Lift Off: Military Service in Aviation History and Space Exploration

NCA owes its origins to the carnage of the Civil War and the unprecedented need for burial ground in which to honor its soldiers and sailors in death. The Civil War also provided a training ground for the fledgling Signal Corps of the U.S. Army. The Corps initially practiced "air telegraphy," conveying messages across battle lines using flags and torches. Aeronaut Thaddeus Lowe brought balloons to the war effort to aid reconnaissance and coordination of artillery. Lowe won President Abraham Lincoln's endorsement of balloon use by the Union Army, forever changing how battles were fought.

Courtesy NASA.

Lowe's balloons influenced German aviation pioneer Count Ferdinand von Zeppelin, who observed Civil War operations in 1863 and subsequently designed a rigid air ship. Zeppelin's dirigible balloons, or Zeppelins, remained in use until the 1930s. Zeppelins were not alone in the sky for long. In 1903, aviation pioneers Orville and Wilbur Wright designed a new kind of flying machine. Within two years, the Wright brothers and Army began negotiations to develop an airplane for use by the Signal Corps. In 1909 the *Wright Military Flyer* passed its flight tests at Fort Myer, Virginia. By 1914 the U.S. Army and Navy operated aviation squads.

With the declaration of world war in 1914, servicemen volunteered for flight. This propelled an industry that supported combat missions to defend communication balloons, low-flying airplanes, and ground troop movements. Engineered design and industrial manufacture, rather than specialty planes, improved the capabilities of the aircraft. Experienced pilots trained novices. Flight school programs matured. By the end of World War I, the U.S. Air Service was made up of 195,000 pilots. By World War II the aviation industry encompassed a variety of personnel and range of expertise from pilots to engineers, mechanics, navigators, and administrators. The service of the all-black pilots, Tuskegee Airmen, broke social barriers and helped push integration of the military.

World War II-era pilots broke through the sound barrier in 1947 and supersonic speeds pushed the limits of air travel toward the early years of the space program. Military aircraft evolved to match their pilots' technical prowess. The bi-planes of World War I gave way to the nine- and ten-crew B-17 *Flying Fortresses* of World War II. The aircraft carrier, a maneuverable floating airstrip, played a major role in the war. A rotorcraft, with the ability to lift vertically, would also see battle. Igor Sikorsky's helicopter, designed by for U.S. military use, was produced in 1942. The helicopter later defined two Asian theaters of war: in Korea with supply and rescue missions, and in Vietnam as a vital weapon and transport vehicle. Aircraft has changed how battles were waged and peacetime was maintained throughout the twentieth century.

The National Aeronautics and Space Administration (NASA) was created in 1958, and in the next decade seven servicemen would became the faces of the U.S. space program. As NASA accelerated beyond earth's gravitational pull, these veterans helped steer military aviation toward new frontiers. National cemeteries are the honored resting place for aviators who served in every U.S. conflict since World War I.

Harry George Armstrong, native of South Dakota, enlisted in the U.S. Marine Corps in October 1918. Pvt. Armstrong served during World War I and left in March 1919 to attend medical school. He graduated from the University of Louisville in 1925 and joined the U.S. Army Medical Reserves. In 1931 he was attached to the Air Corps as a flight surgeon. He established the Aero-Medical Laboratory in 1935, where his aero-medical research improved flight conditions and pilot safety. His research is credited with saving the lives of more than 2,000 aviators. Armstrong was appointed Command Flight Surgeon of the 8th Air Force (1942), named Air Force Surgeon General (1949), and Surgeon General of the U.S. air forces in Europe (1954). He received the Distinguished Service Medal and Legion of Honor, among other commendations. Gen. Armstrong retired from service in 1957 and died in 1983. He is buried in Fort Sam Houston National Cemetery (Section 2, Grave 419).

Courtesy U.S. Air Force.

Reuben Hollis Fleet was born in 1887 in Washington Territory. He graduated from Culver Military Academy, Indiana, in 1906, and became an officer in the National Guard. He was elected to the Washington State legislature in 1915, becoming its youngest serving member. From 1917-22, Fleet was commissioned in the U.S. Army Signal Corps where he organized the first air-mail flights between Washington, DC, and New York. Maj. Fleet was a contracting officer for the U.S. Air Service at Dayton, and flew test flights there. After military service, he pursued aircraft production and established Consolidated Aircraft Corp. By World War II, his aircraft-design expertise was behind the manufacture of training planes, seaplanes, and B-24 Liberator Bombers. Fleet's influence is recognized in San Diego's Space Theater and Science Center and the National Aviation Hall of Fame. Fleet died October 29, 1975. He is buried in Fort Rosecrans National Cemetery (Section O, Grave 674).

Courtesy San Diego Air and Space Museum.

A Pennsylvania native of Polish descent, **Francis S. Gabreski** enlisted in the U.S. Army Air Corps in July 1940. During World War I, Col. Gabreski flew with the Royal Air Force 315th Squadron of Polish pilots and, once the United States declared war, the U.S. 61st Fighter Squadron. Gabreski's tactical skills and courage earned him the title, "America's Greatest Living Ace." With thirty victories to his credit in 1944 and awaiting orders for leave, he volunteered for one more mission. He crashed and was captured, and held at Stalag Luft I prisoner-of-war camp for Allied airmen until March 1945. He briefly left service in 1946, but reenlisted in the U.S. Air Force in 1947 and served in Korea. Highly decorated and respected, he retired in 1967. Col. Gabreski died January 31, 2002, and is buried in Calverton National Cemetery (Section 14, Grave 724).

