

# FLIGHT LINES

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A PUBLICATION OF THE SOUTHERN MUSEUM OF FLIGHT  
BIRMINGHAM, AL

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*The Museum's  
CV-6 Model  
(see Page 3)*

*MARCH  
Is  
Women In Aviation  
Month*

## MESSAGE FROM THE DIRECTOR



Well, 2021 is well underway, spring is upon us, and we are entering our 55<sup>th</sup> year as an organization here at the Southern Museum of Flight! It seems like just yesterday we celebrated our Golden Anniversary, and when I think about the handful of years since then, I cannot help but think of the collaborations, partnerships, and other relationships we have formed

with so many of our community partners. One such relationship is that with the 117<sup>th</sup> Air Refueling Wing of the Alabama Air National Guard located right here with us in the Magic City.

The 117<sup>th</sup> Air Refueling Wing (ARW) is celebrating 100 years as a flying unit, and it is quite amazing to think that our organizations share over 150 years of combined history, tradition, and dedication to service. We, at the Southern Museum of Flight, view the museum as stewards of the History of the 117<sup>th</sup>. We are so very proud to work with the unit's command in preserving the rich stories and artifacts that reflect such a storied military outfit.

Many of us who serve the Southern Museum of Flight in various capacities share military backgrounds with our friends at the 117<sup>th</sup> ARW. Several of our exhibitions and displays honor those who have come before us in service to both the unit and this country, and we are excited about the paths we continue to forge as we move into this new decade.

As part of a broad collation within the museum's Aviation Workforce Initiative (AWI), the 117<sup>th</sup> Air Refueling Wing and the Southern Museum of Flight are working with industry and educational partners throughout the City of Birmingham, as well as the State of Alabama, to bring workforce development programs to the Southern Museum of Flight campus. This is quite an exciting time at the museum, as the renovation of one of our existing hangars is currently underway. This renovated hangar space will soon become the "lab" space for our Aviation Workforce Initiative's programming.

If you haven't visited the museum lately, please stop by and check out the new offerings, and stay tuned to future editions of *Flight Lines*, as I look forward to featuring additional partner organizations associated with the Southern Museum of Flight's Aviation Workforce Initiative!

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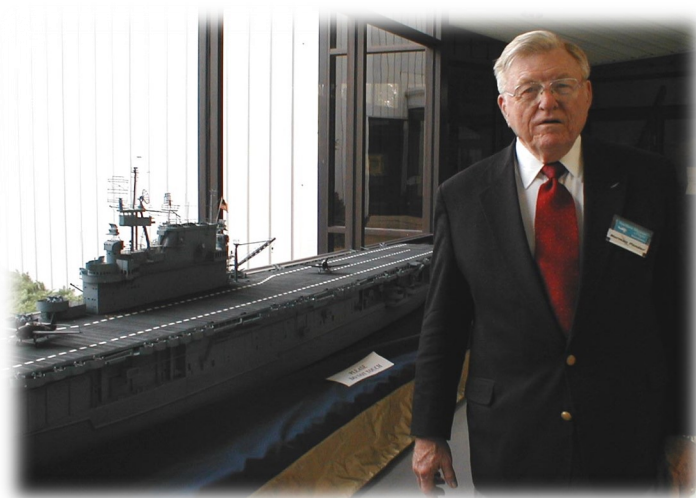
### Flight Lines

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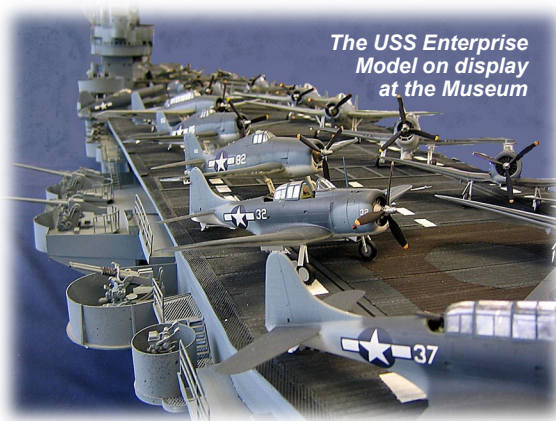
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# THE USS ENTERPRISE CV-6



brothers made their marks in the air while another (*Henry*) served on Navy destroyers. Before the war ended, at least one brother had seen action in every major Pacific naval engagement.

