

# FLIGHT LINES

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A PUBLICATION OF THE SOUTHERN MUSEUM OF FLIGHT  
BIRMINGHAM, AL

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Icon Of The  
Vietnam War

The "Huey"  
(see Page 3)



## MESSAGE FROM THE DIRECTOR



**I**t's always an exciting time at the Southern Museum of Flight as summer approaches and we *gear-up* for a busy season full of tours, programs and events! During the summer months at the museum, we see many non-school groups visit us such as summer youth programs and church camps, whereas our highest volume of K-12 school field trips will return in the fall.

I am so very proud that for years, we have been applying an *outside-the-box* approach to our museum offerings - bringing alternative and non-traditional programming to our patrons, visitors, and guests. Just like our libraries have become so much more than institutions where visitors check out a book and return it a few weeks later, museums and cultural arts organizations like the Southern Museum of Flight are no longer institutions where you go to look at an object on display with an explanation placard resting by it. Libraries, museums, cultural arts, and STEM institutions are now dynamic, interactive, engaging, and so much more multi-dimensional than we have ever been before.

Over the last several years at the Southern Museum of Flight, we have built a strong reputation of being an extension of the traditional school classroom, and we did this by aligning all of our tours and programming with the Alabama Course of Study Standards, whereby we built-in lesson plans to everything that we do... and we did this across academic disciplines – from Social Studies to Science, and from Mathematics to Language Arts, there is literally a complimentary lesson plan for all of our fellow teachers in the traditional classroom, from Kindergarten through 12<sup>th</sup> grade.

We understand that resources in our schools are often limited, and we adapted our approach to help our teachers in planning and preparing their respective field trips.

Perhaps it will be another season or two before we see a good sense of normalcy regarding field trips and other visiting groups at our cultural arts institutions (as we once knew them); however, it appears as though we might be turning the corner. And our engagement with the public to include *outside-the-box* engagement, such as additional virtual and outreach programming, will continue!

*Brian*

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### Flight Lines

is published monthly by the Southern Museum of Flight as an information source for its members, patrons, volunteers and friends. Articles that appear in this publication may be reprinted indicating the Southern Museum Of Flight as the source.

Comments are welcome and should be addressed to:

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4343 73rd Street, North  
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# VIETNAM ICON - UH-1 "HUEY"



As an icon of the Vietnam War and an angel of mercy for American troops who fought there, the Bell UH-1 Iroquois, affectionately known as the "Huey," has gone on to become the most recognizable helicopter in the world and was an aircraft to be used by all branches of the United States military, including the Coast Guard. To American troops who were exposed to constant enemy fire, the Huey and those who flew them were angels from on high. To the Viet Cong and the North Vietnamese Army, they were angels of death.

The U. S. Army initially designated the XH-40 as the HU-1 (*Helicopter Utility*). This designation system was altered in 1962 and the HU-1 became the UH-1, but the original nickname "Huey" remained. The official name of the UH-1 is the Iroquois, following the now defunct tradition of naming helicopters after Native American tribes.

Over 7,000 Hueys were deployed in numerous forms and roles in Vietnam. But the cost of the helicopter war was high: the U.S. Army lost 2,249 to hostile fire - more than half of them Hueys - and 2,075 to accidents; the U.S. Marines lost 424 to all causes. Between 1966 and 1971, one Army helicopter was lost for every 7.9 sorties. 564 pilots, 1,155 crewmen, and 682 passengers were killed in accidents alone. More Hueys were downed in Vietnam than any other type of aircraft.



During service in the Vietnam War, the UH-1 was used for various purposes and various terms for each task abounded. UH-1s tasked with ground attack or armed escort were outfitted with rocket launchers, grenade launchers, and machine guns. As early as 1962, UH-1s were modified locally by the companies themselves, who fabricated their own mounting systems.

UH-1 gunships were commonly referred to as "Frogs" or "Hogs" if they carried rockets, and "Cobras" or simply "Guns" if they had guns. UH-1s tasked and configured for troop transport were often called "Slicks" due to an

absence of weapons pods. Slicks did have door gunners, but were generally employed in the troop transport and medevac roles. UH-1s also flew "hunter-killer" teams with observation helicopters.

The UH-1 was retired from active U.S. Army service in 2005 and the U.S. Army National Guard in 2009. The final UH-1 was retired in 2016.

Boeing-Leonardo won a \$2.38B contract to manufacture a new batch of helicopters to replace the USAF's UH-1N Huey that are used to guard nuclear missile silos. The MH-139A is a militarized version of the AgustaWestland AW139. The USAF accepted its first MH-139 on December 16, 2019 and named it "Grey Wolf".



