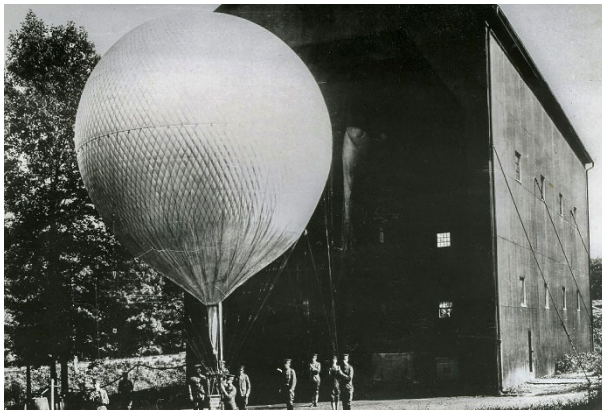


The First Air Force: The Aeronautical Division, U.S. Signal Corps

By: Hannah Chan, FAA history intern

The United States first used aviation warfare during the Civil War with the Union Army Balloon Corps (see [Civil War Ballooning: The First U.S. War Fought on Land, at Sea, and in the Air](#)). The lighter-than-air balloons helped to gather intelligence and accurately aim artillery. The Army dissolved the Balloon Corps in 1863, but it established a balloon section within the U.S. Signal Corps, the Army's communication branch, during the Spanish-American War in 1892. This section contained only one balloon, but it successfully made several flights and even went to Cuba. However, the Army dissolved the section after the war in 1898, allowing the possibility of military aeronautics advancement to fade into the background.



A Signal Corps Balloon at the Aeronautics Division Balloon Shed at Fort Myer, VA

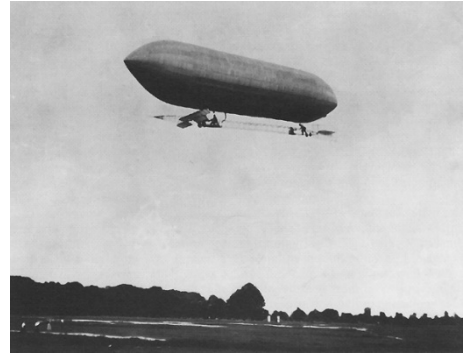
Photo: San Diego Air and Space Museum

The Wright brothers' successful 1903 flight at Kitty Hawk was a catalyst for aviation innovation. Aviation pioneers, such as the Wright Brothers and Glenn Curtiss, began to build heavier-than-air aircraft. Aviation accomplishments with the dirigible and planes, as well as communication innovations, caused U.S. Army Brigadier General James Allen, Chief Signal Officer of the Army, to create an Aeronautical Division on August 1, 1907. The division was to “have charge of all matters pertaining to military ballooning, air machines, and all kindred subjects.” At its creation, the

division consisted of three people: Captain (Capt.) Charles deForest Chandler, head of the division, Corporal (Cpl.) Edward Ward, and First-class Private (Pfc.) Joseph E. Barrett. Capt. Chandler was an experienced Signal Corps officer and balloonist. Cpl. Ward and Pfc. Barrett were to report directly to Capt. Chandler; however, Barrett deserted, leaving Ward as the first enlisted airman.

The Aeronautical Division had seven balloons but did not contemplate the use of aircraft until 1908. The Signal Corps issued specifications for a dirigible and an airplane and asked for contract bids. Thomas Scott Baldwin submitted the winning bid for the dirigible and the Wright brothers submitted the winning bid for the airplane. The flight trials were to begin in July 1908 at Fort Myer, next to Arlington Cemetery. In preparation for the trials, three first lieutenants (1st Lt.) were assigned to the Signal Corps on detached duty as candidate pilots: Thomas E. Selfridge, Frank P. Lahm, and Benjamin D. Foulois.

Dirigible trials officially began in August of 1908. All three pilot candidates learned how to fly the Baldwin airship, with Foulois credited as the first military dirigible pilot. When Foulois saw the Wright plane later that month, he recommended the Aeronautical Division solely concentrate on airplanes. This comment not only displeased the Signal Corps, as many officers were balloonists, but it would later hurt his flying career as well. The Army officially accepted and purchased the dirigible that month, designating it Signal Corps (S.C.) Dirigible No. 1. The Corps used the airship at Fort Omaha in Nebraska until it became unserviceable, eventually selling it in 1912.