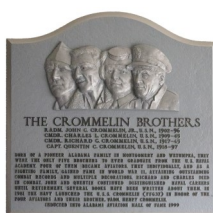


**N**orman E. Ponder, Jr. (1922-2019) is pictured above presenting the Southern Museum of Flight with an impressive 11- foot scale model of the aircraft carrier USS Enterprise (CV-6). He had also constructed and presented the museum with a very detailed scale model of the USS Birmingham CL-2 (*which was the first warship to launch an aircraft in 1910*). These models, along with other remarkable models throughout the museum add an additional dimension of reality to the museum experience.

Norman Ponder was not only a skilled craftsman, he was a valued member of the museum's Board for many years and worked tirelessly helping to restore aircraft and support the mission of the Museum.

As a member of the Greatest Generation, Norm flew C-47 transports with the USAAF in the Pacific theatre during World War II and served in the USAF Reserves following the war, where he rose to the rank of Lt. Colonel. He was an active member of the Birmingham Aero Club and the Experimental Aircraft Association, having built his own Pazmany PL-4A experimental airplane which he flew for many years and is now on display at the museum.

Members of the Alabama Aviation Hall of Fame, the famous Crommelin brothers (*John, Charles, Richard, and Quentin*) also had a USS Enterprise connection. RADM John Crommelin was Executive and Air Officer during the June 1942 victory during the Battle of Midway and was a major force behind the spirit of "*Big E*". All the brothers became military celebrities until the horrors of World War II hit home and tore the family apart. The four Crommelin



Of the more than twenty major actions of the Pacific War, Enterprise engaged in all but two. Her planes and guns downed 911 enemy planes; her bombers sank 71 ships, and damaged/destroyed 192 more. She was also the first American ship to sink a full-sized enemy warship after the Pacific War had been declared when her aircraft sank a Japanese sub. Her presence inspired pride for the Allies and sparked fear into the heart of the enemy. The USS Enterprise earned 20 battle stars, the most for any U.S. warship in World War II, and was the most decorated U.S. ship of World War II.

In addition to these naval vessels models, the museum proudly exhibits the following aircraft as imposing tributes to naval aviation:

A-4F "*Skyhawk*" (in *Blue Angels* livery)  
A-7E "*Corsair II*"  
F-4N "*Phantom II*"  
F-14 "*Tomcat*"  
T-2C "*Buckeye*"  
S2F-1 "*Tracker*"  
T-28C "*Trojan*"



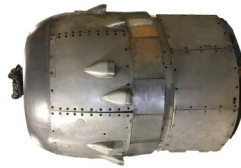
Ever since Eugene Ely became the first person to take off from the USS Birmingham in 1910, naval aviation has forged a unique identity within the American military. They fly, but they're not the U.S. Air Force. However, judged on number of airplanes, the U.S. Navy is the second largest air force, not just in the United States, but in the entire world.



# RESTORATION HAPPENINGS



The restoration team has continued its efforts on the **TB25-N "Mitchell"** that was part of the training program for the Tuskegee Airmen during 1945. Shown above is the forward fuselage and tail assembly now on display in the South Wing Hangar as well as one of the Wright R-2600-29A radial engines shown in the inset.



When the restoration is completed, this aircraft will proudly take its place as part of the existing exhibit and will tell another story of the Tuskegee Airmen legacy.

While much of the museum's restoration program was suspended during 2020, progress was made on many fronts. It was decided to move the rare, single-engine **Fairchild 24 C8B** from the restoration annex to the General Aviation Hangar which now provides our visitors the opportunity to watch the restoration in progress and interact and discuss the restoration activities they are observing. Our restoration experts find this new experience rewarding as do our museum visitors.