The Southern Museum of Flight, as a lasting tribute to those who served with the Huey in Vietnam, is proud to display the Bell UH-1H on a pylon at the west entrance to the museum. This Huey was earlier located at the Redstone Arsenal in Huntsville, Alabama and came to the museum in 1999.

Planning began shortly after 1999 on the restoration schedule and display arrangement for the Huey. A dedicated cadre of skilled volunteer craftsmen began the myriad of tasks needed to produce an impressive result for public display and as a credit to the museum and to their skills.

**Those  
objectives  
were met!**





# MUSEUM'S ICON — A-12 “CYGNUS”

Since the Lockheed A-12 “*Cygnus*” made its appearance at the Southern Museum of Flight over 20 years ago, it has been the most recognizable visual icon of the museum. Of the 13 A-12s originally built, only 8 remain and the SMF has one of the most storied airframes, identified by Lockheed and the CIA as Article 131 “*Cygnus*” (USAF 60-6937).

This aircraft was the **first** A-12 to be deployed to Kadena AFB (*Okinawa*) in 1967 for CIA purposes. It also flew the **first** of 29 A-12 operational missions mostly over North Vietnam. It also flew the **first** of three operational missions following the seizure of the USS *Pueblo* in 1968 by North Korean military forces. It made its last flight on June 21, 1968 to Lockheed’s Skunk Works in Palmdale, CA, the final flight of any A-12. Article 131 had flown just 345.75 hours in 177 flights.

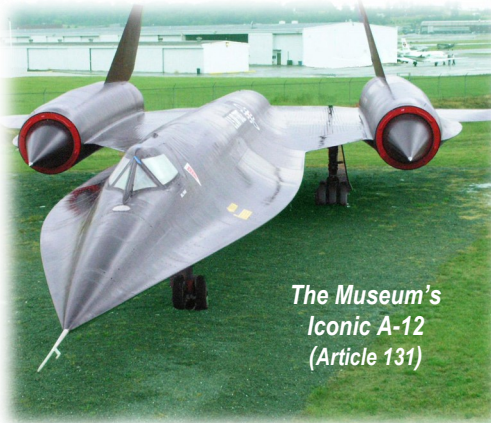
This historic aircraft was transported from Palmdale to Birmingham in February 2000 where it has been honorably displayed to the public and been the focus of many events that emphasized the important role the A-12s and SR-71 “*Blackbirds*” served during their reconnaissance missions.

Surviving the final U.S.A.F. screening process for the pilots that would fly and test this new and exotic airplane for the CIA would be Birmingham native, **Jack Warren Weeks**. He was one of the eleven initial pilots from which only eight were finally assigned to the program.

Jack Weeks was a 1955 physics major graduate of the University of Alabama. He served with the ROTC at Alabama and following graduation, entered the United States Air Force to begin pilot training. Following training, he was assigned to a tactical fighter squadron and served in various flying and training assignments until his selection for the Project OXCART program of the CIA.



Jack W. Weeks (1933-1968)



The Museum's  
Iconic A-12  
(Article 131)

Weeks, and his fellow A-12 pilots, were our nation's Cold War icons of aviation. They were the ‘*Best of the Best*’. They flew across the sky at unbelievable speeds and higher than most can even imagine. To these “*Unknown Heroes*” we owe more than one can say with “*thanks*”.

Weeks flew Article 131 on the first of three reconnaissance missions following the seizure of the USS *Pueblo*, and four other Black

Shield missions. On June 5, 1968, as Operation Black Shield was being terminated and the A-12s returned from Kadena AFB to Area 51 for retirement, Jack Weeks was conducting a functional checkout flight of Article 129 after replacement of one of its engines and was lost in the South China Sea. He became the second CIA pilot killed in the OXCART Program honored in the “*Book of Honor*” at CIA Headquarters. Weeks was awarded the CIA Intelligence Star for courageous action and this award was presented to his wife, Sharlene, posthumously.

On June 4, 2008, a ceremony was held at the USS ALABAMA Battleship Memorial Park beside an A-12 (Article 132). Famous artist Dru Blair unveiled another of his exceptional paintings, this one depicting Jack Weeks' A-12 mission over North Korea during the USS *Pueblo* seizure by North Korean naval forces.



Our museum is both honored and proud to help preserve the important and historic actions of heroes and aviation artifacts for the benefit of future generations.

