is **Eric Schmidt**, a Professor of Economics at Linfield. Eric will discuss the U.S.'s ability to transform virtually overnight into the Arsenal of Democracy that led to the defeat of the Axis.

JULY

The speaker for July 3rd is **Bruce Bothwell**, AKA **Spruce Goose Bruce**. A long-time Evergreen Docent and retired U.S. Air Force Lt. Colonel, he has written a book titled *Tour the Goose with Spruce Goose Bruce* that is in its third printing, available for purchase in the Museum Store.

Band of Brothers meets in the large glass-walled room to the left of the main admissions desk in the West Pavilion (formerly Aviation Museum).



MUSEUM MISSION

Evergreen Aviation & Space Museum is a force of curiosity and courage for kids of all ages to gain the confidence to take flight.



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