Our museum's Memorial Airpark is set up to be visible to passing vehicle traffic as well as the deliberate museum visitor. The positive effects of static display aircraft can show diminishing awareness over time as frequent passers-by become accustomed to the displays and start to ignore them. It is for these concerns that deterioration of airplane structure, surface finish, and components must be constantly addressed with proper maintenance. And our restoration experts are constantly cleaning, protecting and repainting the exteriors of the aircraft as needed to help protect the aircraft and keep them impact looking presentable.

One of the aircraft selected for a "refreshing" is the Cessna O-2A "Skymaster". And this activity has become a personal effort of our Director of Operations and Curator, Wayne Novy. He plans to change the exterior appearance of the Skymaster from its "camo" appearance to the USAF standard color scheme. We're sure all future visitors will approve the fresh new look when the O-2A returns to its new location in the South Wing Hangar.

**Cessna O-2A "Skymaster"**



During the Vietnam War, the O-2A was introduced as a replacement for the O-1 Bird Dog as the forward air control (FAC) aircraft. While it was intended the O-2A be replaced by the OV-10 Bronco, the O-2A continued to be used for night missions after the OV-10's introduction, due to the OV-10's high level of cockpit illumination, rendering night missions impractical.

There were a total of 513 O-2As delivered to the USAF and a total of 178 USAF O-2 Skymasters were lost in the Vietnam War, to all causes.

# AN F-4, A DIRECTOR, A LEGACY



On a pedestal at the front of the museum, a McDonnell-Douglas F-4N "Phantom II", in Marine Corps livery, brings back memories of a time gone by of a former Director of the museum and member of the Alabama Aviation Hall of Fame, Dr. Dudley Pewitt (1930-2017), and his service during the Vietnam War.



At Da Nang Air Base in 1972, Col. Pewitt was Gunfighters Director of Operations and had conceived the idea of operating one F-4E as a free-roaming and heavily armed strike-reconnaissance late in the afternoon. This was intended to locate the North Vietnamese as they prepared for the next night's offensive. The F-4E would be armed with two SUU-23/A gun pods and two pairs of U.S. Navy Mk-20 Rockeye II cluster bombs. These weapons would allow the lone Phantom to run the roads at the day's last light, and any strikes it made would slow the North Vietnamese at night. The 'Chico' loadout was easily reconfigured so the aircraft could be used for normal daily strike missions. This heavily armed and deadly strike-reconnaissance aircraft would be known as 'Chico the Gunfighter'.

Under the rules of engagement, 'Chico' was allowed to roam alone and unescorted. The 'Chico' call sign alerted airborne forward air controllers (FACs) that a special F-4 was available and there would be no confusion with other FACs performing their mission in the area.

'Chico' flew most of its missions between May 19 and the end of June 1972. The 366th 'Gunfighters' then moved to Takhli AB in Thailand. From there, the distance to any potential targets was too far and the concept was retired. Among the pilots who flew 'Chico' were five high-ranking officers. As for Col. Pewitt, the missions he flew during this period saw him credited with the destruction of 126 boats, four armored vehicles, two 130mm cannons, two 23mm guns, one supply storage, two buildings and several ammunition dumps.



Col. Pewitt (on right) with 'Chico' Crew

After 23 years of service, Colonel Dudley Pewitt retired from the USAF and joined the University of Alabama at Birmingham where he rose to become Senior Vice President for Administration. His love of aviation led him to serve as Chairman of the Board and later Director of our Southern Museum of Flight, retiring in 2005.

Dr. J. Dudley Pewitt was inducted into the Alabama Aviation Hall of Fame in 2006.

## The Gunfighters

Serial 68-339, the F-4E chosen to be called 'Chico', belonged to the 421st Tactical Fighter Squadron (TFS). Flying as a loner and not in a pair as was the norm, this heavily armed fighter became well-known to FACs in the 'hot' areas in and around the DMZ. When 'Chico' checked in they knew they had a fast-responding, deadly accurate weapon at their disposal. The gun pods carried 1,200 rounds of



20mm ammunition and the aircraft's internal cannon packed another 640 rounds. While its guns were very accurate, it was the Rockeyes that proved to be the most effective weapon. Once released from an aircraft, the Rockeye fell for an amount of time before it opened and softball-size bomblets dispersed over a large area that caused them to detonate above ground, on impact, or in a delayed fashion. 'Chico' was probably the only USAF F-4 to use the Rockeye in combat in South-East Asia, as this weapon was employed mainly in U.S. Marine Corps and Navy service.