➤ **Historical Fact** ➤  
The crews named the A-12 the ‘*Cygnus*’, suggested by **Jack Weeks**, to follow the Lockheed practice of naming aircraft after celestial bodies



# A HISTORIC AIRSHOW



The Southern Museum of Flight, along with the Commemorative Air Force (*Gulf Coast Wing*) and the Flagship Detroit Foundation, brought living history to Birmingham. One of the most strategic and iconic aircraft of World War II, the Boeing B-17 “*Flying Fortress*”, and one of the earliest airline passenger aircraft, the Douglas DC-3, Flagship Detroit as well as two other vintage warbirds, a North American T-6 “*Texan*” and a Beech C-45 “*Expeditor*” roared into Birmingham on Friday, May 14<sup>th</sup>. And it was a picture-perfect weekend of weather that greeted these historic aircraft.

B-17 historian Kevin Micheals says there are only three active B-17 planes of the more than 12,000 produced that can still take to the skies. But he says it's more than the feeling of riding in the 80-year-old plane; it's a connection to some of the bravest soldiers in history.

*“I don’t know how they did it, they were 17 to 22 years old, they were high school and college-aged kids that won this war. They were just kids back then and did a job most of us couldn’t do,”* said Micheals.



These aircraft represent a legacy of courage and valor and the great weekend of weather along with their historic significance attracted an enthusiastic attendance of **+1,100 VISITORS**



## Views Of The Boeing B-17

Top View: The Bombardier's Station  
Side View: The Cockpit

## During This Month In History

**June 3, 1959** Graduation of the first USAF Academy class

**June 10, 1989** Capt. Jacquelyn Parker is the first female pilot to graduate from the USAF Test Pilot School

**June 16, 1909** Celebration in Dayton, OH to mark the homecoming of the Wright Bros.

**June 15, 1922** The Berliner Helicopter, a hybrid aircraft makes a short vertical flight

**June 22, 1946** Two USAAF P-80s make first jet air mail delivery

**June 23, 1905** Wilbur and Orville Wright make their first flight of 1905 in Huffman Prairie, OH in their new “Flyer III”, the first practical airplane in history

**June 26, 1946** The USAAF and the USN adopt the knot and nautical mile as aeronautical units for speed and distance



# INTERESTING AVIATION FACTS

## Early Aviation Navigation LFR - Low Frequency Radio

The earliest radio navigation aid was the four-course radio range, which began in 1929. Four towers set in a square transmitted the letters **A** (*dot-dash*) and **N** (*dash-dot*) in Morse code. A pilot flying along one of the four beams toward the square would hear only an **A** or **N** in the dashes and dots of the code. The dashes and dots grew louder or more faint, depending if the pilot was flying toward or away from one of the corners. Turning right or left, the pilot would soon hear a different letter being transmitted, indicating which quadrant the plane had entered.

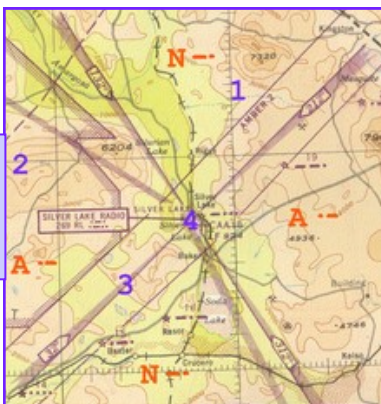
The beams flared out, so that at certain points they overlapped. Where the A or N signals meshed, the Morse code dashes and dots sounded a steady hum, painting an audio roadway for the pilot. At least 90 such stations were in place by 1933, about 200 miles apart along the 18,000-mile system of lighted towers and rotating beacons.

Until World War II, radio navigation relied on low frequencies similar to those of an AM radio. Devices such as the ADF (automatic *direction finder*) and the NDB (*non-directional beacon*) like the 1920s system before them, used Morse code, and the detection of weaker to stronger volume let a pilot know if the plane was on course.



The transmitter on display in the Early Aviation Hangar (*shown above*) is a 1939 Federal Telegraph Model TSG in use until LFR stations were replaced with newer technology like the VOR systems, and the more modern GPS systems.

Aircraft at Location 1 would hear:  
"dash-dot, dash-dot"  
at Location 2: "dot-dash, dot-dash"  
and at Location 3:  
a steady tone - on the beam



## The Award For The World's Worst Military Airplane

The Christmas Bullet was the rare kind of fighter which had a perfect kill ratio: it killed everyone who ever tried to fly it. If an award was ever created for the world's worst aircraft, many feel the Christmas Bullet would certainly qualify for the award hands down. Its creator was Dr. William Whitney Christmas (1865-1960).