Dirigible at Fort Myer, 1908
Photo: U.S. Army

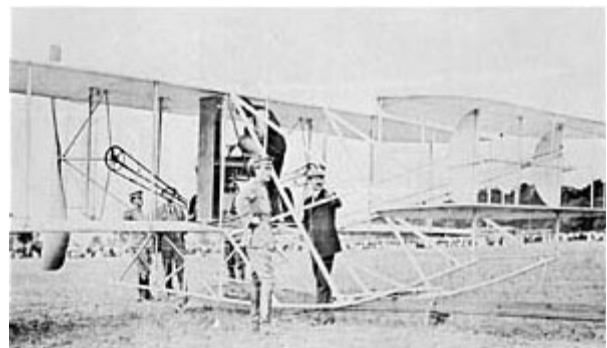


Fatal Crash of Wright Flyer at Fort Myer, VA
Photo: U.S. National Archives

Orville Wright brought his plane, a variation of the 1905 Wright Flyer, to Fort Myer on August 20, 1908. He made the first official demonstration on September 3. The flight lasted for only one minute and eleven seconds. Wright subsequently made multiple flights, with some lasting over an hour. Since the Wright Flyer could seat two people, Signal Corp officers accompanied him on his flights. On September 9, 1st Lt. Lahm became the first Army

officer to fly in an airplane. However, tragedy struck on the final demonstration flight on September 17. Wright and 1st Lt. Selfridge had been in the air for about four minutes when a crack in the right propeller caused the plane to crash, injuring Wright and killing Selfridge. Selfridge became the Army's first aircraft casualty. Because of the crash, the War Department postponed the flight trials until the following summer.

On June 20, 1909, Orville returned to Fort Myer, accompanied by Wilbur. They brought a 1909 Wright A flyer, which was similar to the previous aircraft, but with multiple improvements. The period between June 28 and July 27 were practice flights, with the official trials beginning on July 27, 1909. The first test, an endurance test, lasted for an hour, twelve minutes, and 40 seconds, with Orville piloting and Lt. Lahm observing. For the final trial, a speed test, the Army promised to pay the Wright brothers a ten percent bonus for every



Orville Wright, Lt. Lahm, and Lt. Foulois at Fort Myer, VA, July 27, 1909
Photo: U.S. Air Force

extra mile per hour (mph) above the required 40 mph. The Wright brothers purposely chose Lt. Foulois as the observer because of his smaller physique, standing at five foot six inches and weighing 126 pounds. The less weight on the plane, the farther it could travel. The speed test took place on July 30. The plane flew to Shooter's Hill in Alexandria, VA, and back, coming in at an average speed of 42.5 mph. The Army officially accepted the plane on August 2, paying the Wrights brothers \$30,000 (including the bonus for the extra two mph) and designating the Wright Flyer as S.C. Airplane No. 1.

The Army contracted the Wright brothers to train two officers to become pilots. Lahm and Foulois were originally selected to be trained; however, Foulois' earlier comment about balloons and aircraft came back to bite him. The Signal Corps, out of revenge for Foulois's criticism of the dirigible, sent him to France as the US delegate for the International Congress of Aeronautics. Second Lt. Frederick E. Humphreys from the Corps of Engineers replaced Foulois. Not only were the grounds at Fort Myer too small for a flying school, but the fort's commander needed the field for other purposes. Flying operations moved to College Park, MD, near the Maryland Agricultural College (UMD) - the current location of the present day College Park Airport and Aviation Museum. With Orville in Germany, Wilbur became responsible for flight instruction. Formal training started on October 9, 1909.



Starting Up the Military Flyer Engine, October 1909
Photo: College Park Aviation Museum

On October 26, Humphreys made his first solo, Lahm followed a few minutes afterwards. Foulois returned to the US in late October and received 90 minutes of flight instruction from Wilbur and Humphreys, but did not solo. On November 5, Lahm and Humphreys were flying together when the left wing caught the ground on a low turn, crashing the plane and

damaging the skids and right wing. Thankfully, both airmen were unhurt, but S.C. Airplane No. 1 needed repair. The crash, plus the incoming cold weather, halted the flying training program at College Park, MD.