There were a total of three F-4 Fast FACs, all with the 366 Tactical Fighter Wing at Da Nang: 'Chico', and the two regular high-speed FAC groups, 'Stormy' and 'Gunsmoke'.



# WOMEN IN AVIATION

## 2021 International WOMEN IN AVIATION Virtual Conference

As WAI continues to monitor and follow guidelines for COVID-19 worldwide, WAI made the decision to replace their in-person annual gathering of the 32<sup>nd</sup> Annual International Women in Aviation Conference scheduled for Reno, Nevada with an all-virtual WAI2021 two-day event on March 11-12. There's no better place to be inspired, share individual enthusiasm, and connect with others who share the common passion for the aviation industry. The organization is looking forward to next year's in person gathering to connect, engage, and inspire their valued members.



**WAI2021**

The Women in Aviation International Pioneer Hall of Fame was established in 1992 to honor women who have made significant contributions as record setters, pioneers, or innovators. Special consideration is given to individuals or groups who have helped other women be successful in aviation or opened doors of opportunity for other women.

On Friday, March 12, the inductees this year will include the U.S. Marine Corps' First Class of Women Aviators - a group of 10 trailblazers who represent the first women to go through pilot and naval flight officer training in the U.S. Marine Corps. Marine women were allowed to fly in 1993 after the repeal of the combat exclusion law.

Earlier group inductees included:

- 1993 *Women Airforce Service Pilots (WASP)*
- 1996 *The Fellow Lady Astronaut Trainees*
- 1997 *Navy Women Navigators of WWII*
- 1998 *The Whirly-Girls*
- 2008 *The Women's Section of the Air Trans. Aux.*
- 2012 *First Women's Natl. Air Derby Pilots*
- 2013 *WAI Founding Board of Directors*
- 2016 *USAF UPT Class 77-08*
- 2017 *First Class of Women Naval Aviators*
- 2019 *First Women of U.S. Coast Guard Aviation*
- 2020 *U.S. Army's 1st Women Rotary Wing Aviators*



### 1999 Reunion Of "The Originals" At The Museum

(l to r): B.J. Erickson **London**, Barbara Poole **Shoemaker**, Teresa James **Martin**, Florene Miller **Watson**, Gertrude Meserve **LeValley**, & Nancy Batson **Crews**

The elite World War II woman pilot **Nancy Batson Crews** (1920-2001), of Birmingham, the 20th candidate selected for the program, was inducted as the first woman into the Alabama Aviation Hall of Fame in 1979. She was also the top woman activist for women in aviation exhibits and programs at the SMF.

The story of the WAFS is told in the book, "*The Originals*", by Sarah Byrn Rickman. Twenty-eight women pilots ages 21-35, with at least 500 hours cockpit time, commercial licenses and a 200hp engine rating, answered the call of their country in the fall of 1942 and joined the Women's Auxiliary Ferrying Squadron (WAFS)\*. Patriotism was running high. Women, like men, were caught up in the fever to "*do their bit for the war effort.*" Though they never left continental North America, the contribution of these twenty-eight women would help turn the tide in the favor of the Allies. The WAFS were an elite corps from the standpoint of skills, ability and experience. The future of women in military aviation hung on how these select women performed professionally and conducted themselves socially and morally.

Their original assignment was to ferry small single-engine trainer and liaison-type aircraft and, thereby, release male pilots for combat duty. Before long, they were also ferrying high-powered fighter and bomber aircraft — P-47s, P-38s, P-51s and even the B-17 "*Flying Fortress*" from coast to coast.

\* In 1943, the WAFS and the WFTD (Women's Flying Training Detachment) were combined to form the WASP (Women Airforce Service Pilots).