Dr. Christmas did not have a doctorate in engineering; he was a medical doctor. He believed that struts were unnecessary and that an plane's wings should be free to flap like a bird's. Unfortunately, on the first flight of his Bullet fighter, also known as the Christmas Strutless Bi-plane and by other names, the wings peeled straight off and the aircraft crashed, killing the pilot and destroying the aircraft, including the prototype engine on loan from the military. A second Bullet did exactly the same thing a few months later. The Christmas Bullet had two take-offs, no landings, two crashes and two dead pilots.

Christmas must have realized that he couldn't keep killing people forever. Further production and testing of the Bullet was halted although he continued trying to sell the Bullet to the military, claiming it outperformed contemporary British and French fighters during a testimony to the House Select Committee on Expenditures in the War Department. He insisted to Congress that he had photographic evidence of several successful test flights, but the negatives were hidden or destroyed by the government as part of a malevolent conspiracy against him. By 1923, he called it quits, billing the Army \$100,000 for his patented wing design. It's quite possible that they paid simply to stop him from further building planes.

Christmas never stopped making outrageous claims, insisting that Germany had offered him one million dollars to rebuild their air force and that he had invented the aileron. He would end up the VP of the General Development Corp., a Miami-based real estate company.



# FUTURE ATTACK HELICOPTERS



The U.S. Army requires an aircraft capable of operating in a complex airspace and degraded environments against adversaries with advanced air defense systems. Their current aviation fleet does not possess a dedicated aircraft to conduct armed reconnaissance, light attack, and security with improved standoff capabilities to hide in radar clutter and for the urban canyons of mega cities.

In April 2019, five agreements for the design, build, and test of FARA (*Future Attack Reconnaissance Aircraft*) prototypes were awarded by the U.S. Army. Five industry members selected were: AVX Aircraft Co. (with L3Harris as a partner), Bell Helicopter Textron Inc., Boeing, Karem Aircraft, Inc., and Sikorsky Aircraft Corp. (now part of Lockheed Martin). Phase One ended when initial design and risk review assessment with each performer was conducted and the selection of two prototype designs was made in early 2020. Phase Two would end with a flight test evaluation no later than the fall of 2023.

The Army picked Bell's **Invictus** and Sikorsky's **Raider X** as the two prototype designs that will face off against each other under its FARA program during this second Phase. Both of these industry leaders are now developing tiltrotors, compound helicopters with pusher propellers, choppers with wings that offer speed and range that conventional helicopters cannot match. The two prototype designs represent the most mature of the various proposals that were received.

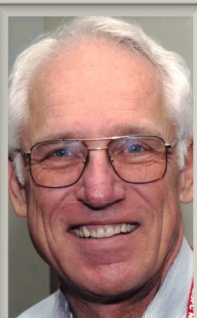
Taking cover from anti-aircraft weapons amidst low-altitude radar clutter is central to the Army's plan for Future Vertical Lift aircraft. These aircraft will be a flying "ecosystem" of interconnected manned and unmanned aircraft.

FARA will fill a critical capability gap currently being filled by AH-64E Apache attack helicopters teamed with Shadow unmanned aircraft following the retirement of the OH-58D Kiowa Warrior helicopters.

Lockheed has unveiled its **Raider X** that uses technology with a focus on how it will perform "at the X." The 'X' is defined by the Army as the terminal area where they actually have to go do the work, do the reconnaissance, do the attack mission.



Bell has revealed its design - the Bell **360 Invictus**. But its design features several key differences, including its size in order to adhere to the Army requirement of 40-foot in diameter rotor blades.



*Robert T. "Bob" Jaques*

*October 17, 1940 - April 28, 2021*

**Bob Jaques** passed away last month. Born in Laramie, Wyoming, he was preceded in death by his parents, his son, Robert, brother, Douglas and mother of his children, Karen. Bob proudly served his country in the United States Navy. He was employed by and retired from JELD-WEN Company. Bob has served as a SMF Board of Directors member since 2008 and his passion for aviation and his dedication and involvement with the museum will be an invaluable legacy.

*Blue Skys & Tailwinds*



# MEMBERSHIP

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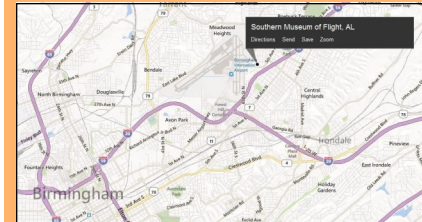
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[www.southernmuseumofflight.org](http://www.southernmuseumofflight.org)  
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