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A PUBLICATION OF THE SOUTHERN MUSEUM OF FLIGHT
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- featuring -

*AERIAL
RECONNAISSANCE
EXHIBITS & ARTIFACTS
AT THE
MUSEUM*



NEW DIORAMA FOR EARLY AVIATION

An Eaglerock Update



Once upon a time there was a little girl named Nellie who, at the very young age of four, found she could no longer hear the birds in the sky sing. But this did not stop her from wanting to learn to fly like a bird. When she was twenty-seven, Nellie got her first ride in a plane. She wrote her father saying, *"I want to learn to fly!"* When Nellie passed all her tests, her father bought her a plane, an Alexander Eaglerock biplane, which she named *"Pard"* after her dad.

To make a living, Nellie (*Eleanor "Nellie" Zabel Willhite, 1892-1991*) became a barnstormer. Nellie's favorite part of a performance was flying high up in the air, flipping upside down, with *"Pard"* spinning around.

Nellie grew up to be quite an amazing girl. She was the first woman to get her pilot's license (#8242) in South Dakota and the first deaf person to get a pilot's license. Nellie was rated as a commercial pilot and worked carrying air mail. During World War II, she was a ground school instructor, and then a propeller inspector. Postwar, she returned to Sioux Falls and enjoyed a quiet retirement until her death at age 98.



The plane displayed in our museum is Nellie's very own *"long-wing"* Alexander Eaglerock - *"Pard"*. This aircraft is one of only five remaining models of this type and only one of two left in flying condition when it was *"retired"* to the museum.

The Eaglerock biplane was manufactured in Englewood, CO, and later in Colorado Springs by the Alexander Aircraft Company. One of the young employees, Al Mooney, was instrumental in the early success of the Eaglerock. His suggestions resulted in design changes to one of the Eaglerock airplanes under construction and this youngster, along with his brother, went on to found the Mooney Aircraft Co.

The Eaglerock was popular with well known aviators of the day and was in the running with the Bellanca as an aircraft-of-choice for Lindbergh's historic New York-Paris flight. However, neither were selected.

Nellie Willhite sold *"Pard"* in 1932, and a subsequent owner restored the Eaglerock in 1955. In 1963, the late George Epps (1927-2019) from Harvest, AL, purchased the Eaglerock and flew it back to Huntsville from South Dakota at an average speed of 70 mph. Epps also completed a restoration of the aircraft prior to his donation of this rare aircraft to the museum.

George Epps was an inductee into the Alabama Aviation Hall of Fame in 2005.



The Museum's Early Aviation Hangar has been upgraded in presentation design through the work efforts of **Teddy Feig** from Mountain Brook, AL. His Eagle Scout project focused on the Eaglerock and helped create a rural field - like diorama, which includes the George Epps' Model T Ford. This impressive diorama is one that dramatically presents this rare aircraft in partnership with the other three dioramas that form the focus of the Early Aviation Hangar.



BELLANCA'S & LINDBERGH



In 1926, a Wright-Bellanca WB-2 was designed and built by Giuseppe Mario Bellanca and ultimately became one of the most interesting sagas of that era. This amazing plane, the “*Miss Columbia*”, compiled an enviable record of long distance flights in just a few years and could easily have won the New York to Paris \$25,000.00 Orteig prize and captured the fame, fortune and world-wide recognition that Charles Lindbergh achieved.

Bellanca joined the Wright Aeronautical Corp. in 1926 as a consultant. Unfortunately, the organization decided to concentrate only on engine manufacturing, so Bellanca and an investor, Charles Levine, established the Columbia Aircraft Co. One of their early achievements was on April 12, 1927 when a WB-2 stayed aloft for 54 hours and 30 minutes flying an estimated 4,100 miles—a record endurance flight and more than enough range to win the NY to Paris prize. At one point, Lindbergh had made an offer to buy the WB-2 but was turned down. But then legal and personality problems arose in the Levine camp which created complications and delays.



Bellanca WB-2 “Miss Columbia”

In the meantime, Lindbergh was in San Diego with the Ryan Airlines organization designing and building the “*Spirit of St. Louis*”, which, amazingly, was completed within three months. On May 20-21, 1927, Lindbergh flew the “*Spirit of St. Louis*” non-stop from New York to Paris to win the Orteig prize and international immortality. Just two weeks after Lindbergh’s flight, “*Miss Columbia*” (shown above) made the flight from New York-Eisleben, Germany.

By July 1931, six Bellancas had crossed the Atlantic, and now in 2021, between 2,000-3,000 aircraft will travel across the Atlantic each day bound for either North America or Europe.