The Wrights had already completed their contractual obligation of training two officers to fly, so they returned to Dayton, Ohio. Lahm and Humphreys returned to their companies, since they had been on temporary aviation duty. The Army sent Foulois to Fort Sam Houston in San Antonio, Texas, with S.C. Airplane No. 1, ordering him to "take plenty of spare parts and teach yourself to fly." (Foulois had only received 54 minutes of flight instruction from Wilbur and 90 minutes altogether.) He arrived in Texas in February 1910, and with the help of eight enlisted men, reassembled S.C. Airplane No. 1 and built a makeshift airplane hangar. He made his first solo flight on March 2, 1911, recounting, "I made my first solo, landing, takeoff, and crash." The

plane was in the shop for a week, but Foulois managed to make several successful flights in the repaired airplane. He received coaching from the Wright brothers by mail, becoming the first “correspondence-course” pilot in history. From November 1909 to April 1911, Foulois was the Aeronautical Division’s only airman, making up the Army’s entire air force. He made changes to the airplane: adding a seatbelt after almost being thrown out of the airplane and added wheels to the bottom of the aircraft to assist in landing. The Corps told him not to attach wheels, but he disregarded their instruction and bolted three farm wheels to the bottom, making the Army’s first use of wheels on an aircraft.



From 1907 to 1911, Congress did not give the military any money specifically for aeronautics. Foulois had to pay out of pocket for most of the repairs he made on the plane. But on March 3, 1911, Congress portioned out a part of its budget for military aeronautics, giving \$125,000 to the Army and \$25,000 to the Navy. With that money, the Signal Corps purchased two more airplanes: a Curtiss IV Model D, named S.C. Airplane No. 2, and a Wright B Flyer, named S.C. Airplane No. 3. Both aircraft had wheels rather than skids. Since the fleet tripled in size, the Aeronautical Division needed more pilots.



Captain Beck Takes the Wheel of a Curtiss Pusher near San Diego, CA, 1912

Photo: Glenn H. Curtiss Museum

The division quickly expanded as 18 officers volunteered to be trained as pilots. The Army did not relieve them of their regular duties; they learned to fly in their free time. The students were allowed to choose whether they wanted to learn how to fly the Curtiss or Wright plane, creating competition between them. The premier pilot of the Aeronautical Division was 1st Lt. Paul Beck. He had first learned to fly at the Curtiss school in San Diego before arriving at Fort Sam Houston to complete his training.

As the highest-ranking pilot, he was named commander of a provisional aero company on April 5, 1911. However, the company was short-lived after a fatal crash. On May 10, 2nd Lt. George E.M. Kelly died after failing to land S.C. Airplane No. 2. Foulois blamed Beck for the accident because he had wrecked the aircraft shortly before Kelly’s last flight, and claimed faulty material was used to repair the airplane. Foulois brought up his concerns to the investigating board, as well as questioning Beck’s qualifications for leadership. The review board disagreed, determining that Beck was not at fault. Yet, as a result of the crash, the commanding general of the Maneuver Division and the Fort Sam commander prohibited further flying at the fort.

In June 1911, flying operations returned to College Park, MD, where the Army established a flying school. Foulois did not return to Maryland, as the Army reassigned him to the Militia Bureau in DC. Beck was promoted to captain and sent as an instructor to the new flight school. The Army sent S.C. Airplanes 2 and 3 to College Park. However, S.C. Airplane No. 1 did not return to Maryland. The Army retired the aircraft and donated it to the Smithsonian Institution. At College Park, the Signal Corp received three more planes: S.C. Airplane No. 4, a Wright Flyer, S.C. Airplane No. 5, a Burgess-Wright, S.C. No. 6, another Curtiss aircraft.

The expansion of the fleet required more pilots. Lt. Henry H. Arnold and Lt. Thomas DeW. Milling arrived at the flight school, after previously receiving instruction in Dayton, Ohio. The two second lieutenants and Capt. Beck served as the flight school instructors. One of their first students was Capt.

Charles deForest Chandler, who had recently been appointed as the commanding officer of the flight school, as well as continuing his duty as the head of the Aeronautical Division.



Signal Corps Airplane No. 1 at the Smithsonian
Photo: National Air and Space Museum

At that time, the Army did not have a standard procedure for training pilots. Someone was qualified to fly after the Wright Brothers, Glenn Curtis, or a flight instructor said he was, yet the flight instructors had no proper qualification themselves. As a result, the Army adopted the Fédération Aéronautique Internationale's (FAI) regulation. This new formal process required all pilots pass a test before qualifying as a pilot. The Aero Club of America issued all of the FAI certificates.

The Army had always used aviation forces for reconnaissance. At the College Park school, pilots conducted several intelligence experiments such as aerial photography, smoke signaling, and carrying radios. In addition, the Army started to branch out into aviation combat. On October 10, 1911, the Army conducted its first aerial bombing trial. This was the first time the US military ventured out of aerial reconnaissance and into aerial combat. These experiments helped to prove the potential of aircrafts for offensive combat.