# FUTURE AIRCRAFT — DRONES



The Kettering Bug

Drones have been around for more than two decades, but their roots date back to World War I when both the U.S. and France worked on developing automatic, unmanned airplanes. The U.S. had developed the Kettering Aerial Torpedo, or “Bug”. The Dayton-Wright Airplane Company built fewer than 50 Bugs but the war had ended before any could be used in battle. This early Unmanned Aerial Vehicle (*UAV in today’s terminology*) was a simple, cheaply made 12-foot-long wood biplane with a wingspan of nearly 15 feet that weighed just 530 lbs., including a 180-pound bomb. It was powered by a four-cylinder, 40-horsepower Ford engine. After launching, an operator calculated the number of engine revolutions needed to take the Bug to its target and after a certain number of revolutions, the wings were released from the fuselage, which then simply fell onto the intended target.

Lessons from the *Kettering Bug* were used in the development of the first guided missiles and radio-

controlled drones. It is interesting to note that the advanced German V-1 flying bomb of World War II also had a small propeller whose sole purpose was to determine when to shut off the V-1’s engine.



Lockheed’s D-21

On display at the museum is one of the fastest UAVs built during the 1960s – the D-21 aerial drone used by the CIA for aerial reconnaissance. This Mach 3 drone, powered by a ramjet, was originally intended to be launched from an A-12 but was subsequently launched from a B-52 “*Stratofortress*”.

From technically manning sensitive military areas to luring hobbyists throughout the world, drone technology has developed and prospered in the last few years. Individuals, commercial entities, and governments have come to realize that drones have multiple uses. Development of hundreds of more uses are underway due to the multiple investments pouring into this

promising industry every day. Sales of drones are expected to top \$12 billion in 2021. And no small amount of that will come from the sale of personal drones used for film-making, recording, photography and gaming by common tech-savvy enthusiasts. Military spending for the UAV programs is estimated at a total of almost \$2.4 billion. Commercial spending impacts could be \$82 billion and a 100,000 job boost by 2025. Consumer spending could be \$17 billion on drones over the next few years.

“UAVs” have come a long way since first appearing in 1917. The next generation of drones is already underway and smart drones are the next big revolution. Smart drones will provide new opportunities in transport, military, logistics, and commercial sectors.

The military role of unmanned aircraft systems is also growing at unprecedented rates. Drones will continue to prove superior for more basic tasks, such as reconnaissance missions, but more delicate flight needs will remain human piloted for a while yet. Future programs such as Skyborg and Loyal Wingman programs will continue to expand the role of autonomous aircraft.



Global Hawk

## Aircraft Totals By Service

BRANCH	TYPES OF AIRCRAFT	NUMBER IN SERVICE	MOST IN INVENTORY	
AIR FORCE	62	5,279	of which	1,078 are F-16C
ARMY	29	4,167	of which	1,443 are UH-60
NAVY	30	2,388	of which	512 are F/A-18E/F
MARINES	30	1,273	of which	236 are MV-22B
COAST GUARD	10	200	of which	95 are MH-65D
TOTALS		13,307		



# MEMBERSHIP

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#### ***Yes, I would like to become a member of the Southern Museum of Flight***

Your membership will help the museum continue its work in preserving southern aviation history, restoring historic aircraft and inspiring students to excel in science and technology

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#### ***Aviation Ace \$500.00***

- Unlimited admission for one year
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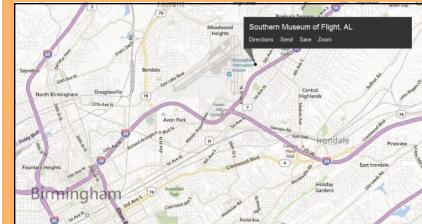


**Current Museum Hours**  
Tuesday—Saturday, 10:00 am—2:00 pm  
Closed Sundays and Mondays

**Telephone**  
205.833.8226 / FAX 205.836.2439

**Address**  
4343 73rd Street North  
Birmingham, AL 35206-3642  
(2 blocks from the  
Birmingham International Airport)

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