Courtesy U.S. Air Force.

Born in Hawaii, **Ellison Shoji Onizuka** was a distinguished military graduate of the University of Colorado who received a U.S. Air Force commission. Lt. Col. Onizuka entered active duty in January 1970 as an aerospace engineer at the Sacramento Air Logistics Center. In 1975, Col. Onizuka became a squadron flight test officer and led the engineering support section at Edwards Air Force Base. This work led him to become, in 1978, a NASA Mission Specialist. Col. Onizuka was part of the support team for the first two shuttle missions and joined the *Discovery* crew in flight in 1985. He was one of seven crew members aboard space shuttle *Challenger* when it exploded in January 1986. Col. Onizuka posthumously received the Congressional Space Medal of Honor in 2004, bestowed on individuals who perish during flight. He is buried in the National Memorial Cemetery of the Pacific (Section D, Grave 1).

Courtesy NASA.

Courtesy NASA.

Lee R. Scherer, Jr., received a commission from the U.S. Naval Academy in 1942 and in World War II flew aircraft carrier-based fighter planes. He first worked with NASA in the 1960s while on active duty with the U.S. Navy. He retired from military service with the rank of captain in 1964. Trained as an aeronautical engineer, Scherer was director of NASA's Armstrong Flight Research Center in 1971-75, and subsequently became director of the Kennedy Space Center. He managed the unmanned Lunar Orbiter Program from inception to completion in 1967, and the scientific aspects of lunar explorations during the Apollo Program, 1968-72. Scherer died May 7, 2011. He is buried in Miramar National Cemetery (Section 7, Grave 186).

Walter Marty Schirra studied aeronautical engineering at the Newark College of Engineering and, in 1942, was appointed to the U.S. Naval Academy. Upon graduation in 1945, Ensign Schirra served on the battle cruiser *Alaska* and went on to complete pilot training. During the Korean War, as an exchange pilot with the 154th Fighter Bomber Squadron, he flew 90 combat missions in F-84E jets. He received the U.S. Navy Distinguished Service Medal and Distinguished Flying Cross, among other honors. Schirra was selected as one of the first NASA astronauts in 1959. He is the only one to have flown in the Mercury, Gemini, and Apollo missions. After a notable career as a pilot and space pioneer, Capt. Schirra retired from military service in 1969. He died May 3, 2005, and is buried in Fort Rosecrans National Cemetery (Section MZ, Grave 106).

Courtesy NASA.

John Paul Stapp joined the U.S. Army Air Corps in 1944, after earning a Ph.D. in biophysics (1942) and M.D. (1944). Col. Stapp's work with in aviation medicine and the physiological effects of speed and height took him to Edwards Air Force Base, where he experimented with rocket propulsion. On December 10, 1954, Stapp rode the Sonic Wind I rocket-propelled sled to a record speed of 632 mph in five seconds. Col. Stapp retired from the U.S. Air Force in 1970 and "the fastest man alive" went on to serve in medical advisory and staff positions with the National Highway Traffic Safety Administration and the National Advisory Committee on Aeronautics. He was inducted into the National Aviation Hall of Fame in 1985 and received the Medal of Technology in 1991, among other honors. He died on November 13, 1999, and is buried in Fort Bliss National Cemetery (Section 1, Grave 260).

Courtesy U.S. Air Force

Lloyd C. Stearman studied engineering and architecture at Kansas State University in 1917-18, before enlisting in the U.S. Navy Reserve Flying Corps. He served from August 1918 through the end of World War I. Aviation Chief Rigger Stearman continued his career as a mechanic and pilot, exploring innovation in aeronautical design. By 1924, he was the chief engineer for Swallow Airplane Co. and, in 1927, formed his own aircraft- manufacturing company. Between the wars, Boeing Co. acquired Stearman's business and with it, the popular Model 75 military trainer. This biplane, known as the "Stearman trainer," took on greater importance with World War II and its use by the U.S. Army Air Corps and Navy. Stearman remained an industry leader and innovator until 1967 when he retired from Lockheed Aircraft Co. He died April 3, 1975, and is buried in Los Angeles National Cemetery (Section 130, Row F, Grave 2).

Courtesy Boeing Co.

Charles Lacy Veach was born in Chicago but considered Hawaii home. He studied engineering management and received a commission from the U.S. Air Force Academy in 1966. Col. Veach served as a fighter pilot in the United States, Europe, and Asia, including combat missions in the Republic of Vietnam. He left active duty in 1981 but continued to fly F-16s for the Texas Air National Guard. In 1982, NASA invited Veach to Houston's Johnson Space Center to work as an engineer and research pilot. He served as a mission specialist on two space shuttle missions, 1991-92. He died October 3, 1995, and is buried in the National Memorial Cemetery of the Pacific (Section CT3-J, Row 200, Grave 233).

Courtesy NASA.