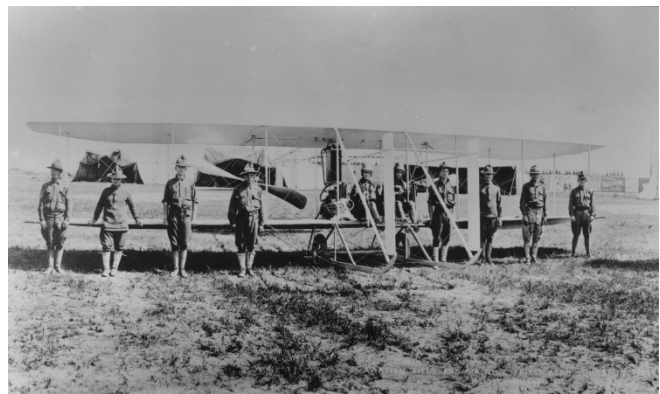


Lt. Beck Dropping Sandbags to See the Possibility of
Dropping Artillery from Aircraft
Photo: U.S. Air Force

The flying school resumed at College Park in 1912 after it transferred to Augusta, Georgia, for the winter months. Not much happened in Georgia, due to the harsher than average winter. In Maryland, the Signal Corps continued its experiments, testing aerial photography, night flying, using a radio in the air, and shooting the Lewis machine gun from above. Additionally, the Signal Corps purchased more airplanes, and by October of 1912, the division had nine functional aircraft. Earlier on February 8, 1912, the Signal Corps issued new specifications for two types of planes: a heavy “Scout” plane and a light “Speed Scout” plane. The fast single-seat “Speed Scout” plane was for strategic reconnaissance, while the two-person weight-carrying “Scout” plane was for tactical reconnaissance. S.C. Airplane No. 8, a Curtiss Scout, was the division’s first “Scout” plane.

The new specifications for and uses of aircraft made the military realize that pilots needed more training than required by the FAI. Additionally, aviation was a dangerous field and many had already lost their lives, making it difficult to recruit pilots. On February 23, 1912, the War Department announced the new rank of “Military Aviator.” This new rank provided professional recognition and incentive for new pilots. To qualify, pilots had to be commissioned officers, “attain an altitude of at least 2,500 feet, fly in a 15 mile-per-hour wind, carry a passenger to a height of at least 500 feet and immediately make a dead-stick landing within 150 feet of a previously designated point, and make a military reconnaissance cross-country flight of at least 20 miles at an average altitude of 1,500 feet.” Capt. Chandler, Lt. Arnold, and Lt. Milling became the first military aviators on July 4, 1912.

On March 3, 1913, the Chief Signal Officer created the 1st Provisional Aero Squadron, the Army’s first tactical aviation unit. Foulois, who had been away in DC at a desk job, became the squadron’s first commander. The unit, based in Galveston, Texas, was renamed the 1st Aero Squadron in December. This squadron was the first aviation unit of the Army and is still active today, now known as the Air Forces 1st Reconnaissance Squadron. In 1916, the squadron became the Army’s first aerial combat unit for its role in the Punitive Expedition of the Mexican Border, during the Mexican Revolution.



1st Provisional Aero Squadron, now known as the 1st Reconnaissance Squadron
Photo: U.S. Air Force

On July 18, 1914, Congress created the Aviation Section of the Signal Corps, making aviation a permanent part of the Army. This new section consisted of 60 officers and 260 enlisted men. The Aviation Section did not replace the Aeronautical Division, rather the division was absorbed into

the new organization and existed as the Washington office of the Aviation Section. By then, the Aeronautical Division had grown from a three-person division to a decent-sized with 51 officers and two enlisted men as pilots. The Army established flight schools in College Park, San Diego, Texas, Georgia, Hawaii, and even overseas in the Philippines. From its creation to the Aviation Section, the division spent \$50,000 on aeronautics and purchased 30 airplanes. The division contributed multiple innovations for aviation, such as goggles, seatbelts, and wheels, as well as for aerial combat, like carrying radios, aerial photography, and dropping artillery. It developed a formal procedure for training military pilots and led to the creation of the rank of military aviator. The Aeronautical Division of the Signal Corps became the first of many aviation divisions, sections, services, and corps that would eventually lead to the creation of the United States Air Force.