Of note, on May 2, 2002, the 75th anniversary of the historic 1927 achievement, Charles Lindbergh’s grandson, Erik, re-created his grandfather’s non-stop

flight. Erik made the flight in 17.1 hours in a single-engine Lancair Columbia 300 dubbed “*The New Spirit of St. Louis*”. The journey garnered a large media impression for the X PRIZE Foundation and helped to jump start the private Spaceflight industry.



Dr. H. Peter Jander of Mountain Brook, AL was the former owner of a Bellanca Super Viking, Model 17-31A (N101MV—shown below) and has agreed to donate his aircraft in flying condition to the museum. Currently there are only 74 Bellanca Super Vikings registered in the United States with this model designation. This very presentable and historic aircraft is currently on display in the museum’s South Wing Hangar.



Besides the earlier Bellanca “*Miss Columbia*” historic flight, there have also been a number of other record setting trans-Atlantic crossings.

The fastest flight was done by a Lockheed SR-71 “*Blackbird*” from New York to London in 1 hour, 55 minutes in 1974. The fastest time for an airliner is 2 hours, 53 minutes for JFK-London Heathrow (LHR) by the Concorde in 1996. The fastest JFK-LHR time for a subsonic airliner is 4 hours, 56 minutes by a British Airways Boeing 747-400 in February 2020, a distance of 3,440 miles.



AERIAL RECONNAISSANCE

Aerial reconnaissance began using balloons in 1794 by the French. After the invention of photography, primitive aerial photographs were made from balloons. The first use of airplanes in combat missions was by the Italian Air Force during the Italo-Turkish War of 1911–1912 when an Italian pilot flew over the Turkish lines in Libya to conduct an aerial reconnaissance mission.

A transformational growth in air reconnaissance occurred in the years 1939–45, especially in Britain and then in the United States. By the end of the war, aerial cameras had increased in size and focal power and they proved their pivotal military worth.

The best U.S. aircraft for aerial reconnaissance was the F-5 conversion of the P-38 “Lightning”,



which was delivered in far greater numbers than any other design. Aerial reconnaissance efforts tracked German jet aircraft research, deployment of the first German radar, and the V-1 flying bomb. By the end of World War II, British and U.S. reconnaissance by air was indispensable to both tactical and strategic planning.

In the half-century that followed Germany and Japan’s surrender, aerial reconnaissance became overhead reconnaissance, photography became imagery, and emissions of all sorts became the object of remote surveillance. In the first postwar decade, U.S. and

British reconnaissance was driven by an urgency to ascertain the threat contained by the vast and sealed reaches of the Soviet Union and later “Red” China. At first aircraft were mostly bomber conversions. Lockheed developed first the U-2 and later the SR-71 as the ultimate overflying reconnaissance aircraft. The U-2 was a jet-powered glider that flew at 80,000 feet and could fly over much more of the Soviet Union. Ironically, proof of any “bomber gap” could not be offered publicly for fear of showing its photographic technology advancements and a promising thaw in Cold War relations was aborted when an overflying U-2 was shot down by a Soviet missile in 1960.

Already in development was the SR-71, a Mach 3 aircraft flying at nearly 85,000 feet. The SR-71 quickly established its immunity to interception—no other airplane was regularly flown so fast or so high.

In the first decade of the 21st century, overhead reconnaissance by satellite predominates but for rapid updates of the battlefield,



aerodynamic air vehicles were still needed. More and more, however, these became unmanned. Such UAVs can range from micro - machines that fit in the palm of a hand to the Global Hawk or NASA’s solar-powered Pathfinder.

Our museum’s Reconnaissance Exhibit with its related support equipment and associated artifacts, highlight the history - changing impact of aerial reconnaissance, including the legendary A-12 Blackbird, with its mated D-21 drone. Within the exhibit are cases that feature various cameras showing the evolution of reconnaissance.

Be sure to include a visit with these examples of aerial reconnaissance when at the museum.

The Museum’s Impressive Inventory

The SMF’s Imposing Artifact: Lockheed **A-12** “Blackbird”
-and its Associated Drone: Lockheed **GTD-21B**



- **Hycon HR-308B** Technical Objective Camera (*shown on cover*)
- **Hycon A-9B** Aerial Reconnaissance Camera
- **Fairchild KA-2** Aerial Reconnaissance Still Picture Camera
- **Fairchild F-56** Aerial Reconnaissance Camera
- **Fairchild K-17C** Aerial and Reconnaissance and Mapping Camera
- **Folmer Graflex K-20** Aircraft Camera
- **Folmer Graflex K-21** Aircraft Camera